**ACVC**

**Feline Skin Syndromes: Hair Pulling and Over-grooming**

At the Atlantic Coast Veterinary Conference (ACVC), Valerie Fadok, DVM, PhD, DACVD, gave voice to what all veterinarians are thinking: funding for cat disease research is lacking. As a world-renowned veterinary dermatologist, her lecture focused on common skin syndromes in cats. Syndromes are not diseases, but a collection of clinical signs that have a variety of underlying causes. Getting to the underlying cause is the key to successful treatment.

(continued on page 7)

**ACVC**

**Miniature Pigs: What You and Your Clients Should Know**

At the 2016 Atlantic Coast Veterinary Conference (ACVC), Matthew Edson, DVM, MICP, owner of Rancocas Veterinary Hospital in Mount Holly, New Jersey, spoke about owning miniature pigs. Lots of miniature pigs don’t receive health care because of limited veterinary resources. Many owners get their medical information from an array of breeders and self-proclaimed online “pig experts.” Although a definitive textbook is lacking, Dr. Edson recommends two essential and inexpensive books: Veterinary Management of Miniature Pigs by Lisle George DVM, PhD (continued on page 10)

**CVC**

**Practical Advice and Treatment Takeaways**

Over the course of 4 days and with more than 500 hours of sessions, the CVC San Diego conference December 8-11, 2016, provided a robust opportunity for veterinary professionals to improve their knowledge and skills. The continuing education sessions included clinical information, practice management, and technician education. Here are some CVC highlights.

(continued on page 9)

**AVMA**

**Anesthesia and Pain Management Tips for the Vet Tech**

At the 2016 American Veterinary Medical Association (AVMA) conference in San Antonio, August 5-9, 2016, American Veterinarian sat down with Tasha McNerney, CVT, CVPP, anesthesia technician at the Center for Animal Referral and Emergency Services and self-proclaimed "Original Anesthesia Nerd," to discuss anesthesia and pain management resources for veterinarian technicians.

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**V. 1 | N. 3**


**BUSINESS & PRACTICE MANAGEMENT**

**Three Ways Client Service Representatives Can Build Client Loyalty**

When pet owners visit veterinary practices, their first and last interactions are typically with the front office team. Consequently, client service representatives (CSRs) need to be well trained to create positive first and last impressions. Even though people take their pets to veterinary hospitals for medical care, their service experience is a major factor in determining how bonded they are to the practice and how likely they are to refer others.

(continued on page 14)

**WWVC**

**Ethical, Legal, and Enrichment Considerations When Managing Wild, Captive Birds**

At the 2016 Wild West Veterinary Conference (WWVC), in Reno, October 12-16, American Veterinarian sat down with M. Scott Echols DVM, ABVP, owner of Echols Veterinary Services, Avian Studios, director of the Grey Parrot Anatomy Project, and past president of the Association of Asian Veterinarians to discuss the ethical and legal considerations of owning wild animals, such as birds, the illegal trading of African grey parrots, and key enrichment strategies veterinarians should encourage for birds.

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Hyperbaric oxygen therapy is effective in treating allergy-related edema.

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CHAIRMAN’S LETTER

Growing Gains, Not Pains

I f you’ve had the privilege of working for a growing practice, you know how challenging it can be. Chris Zook and James Allen, authors of The Founder’s Mentality, call this the paradox of growth: it creates complexity, which is a silent killer of progress. They say the following challenges increase with an organization’s size and complexity:

- Revenues growing faster than talent
- Increasing distance from customers
- Complexity of decision making slowing down the company
- Inability to choose focus and direction
- Difficulty mobilizing resources

Zook and Allen offer a clear plan for ensuring that growth is gainful instead of painful. In their survey of executives, 85% cited internal barriers, not external ones (eg, the market, the government), as the primary obstacles to growth.

In response, the authors have identified the following traits, called the Founder’s Mentality, as the formula for overcoming the usual barriers:

- The owner’s mindset: We must operate with a clear sense of purpose at all times.
- Front-line obsession: We must always focus on our customers’ wants and needs.
- Insurgency: We must avoid complexity and bureaucracy at all costs.

Note that these are not the typical top-down directives that saddle senior management with most of the responsibility for corporate change. To be effective, these traits must be adopted by every individual at all levels of an organization.

Each employee must be persistently mindful of the connection between his/her deliverables and the customers. This is the simple, but powerful, seed from which a business can grow with health and endurance.

In employing the Founder’s Mentality, the mission of American Veterinarian is clear: to provide veterinarians, veterinary technicians, and veterinary assistants with the critical news and expert insight they require to best care for their patients and serve their clients. I believe in this mission and in our associates, who fulfill it by delivering the highest-quality education and information to veterinary professionals. Maintaining this focus is key to ensuring we don’t fall victim to the barriers of growth. I hope you and your practice will join us in pursuing the Founder’s Mentality to grow personally and corporately, with the shared goal of improving animal health and client services.

To help you excel in your work, this issue includes information on cutting-edge care, such as “The Use of Hyperbaric Oxygen Therapy in Small Animal Medicine,” and notes key connections between human and animal medicine, as in “The ‘One Health’ Framework Can Be Used to Identify Zoonotic Endoparasites.” We also want to assist you in addressing clientele challenges, as in this issue’s “3 Ways Client Service Representatives Can Build Client Loyalty.” We trust that this issue will support you in providing the best possible patient care and service to your clients, and we are grateful for the opportunity to assist you in these endeavors.

Thank you for reading!

Mike Hennessy, Sr.
Chairman and CEO

LETTER FROM THE EDITOR-IN-CHIEF

Changes in 2016 Set the Stage for Exciting 2017

We end this year faced with the uncertainties of a future with new government and what this will mean for the veterinary profession. At first blush, it looks like small businesses will benefit as a result of proposed tax cuts and a repeal of mandated healthcare coverage from the Affordable Care Act.

We have seen advances such as the American Veterinary Medication Association (AVMA) and the American Academy of Pediatrics adopting a joint statement, "The Value of Professional Collaboration in Protecting the Health of People and Animals," on November 3 in honor of the inaugural One Health Day, which "outlines potential opportunities for collaboration that would benefit patients, families, and communities." 1

In addition, with a nod towards the One Health Initiative, we will see the adoption of a new Veterinary Feed Directive, that will take effect on January 1, 2017. The directive will regulate the administration of medically important human antibiotics in animal feed and drinking water, requiring veterinary oversite for the administration of these medications in food animals, even those that are not intended for food production. It is a reminder to all veterinarians, not just those working with large and food animals, to practice antibiotic stewardship in an effort to keep all animals (human and other) safe.

In this issue, we feature a primer on using innovative therapies such as hyperbaric oxygen therapy in your practice. Extra attention has been given to the business and practice management sections to help you prepare for the new year with articles on how to build client loyalty, as well as stay connected with your practice staff. As you finish up your annual books, we provide insights into how to deal with delinquent clients. The therapeutic value of how therapy animals used in cancer therapies is highlighted in an article from one of our esteemed human healthcare sister journals, Cure, for our focus on cancer and pain management, and as it is the breeding season for our equine friends, we have included an article that focuses on barriers to reproductive success in mares. Our canine health article showcases what you need to know for successful dental extractions, while we focus on how cranial cruciate ligament injuries impact gait patterns and behavior in cats in our feline focus section. Canine socialization and flea management round out our behavioral health and client education sections, and highlights from AVMA Conference 2016, Wild West Veterinary Conference 2016, Atlantic Coast Veterinary Conference 2016, and the San Diego Central Veterinary Conference 2016, complete this issue.

I hope that 2017 will prove to be a fruitful year with positive changes in store for the country and veterinary professionals.

Best wishes for a happy and healthy holiday season and have a happy new year!

Charlotte Lacroix, DVM, JD
Editor-in-Chief

A ketogenic diet rich in medium-chain triacylglycerols (TAG) achieved clinically meaningful levels of ketosis and helped prevent seizures in dogs with epilepsy, according to a randomized, double-blind, placebo-controlled, crossover trial published in the British Journal of Nutrition. Of 21 dogs in the trial, three became seizure-free, and another seven experienced at least a 50% drop in seizure frequency, said Tsz Hong Law, BSc, MRes, of the Royal Veterinary College in Hatfield, United Kingdom.

Epilepsy affects an estimated 0.6% to 0.75% of dogs, making it one of the most common canine neurological disorders. Seizures in about a third of affected dogs are refractory to currently available treatments, the investigators noted. A ketogenic diet, which has a high ratio of fat compared with protein and carbohydrates, has been used in human epilepsy since the early 1920s, but this and other nonpharmacologic treatments for epilepsy are not routinely used in veterinary practice, and seldom studied in dogs.

The researchers recruited 18 purebred and three mixed-breed adult dogs with a diagnosis of idiopathic epilepsy and a history of at least three seizures in the past 3 months. The dogs averaged 4.6 years of age and were as old as 12 years. All were receiving phenobarbital, and 18 dogs also were receiving potassium bromide for seizure control.

The diet consisted of Nestle Purina PetCare dry kibble containing at least 28% crude protein and at least 15% crude fat. The ketogenic diet was formulated so that 10% of its calories were from added medium-chain TAG, while the placebo diet contained the caloric equivalent of lard. Both formulas exceeded minimum requirements for essential fatty acids set by the American Association of American Food Control Officials, the investigators noted. The dogs were not allowed to have treats or other food. During the 6-month trial all dogs switched diets at month 3.

When looking at the group as a whole, the diet achieved a modest (13%) reduction in seizure frequency from an average of 2.67 to 2.31 episodes per month ($P = .02$). However, 48% of dogs had either no seizures or at least a 50% improvement in seizure frequency while on the ketogenic diet as compared with the control diet. Another five (38%) dogs had a less than 50% reduction in seizures, while six (28%) dogs had no response.

Dogs also had significantly higher blood levels of β-hydroxybutyrate while consuming the intervention diet compared with the placebo diet, which confirmed the diet’s ketogenic effect, the researchers said. Moreover, the diet did not affect blood levels of glucose, phenobarbital, or potassium bromide, and was not linked to weight gain.

The medium-chain fatty acids in the ketogenic diet primarily included octanoic acid and decanoic triacylglycerols, which are digested and absorbed more efficiently than long-chain TAG, the researchers said. The diet also appeared to reduce ADHD-like behaviors, according to a separate analysis of the same trial. Furthermore, a version of this diet was found to enhance cognitive function in older dogs, the investigators noted.

Past trials of canine epilepsy have suffered from a “placebo effect,” in which owners reported up to a 46% reduction in seizures when their dogs were on placebo, the researchers noted. This trial was not subject to the placebo effect because dogs were fed both the intervention diet and the control diet, they noted.

The research was supported by the Biotechnology and Biological Sciences Research Council and by Nestlé Purina. Nestlé Purina did not recruit cases or handle, analyze, or store data, and could not prevent publication of the manuscript.

**Equine Hepacivirus Research Could Guide Development of Hepatitis C Vaccine**

Hepatitis C virus (HCV) represents a major public health problem, causing acute and chronic disease in an estimated 3.9 million people in the United States. The recent discovery of novel hepaciviruses in different animal species could provide new information about HCV. Equine hepacivirus (EHCV) has been identified as the closest-known relative to HCV. Research into how the horse immune system naturally eliminates EHCV could be used to develop a HCV vaccine.

Robert Mealey, DVM, PhD, Washington State University, and colleagues were recently awarded a National Institute of Allergy and Infectious Diseases grant for this research. EHCV, first reported in the US in 2012, is highly prevalent in horses, with up to 40% infected, and up to 3% having viremia, according to some studies. In most cases, EHCV does not cause disease, although several studies have reported subclinical hepatitis in infected horses.

In two recent studies, researchers tracked naturally acquired EHCV in horses. In one study, published in Hepatology, they followed 20 mare-foal pairs and found EHCV can be passed to foals at birth, and some foals became viremic within the first six months.

In the second study, published in Veterinary Research, the researchers monitored infections in four horses from the first study, until they were about 1-year old. The EHCV infection progressed from acute to chronic.

Despite developing antibodies, the horses did not clear the infection, the authors wrote.
**“One Health” Framework Can Be Used to Identify Zoonotic Endoparasites**

*By JoAnna Pendergrass, DVM*

In a recent systematic review published in the journal, One Health, researchers looked at peer-reviewed literature and grey literature studies that used the "One Health" framework to identify zoonotic endoparasites in a community-based setting.

The One Health concept has become increasingly important, especially because of greater global public health concern regarding zoonotic emerging infectious diseases. This concept emphasizes collaborative research among scientific and nonscientific disciplines, as well as engagement with policy makers, to address the problem of emerging infectious diseases and to mitigate disease outbreaks.

Continuous high rates of morbidity and mortality from parasitic zoonoses highlight the troubling persistence of these diseases, despite large-scale efforts to eradicate the parasites. The authors noted that using the One Health framework is ideal for studying zoonotic parasites because it takes "animal and human hosts into account, and present[s] multiple solutions for control that go beyond traditional drug administration to include input from social scientists, sanitation experts, and economists."

Authors searched publication databases for relevant, peer-reviewed literature. In addition, they searched GreyLit.org and websites of One Health-focused organizations for grey literature (unpublished, noncommercial research). Primary peer-reviewed literature needed to meet certain inclusion criteria: simultaneous collection of biological specimens from all three One Health domains (animal, human, environment), use of laboratory methods for parasite detection in all domains, and a research focus on zoonotic endoparasites. Secondary peer-reviewed literature included only reviews.

Data collection was most extensive for studies involving specimen collection from all domains. Studies meeting all inclusion criteria were analyzed for bias and quality assessment. Because quality-assessment criteria have not been established for One Health studies, authors developed a quality-assessment tool by modifying published criteria for assessing cross-sectional studies. Thirty-two studies (30 peer-reviewed literature studies, 2 grey literature studies) in 23 countries met all inclusion criteria, and 162 studies in 54 countries reported sampling from two One Health domains.

Seventeen of the 30 peer-reviewed literature studies meeting all inclusion criteria focused on either blood-borne (Leishmania spp., Toxoplasma gondii) or gastrointestinal (Cryptosporidium spp., Giardia spp.) protozoan parasites. Six studies each focused on nematodes (Toxocara canis, Dirofilaria immitis) and trematodes (Schistosoma spp.), and one study focused on cestodes (Taenia saginata). Even though 16 studies used polymerase chain reaction (PCR) for parasite species identification in at least one One Health domain, only six used this technique for all three domains. The most frequently collected environmental specimen was arthropods. Although dogs were the most frequently sampled animal, about half of the studies collected samples from multiple animal species.

Of the 162 studies sampling from two domains, the most common sample pairing was animal-human (102/162 studies); the least common sample pairing was human-environment (16/102 studies). Cryptosporidium/Giardia spp., Leishmania spp., Taenia spp., and Echinococcus spp. were evaluated most frequently in these studies. Several parasites, including Leishmania spp., were investigated using all three sample pairings (animal-human, animal-environment, human-environment).

The two grey literature studies meeting all inclusion criteria involved investigation of *Trypanosoma cruzi*, which causes Chagas disease.

Financial challenges and other barriers may have contributed to the low number of studies identified as simultaneously addressing all three One Health domains.

The high frequency of human-animal collaborations in this review is likely not surprising, given the tendency for research collaboration between the veterinary and human health communities. However, this observation could reinforce the perception that the veterinary community plays the predominant role in One Health research.

Authors suggested several ideas for continued One Health research including incorporating input from social scientists and economists to develop disease prevention plans and using molecular analysis to identify and prevent disease transmission.
Shelter Dog Adoptions Influenced More by Morphology Than Behavior

By Einav Keet

Going to a pet shelter in search of a dog is a bit like shopping at a thrift store. While what shoppers find may not be the newest selection, they're likely to encounter what feels like a hidden treasure. As such, a recent study from researchers in Texas and Arizona aimed to find just what potential adopters are looking for in a dog when they visit pet adoption centers.

With dogs in 37% to 47% of all households in the United States, pet adoption shelters and centers play a critical role in keeping animals off the streets and finding them homes. According to the American Society for the Prevention of Cruelty to Animals (ASPCA), animal shelters in the United States take in about 7.6 million companion animals each year, including around 3.9 million dogs and 3.4 million cats. Of those, approximately 1.2 million dogs are euthanized and 1.4 million dogs are adopted. About 542,000 dogs are returned to their original owners. Of all dogs that enter shelters each year, 35% are adopted into new homes, 31% are euthanized, and 26% of dogs brought in as strays are reunited with their owners. Overall, twice as many animals enter shelters as strays, compared to those brought in by their owners.

Researchers from Texas Tech University and Arizona State University recently conducted an investigation on the behavior of individuals visiting animal shelters and the traits they seem to favor when adopting dogs. In their paper, which was published in Anthrozoös, a multidisciplinary journal of the interactions of people and animals, the researchers detail a set of experiments they conducted to see how shelter visitors interacted with kennel dogs. They wanted to see if potential adopters showed any preference for dogs trained to not engage in behaviors seen as undesirable. The researchers knew that many factors go into to matchmaking dog to owner, and that previous studies showed that behavior training for shelter dogs ultimately did not greatly impact visitors’ adoption decisions.

In the new study, the researchers examined dog behaviors found to have a link to an animal’s length of stay in a shelter and assessed if training focused on those behaviors helped dogs get adopted. Such behaviors linked to longer shelter stays in dogs included:

- Spending time at the back of the kennel,
- Facing backward, leaning, or jumping on kennel walls,
- Barking or howling.

The researchers knew that shelter visitors have a primary interaction with dogs while they’re in their kennels, which influences the potential secondary interaction of a visitor requesting to interact with a dog outside their kennel, and so, their focus assessed visitor behavior toward kennel dogs.

Over the course of the study, the researchers observed 63 shelter visitors along with 47 unique dogs. They found that after training, dogs spent less time engaging in the undesirable in-kennel behaviors, but that training did not seem to affect the behavior of shelter visitors. Instead, only morphology seemed to influence visitors, with potential adopters preferring puppies, long-haired dogs, small dogs, and certain breeds.

“Furthermore, a lack of undesirable behavior of the dogs, regardless of condition, did not affect visitor behavior when aggregated across the different phases of the study,” the researchers wrote in their paper. “Therefore, our data suggest that in-kennel training, although effective at decreasing inappropriate behavior, might not affect visitor behavior.”

The authors continued, “Our findings, together with previous research, suggest that visitors might be influenced by the dogs’ behavior outside of their kennels, but potentially, not by their in-kennel behaviors. However, a more thorough investigation of all in-kennel behavior, and not just ‘undesirable behavior’ as defined in this study, is warranted prior to reaching this final conclusion.”

Helsinki Health Survey of Finnish Cats Provides Foundation for Future Genetic Research

By Kristi Rosa

The first comprehensive country-specific feline health survey was conducted by researchers at the University of Helsinki and the Folkhälssan Research Centre in Finland to understand and identify inheritable diseases common among specific breeds, inform the development of future breeding programs, and create a gene bank that can lay the foundation for future genetic research.

The study, published in Frontiers in Veterinary Science, estimated there are about 100 million domesticated cats living in Finland; however, previous to this health survey, no “systematic population-level” survey existed to aid in understanding more about feline diseases, according to the press release.

Through this survey, the researchers identified 60 of the most prevalent diseases related to specific cat breeds. They found that the most common health issues experienced by cats are related to the kidneys, mouth, and skin. Renal disease was discovered to be the prevalent disease in ragdolls, and asthma was most common in Korats.

The researchers were also able to distinguish how cat behavior varies from breed to breed. For example: Bengals tend to be more aggressive, whereas British shorthairs tend to be calmer.

With over 4,000 samples, the laboratory at the University of Helsinki successfully created a gene bank that is available to other researchers who want to further study specific diseases or findings.

When speaking of the implications of their findings, professor Hannes Lohi, PhD, said, “The study provides useful information for preventing disease and developing breeding programs [for these animals].”
Ethical, Legal, and Enrichment Considerations When Managing Wild, Captive Birds

American Veterinarian: What are the ethical considerations to owning a wild animal?
Echols: It’s not an easy question to answer. If I were going to answer the simple side of it to say that, if you are going to keep a wild animal, really any animal, I think we should provide for its welfare, and that includes a proper diet, proper housing, [and] a proper behavioral set-up so that it’s emotional state can be taken care of. The reason that it is difficult to determine what those values are for a wild animal is because oftentimes, we do not know. We are asking a wild animal to live in our world. That is difficult for us to do and it is also difficult for some wild animals to adapt to our world. What we are trying to figure out is [if we can] allow for that animal to perform species-specific behaviors. That is one way we determine [if we are] providing for this animal’s welfare. Because if that animal is acting as we would expect in a wild environment—doing normal behaviors as oppose to self-destructive behaviors or clearly abnormal behaviors, then we are getting close to that welfare aspect that we are looking for.

AV: In light of the recent news about the wild bird trade decimating native populations of African grey parrots, what can veterinary professionals and their clients that care about these animals do? E: There’s been a major landmark decision with Cites [www.cites.org] and they just recently provided the highest level of importance to African grey parrots, which essentially limits or eliminates international trade. It makes it illegal, which is going to be very helpful. It doesn’t mean that international trade will stop or that the central African populations of grey parrots will stop leaving the continent; however, it is a very big step and it at least provides some protection for grey parrots in the wild.

As far as what people can do in an effort to help with the problem of international trade and understanding wild animal status, I think we really have to look at conservation groups, not just for grey parrots, but for all different species. The information gained by studying one type of parrot we [will] use on all sorts of different animals and of course, parrots as well.

The World Parrot Trust is one group that is heavily involved in both the grey parrots in the wild and their trade issues, [and] also other parrots. There are quite a few other organizations that actively study parrots in the wild. What we can do is we can support those groups. That means volunteering, working for those organizations, providing financial donations to those organizations, and also providing information. If we see birds that we feel are smuggled or might be endangered, we can report those to the authorities and try to provide the best care for those animals.

Of course veterinarians work all over the world—we are not just in private practice, we are sometimes in the field and working in different situations. Veterinarians may be working in foreign countries where they see birds still being brought in illegally and the population of people working with those birds can be our eyes and ears for the animals of the wild and can also help those researching the animals.”

What we are trying to figure out is [if we can] allow for that animal to perform species-specific behaviors. That is one way we determine [if we are] providing for this animal’s welfare.
Feline Skin Syndromes: Hair Pulling and Over-grooming

By Beth Thompson, VMD

If the alopecic areas have short stubbly hair, think self-induced. Pluck hairs from those sites and microscopically examine them to confirm.

In JAVMA, Stephen E. Waisglass, DVM, CertSAD, ACVIM, and Gary M. Landsberg, DVM, DACVB, reported on 21 cats with self-induced alopecia. Only 2 cats were found to have true psychogenic alopecia with no underlying medical cause. The rest had flea allergy, food allergy, atopy, or infectious inflammatory skin disease. The key takeaway is psychogenic alopecia is a diagnosis of exclusion. Put psychogenic alopecia lower on the differential list, unless the owner reports the occurrence of a definitive stress trigger.

Flea allergy and Demodex gatoi are the 2 major causes of self-induced feline alopecia. Flea comb these patients and institute rigorous flea control. Skin scrape for D. gatoi, keeping in mind that negative scrapings do not necessarily rule out infection. D. gatoi is thought to be contagious. Asymptomatic housemates should also be examined. Because eggs can show up in feces, a fecal exam is also recommended. Sudden onset of clinical signs with a poor response to steroids, and a recent history of exposure to a new cat, makes D. gatoi more likely.

After ruling out ectoparasites, consider allergic dermatitis caused by food allergy, atopy, or both. In Dr. Fadok’s experience, food triggers are more common than complete allergy. A good history should determine if clinical signs are seasonal and if the patient has had gastrointestinal problems or IRD. Food trials are useful but challenging in cats. She sends owners home with small samples of acceptable foods and lets the cat pick the one it likes. If food is involved, improvement should be seen within 8 weeks.

Use serum allergy or intradermal skin testing to select atopic immunotherapy. Although little evidence supports its efficacy, Dr. Fadok has had many cases that respond well. Since it is difficult to do a good intradermal test and feline skin is naturally not very reactive, even dermatologists sometimes prefer serum testing.

Dermatophytosis should also be considered. Use a Wood’s lamp and a fungal culture in suspicious cases, although both may be negative in infected cats. The Mackenzie toothbrush technique reduces sampling error. However, Didier Noël Carlotti, DoctVét, DECVDAquivet, and colleagues recently reported excellent results with easier-to-use small squares of Swiffer electrostatic cleaning pads. Finally, consider pain as a possible cause. A cat with caudal abdominal self-induced alopecia may have an undetected urinary tract infection.

MILIARY DERMATITIS

Miliary dermatitis is a common nonspecific lesion in most cats; nothing about the reaction patterns indicates the underlying cause. Think flea allergy, atopy, and food allergy. Rule out flea allergy first. Besides allergy, other possible causes are bacterial folliculitis, dermatophytic folliculitis, cheyletiellosis, and even mild pemphigus foliaceus. Dr. Fadok doesn’t feel antibiotics should be used unless cytologic proof of bacteria is present. If yeast infection is suspected, a thorough examination of the nailbeds can be useful. Many cases have a brownish discoloration around the proximal claw. Veterinarians should scrape the material with a dull #10 blade and examine the cytology. In some cases, taking skin biopsies early helps rule out allergic disease, saving time and money.

EOSINOPHILIC GRANULOMA COMPLEX

This triad of indolent ulcer, eosinophilic plaque, and linear granuloma/eosinophilic granuloma can be idiopathic, but is more often associated with underlying allergies. Assume flea allergy until proven otherwise. Dr. Fadok has seen lesions resolve when fleas were entirely removed. She suggests checking cytology for bacteria, as cases with underlying bacterial infections can respond to antibiotic therapy.

Eosinophilic plaques appear in multiple forms: linear, infiltrative (fat lip or chin), feet, and oral forms (most severe). Dr. Fadok has also seen a few cats with eosinophilic plaques on the feet that resolved with a change of litter type. An infrequent presentation is mosquito-bite hypersensitivity, seen primarily in indoor/outdoor cats and often found on the nose, ears, and toes. Diagnose with a biopsy. Dr. Fadok’s tip for these patients is a Seresto collar and steroid therapy.

FELINE IDIOPATHIC ULCERATIVE DERMATOSIS

Feline idiopathic ulcerative dermatosis presents as a very pruritic ulceration between the shoulder blades and is usually associated with crusting. Injection-site reactions have been theorized as the cause, but not all affected cats have a history of interscapular injections. Look first at cytology to check for bacterial cocci. Those patients respond well to anti-Staphlococcal antibiotics, topical silver sulfadiazine, and protective clothing to prevent self-mutilation. If eosinophils are present, pursue an underlying allergic cause. These cats respond well to steroids or cyclosporine. Gabapentin has been effective in some difficult cases. Some experts recommend surgical removal of the lesion, if possible.

INTENSE FACIAL PRURITUS

Intense facial pruritus can be seen on its own or with hair pulling, military dermatitis, or eosinophilic granuloma on other body parts. It may be an indicator of food allergy; therefore, Dr. Fadok advocates a strict dietary trial as an early diagnostic test after flea control. These cats may respond to oral steroid or cyclosporine. Check cytology for bacteria and yeast and keep in mind the possibility of a methicillin-resistant Staphylococcal infection. If there is a history of previous antibiotic therapy, a culture and sensitivity test is recommended.
Anesthesia and Pain Management
Tips for the Vet Tech

(continued from front cover)
American Veterinarian: What are some ways to enhance pain management practices in your practice?
McNerney: When talking about pain management, there are a lot of things that a practice could do to elevate their game or get a gold standard; but one of the simplest, cheapest, cheapest, cheapest [things] for your practice to do, is [use] local blocks. So if you’re not doing local blocks on your patients, you really should be doing them for every surgical procedure; for anything from spays, just doing a line block along the incision, makes a huge difference. Dentistry, anytime you’re taking out teeth, or taking a biopsy of a growth in the mouth, you want to be doing a local block. It’s going to change the way that you practice anesthesia because you’re going to use less inhalant anesthetic overall, right?

We know, we get into these dentistrys, and if we’re not blocking, [we] start to take the tooth out and then what happens? That patient starts [breathing heavily, and] waking up under anesthesia because those pain signals are going to the brain. Well, if we put a local block in place, we eliminate those pain signals going into the brain, [and] they’re not needing more inhalant anesthetic during the actual anesthesia. Then, if we don’t have as much inhalant anesthetic on board, we’re seeing less hypertension. In these old, decrepit cats that need 13 extractions, we don’t want them in an isoflurane level of 4 or 5%, because we know that’s detrimental. So, if we do balanced anesthesia— an opioid, plus a local block, plus a little bit of inhalant anesthetic— we can make that procedure safer for the patient overall, instead of [administering just] a whopping dose of an inhalant anesthetic.

If your practice is not doing local blocks, I would suggest getting educated on local blocks, again, there are many resources online, that will talk about different local blocks, there are a lot of good books out that will look at local blocks, [such as] Pain Management for the Veterinary Technician where Mary Allen Goldberg is the editor and Nancy Shaffran is one of the other editors, is a great resource for technicians who are interested in pain management. They have a whole chapter on local blocks with landmarks and everything, from sacrococcygeal blocks to dentistry blocks to epidurals; everything you could need local block-wise.

AV: Busting anesthesia and pain management myths
M: Alright, so we’re talking about anesthesia myths; there are certainly a lot out there but one I find that comes up a lot and the subject is close to my heart is the issue of dexmedetomidine. So many people use the drug dexmedetomidine simply as a sedative and they don’t think that it functions as an analgesic and that’s not true.

If you actually look at the box of Dexdomitor, it says on it: sedative and analgesic. That’s a really cool thing about this drug, not only can you use it as a sedative, but you can use it as part of your pre-med as an analgesic to help enhance the analgesic effects of [the] opioids you’re using. Unlike a drug like acepromazine, which doesn’t have analgesic effects, if you use hydro-morphine plus Dexdomitor together in the pre-operative period, you’re getting great pain control and that’s really what we want, right?

[We want] really good pain control for our patients in the pre-op and in the post-op and you can use Dexdomitor for its analgesic and sedative effects in the post-op period as well. So again, it’s not sitting on your shelf just to be used as a sedative. We really want to use the drug to its full capacity, [as] a sedative and analgesic.”

AV: What are the benefits of individualized anesthesia plans?
M: When we think about what techs [can] do to make anesthesia more comfortable for them or comfortable for their patient, less chance of side effects overall, we really need to think about individualized anesthesia plans. Thinking that each patient should get a combination like butorphanol [acepromazine and glycopyrrolate] is really kind of old school thinking. Nowadays, [we] want to look at the patient, we want to look at their disease state, we want to look at how much pain is anticipated with this procedure. If we know there’s going to be a really painful procedure, a drug like butorphanol is not going to be good enough. We need to hit it with something heavy: methadone oxymorphone, a good opioid.

I think we need to look at each patient as an individual and stop thinking [that] ‘well everybody that gets surgery is going to get X drug.’ Well, this patient may not deal well with X drug, so then [where] can we go from there? Maybe this patient has a broken leg, but this one is just a feline castration, different levels of pain, so they need to be treated differently with different anesthetic drugs.

I think that if the technician gets some extra training in anesthesia and pain management and gets to learn the nuances of all the different drugs, that’s going to make their [lives] a lot easier. Once you learn the drugs and learn the side effects of the drugs, know how to react to those side effects, it’s going to make your job a lot easier and make your veterinarian’s job a lot easier, too. Now, they can concentrate on the surgery [and] you can concentrate on making that animal comfortable and pain-free.
NEW TREATMENT OPTIONS FOR CANINE LYMPHOMA
Monoclonal antibody drugs, which have been used for quite some time in humans, are designed to enlist the body’s immune system to fight cancer cells. Inspired by these advancements, the company Aratana has created canine-specific monoclonal antibody therapies, called Blontress and Tactress, for treating lymphoma in dogs. Blontress was recently approved to treat B-cell lymphoma and is meant to be used in conjunction with chemotherapy. Tactress is indicated as an aid in the treatment of T-cell lymphoma in dogs. Lymphoma is one of the most common forms of cancer in dogs and often progresses rapidly. Some of the most popular canine breeds are at the highest risk of the disease, according to Aratana.

BALANCING EMPATHY IN THE WORKPLACE
Finding the right balance between emotions and emotional boundaries is imperative for veterinarians. Kimberly Pope-Robinson, DVM, said that emotions need to be talked about rather than judged or suppressed. “I believe our emotions are our passion connecting with our physical self, and not allowing them to come out can become problematic,” Pope-Robinson said. “They can also become overwhelming, where they control us. They are our resiliency, and they are our downfall.” Although finding a balance in how our emotions affect us is not easy, it’s key for veterinary staff. Pope-Robinson warns that when our empathy is switched off, we become cynical or angry and begin to vilify others. Perhaps it is impossible to “be there” for everyone emotionally, but not connecting with others can ultimately lead to distress, as well.

MORE DOES NOT BETTER WHEN HANDLING SCARED PETS
More handling of a frightened pet is not necessarily better. One of the biggest mistakes veterinary staff can make with scared patients is to hold them tighter, which may worsen a patient’s fear and anxiety and provoke retaliation. It is critical to known when a patient is becoming fearful and to use a different approach, such as backing off, changing how the patient is handled, and using treats.

USING EXAM ROOM TECHNICIANS
To get the most out of physical exams and to maximize efficiency, veterinarians should learn to rely on exam room technicians. Leveraging them to fill out medical records and exam reports allows veterinarians time to personally connect with clients. An assistant can efficiently complete a medical report and make notes while the veterinarian completes the exam, which ultimately saves clients time, as well.

PAYMENT OPTIONS: KEEPING CLIENTS IN THE KNOW
It is important for practices to emphasize the value of the services they offer. For example, veterinary staff should not only tell clients why their pet may need a medical procedure, but also how it will benefit the pet and the client. Regularly discussing payment options with clients is also key, and all staff members should be educated so they can answer client questions. Making a quick decision regarding their pet health can be difficult for clients, but if they know their payment options in advance, they can make better choices.
Miniature Pigs:
What You and Your Clients Should Know

By Beth Thompson, VMD

(continued from front cover)
(University of California at Davis) and The Potbellied Pig Parent by Nancy Shepherd.

Per Dr. Edson, potential owners seek out a “micro-mini-pig” in hopes that their new pet will remain small. However, Vietnamese pot-bellied, micro, mini, and Juliana pigs are basically interchangeable. Originating in Vietnam and Thailand in the 1960s, mini pigs were developed as food. After importation into Canada in the 1980s for zoo display they became a “fad” pet in the United States.

Some mini-pigs are adopted from owners that can no longer care for them. Around 20% are impulse purchases from livestock auctions where poor conditions and minimal care result in health problems. Most come from breeders that ship the piglet directly to the home. Interested parties can expect to pay around $1200, plus shipping fees. Most breeders offer “health guarantees,” but Dr. Edson explained most are ineffective and unenforceable. In his opinion, the best place to acquire a new pet pig is via a pig rescue. Pig Placement Network is an excellent place to start.

Dr. Edson reminded the audience about the following things that he felt everyone should know about mini pigs:

1. Basic Training: Pigs are stubborn, but usually food-oriented, so basic commands, such as “sit,” are easily learned. Pigs also like to “nest” and will “root.” This natural behavior can damage to furniture, carpet, and walls.

2. Safety: If a pig escapes from an enclosure or a house, it can be very difficult to catch without a restraint device. Start teaching pigs to tolerate a pig harness and leash walking when they are young. It’s important to resize the harness as the pig grows or wounds (particularly auxiliary) will result. Collars are ineffective.

3. Elimination: Pigs can be litter-trained because of a natural proclivity to eliminate in one area.

4. Housing: Pigs are fine living in outdoor enclosures. Use hog paneling (welded pig wire) and extend it well below ground. Mini-pigs are susceptible to sunburn, hyperthermia and hypothermia. They need shady spots during the summer and raised platforms with bedding to warm them in winter.

5. Nutrition: Pigs have been selectively bred over a long time to put on weight with minimal intake so obesity is a common problem. Commercial hog grower diet purchased at the feed store is formulated for maximum growth and weight gain and should not be used. Mazuri, Lil Red, and Ross Mill Farms make specific mini-pig food. Small juvenile pigs should get 0.5 to 1 cup twice daily, and average-sized adults (60-100 lbs.) do well on 1 to 1.5 cups twice daily.

6. Treats: Pigs love treats and most will beg or complain for more. Occasional fruits and vegetables are an option, but watch for weight gain. Cheerios are a great treat but should be limited to <10/day.

7. No to young children, dogs, and horses: Some pigs are fine with children, but all pigs can bite, and when they do, they can take a piece of finger off. Lots of pigs get along with dogs, but Dr. Edson doesn’t recommend housing them together. In addition, mini pigs should not be placed with horses. For some reason, many horses aren’t comfortable around pigs and will try to stomp them.

8. Hooves: If a pig is not regularly walking on hard surfaces, such as concrete, their hooves will need to be trimmed every 3-4-months. Overgrown hoofs quickly become misshapen and make walking difficult. Badly overgrown hooves may be very difficult or impossible to get back into normal configuration.

9. Tusks: Males have tusks that need to be trimmed at about 1 year of age and every year or two afterward.

10. Identification: Microchips should be placed behind the left ear.

11. Preventive care: Vaccinations, parasite testing, dental cleanings, spay/neuter, and hoof/tusk trims are all part of basic care and tailored to individual lifestyle.

12. Adult size: It’s difficult to examine a piglet and estimate its future adult size. Disreputable breeders add to the issue by claiming 4-week-old piglets are 3-4 months-old. Some grow to 30 lbs. and some grow to 300 lbs.

13. Food Animal restrictions: Pet or not, a pig falls under the classification of "food animal" and is subject to the same drug-use restrictions and regulations as a farm pig destined for the slaughterhouse. AVMA.org supplies information on the Animal Medicinal Drug Use Clarification Act (AMDUCA), and extra-label drug use. Find education on forbidden substances and withdrawal time of acceptable substances, at the Food Animal Residue Avoidance Databank (www.FARAD.org), which also has a free iPhone app (vetGRAM).

Piglets grow up, and many end up homeless or in sanctuaries. Dr. Edson cites three key reasons pigs are abandoned: 1) legal: owners may not have been aware of zoning laws prohibiting farm animals or did not consider how much their neighbors might object to their pet; 2) size: as these animals grow, they are more difficult to care for; 3) personality: Dr. Edson compared owning a pig to having a permanent toddler in your life: mini pigs are stubborn, smart, sweet, and (repeat) stubborn.

Have a client thinking of getting a pig? Make sure they know what they are getting into before that cute tiny Ms. or Mr. Piggy comes through their front door.
The Use of Hyperbaric Oxygen Therapy in Small Animal Medicine

By Diane Levitan, VMD, ACVIM

(continued from front cover)

size chamber; however, the risks and benefits of treating multiple patients simultaneously must be assessed on a case-by-case basis.

Understanding how HBOT works starts with a review of some of the important laws of physics and their resultant effects on the body. [FIGURE].

DIRECT EFFECTS OF PRESSURE
Pressure dissolves gas into solution, shrinks bubbles and decreases diffusion distances. At normal atmospheric pressure (measured at sea level as 1 atmosphere absolute or 1 ATA), arterial oxygen tension is 100 mm Hg and tissue oxygenation is 55 mm Hg. In 100% oxygen at 3 times atmospheric pressure, arterial oxygen tension is 2000 mm Hg and tissue oxygenation is 500 mm Hg. Oxygen dissolved in plasma results in oxygen transport and tissue survival without the need for hemoglobin.1

High oxygen gradients result in diffusion of oxygen into areas of low oxygen, which provides immediate help to ischemic and compromised tissue even with marginal or no blood flow. At elevated pressures, oxygen, nitrogen, and other gases will diffuse into solution and then be exhaled from the lungs.

Compression from HBOT reduces all gas volumes, thereby relieving pressure from ileus, bloating, intraluminal gas accumulation, perioperative gastrointestinal obstruction, gas gangrene, emphysematous biliary or urinary bladder tissues and subcutaneous emphysema due to a reduction in gas volume, nitrogen diffusion into tissues and blood and a high gradient for nitrogen removal via respiration. The decrease in pressure from gas in tissues or cavities results in less injury from vascular compromise, and decreased bacterial translocation, necrosis, pain and swelling.2-4

EFFECTS OF 100% OXYGEN DELIVERY VIA PLASMA
Infections, injury, and disease increase tissue demands for oxygen while such problems as anemia, toxins and hemorrhage can decrease the body’s ability to transport oxygen via hemoglobin. Additionally, conditions resulting in swelling and edema or vessel blockages increase the distance oxygen must travel to the tissues.

Delivery of 100% oxygen under pressure allows plasma to carry much more oxygen and reduces the importance of hemoglobin-based delivery.1 100% oxygen dissolved in plasma can be delivered from capillaries to tissues at least three times farther than delivered when carried by hemoglobin alone.1,9 And, increasing barometric pressure from 1.0 ATA to between 2.0 and 2.5 ATA increases the dissolved oxygen in plasma approximately 3-fold compared with a patient breathing room air. When the inhaled oxygen concentration is increased to 100% under the same increased pressure, the plasma oxygen concentration increases by almost 17-fold. In theory, with 100% oxygen at 2.5 ATA, enough oxygen can be dissolved in plasma to meet the normal requirements of the body at rest without the need for hemoglobin.1-9

Oxygen under pressure causes vasoconstriction by inducing smooth muscle contraction in all muscular vessels (arterial and venous), but not capillaries or lymphatics, and decreasing bleeding/oozing from vessels while allowing lymphatic channels to continue to clean up and remove edema. The increased partial pressure of oxygen in plasma and the increased CO2 in damaged tissues (CO2 is a more potent vasodilator than oxygen is a vasoconstrictor), offset the vasoconstriction so that tissue oxygenation remains high and microvascular blood flow improves.3

FIGURE 1: PHYSICAL LAWS BEHIND HBOT

Boyle’s Law
As pressure on a gas increases, the volume of the gas decreases (gas becomes denser).

Dalton’s Law
The sum of all partial pressures of gases equals the total pressure (by increasing the percentage of oxygen to 100% more oxygen is pressurized).

Graham’s Law
Gases diffuse from higher to lower concentrations.

Henry’s Law
The solubility of a gas in a liquid is directly proportional to the pressure of the gas in contact with the liquid.

As the pressure increases, the volume of gas decreases (p1v1 = p2v2)

 apologized for the previous errors. Dr. Levitan has also performed clinical research; lectured and taught courses in ultrasound, endoscopy and laparoscopy; published in veterinary journals; and serves as a consultant for many businesses.
MEDICAL BENEFITS OF HIGH OXYGEN TISSUE LEVELS
High oxygen levels reduce inflammation by mediating cytokines, prostaglandins, and nitric oxide, and have been shown to have direct bacteriostatic and bactericidal effects against gram positive, gram negative, aerobic and anaerobic microorganisms. High tissue oxygen levels have a synergistic antibiotic effect by aiding in the efficacy and action of aminoglycosides, sulfonamides, and cephalosporins, among others. Inhibiting the growth of many fungal organisms; reducing free radical damage and reperfusion injury; and inhibiting toxins.

ENDORSEMENT OF HBOT IN HUMAN MEDICINE
Although HBOT fell out of favor in the mid-1990s due to misuse and false claims, in the past 40 years, thousands of evidence-based scientific articles have elucidated its therapeutic value and the underlying cellular and physiologic mechanisms at work. The value of hyperbaric oxygen is now well appreciated in human medicine and accepted as treatment for many indications, 15 of which are routinely approved by Medicare and Medicaid. The Undersea and Hyperbaric Medical Society endorses its use for other conditions as well.

HBOT is also used to treat disease states not routinely endorsed by insurance even though varying degrees of efficacy have been demonstrated. These include severe sepsis, cerebral edema, burns, hepatic necrosis, pancreatitis, clostridial infections, head trauma, stroke, and many more. There are also more controversial uses, not likely to be recommended by all physicians. These include treatment of nonvascular causes of chronic brain injuries such as autism, Alzheimer’s disease and cognitive dysfunction associated with age.

HBOT IN VETERINARY MEDICINE
HBOT has been tested on animals for many years. The earliest documentation of therapeutic use was in 1998. Since then, sporadic treatment reports have appeared in the veterinary literature. Currently, there are around 44 HBOT chambers being used for pets, and over 1000 being used for humans in the United States.

HBOT is especially useful in conditions already approved for human therapy but, in my experience, there are other indications. Some cases detailing the use of HBOT are included below:

**CASE #1:**
An 8-year-old male neutered boxer recovering from surgical debridement of necrotic pancreatic tissue developed edema from an allergic reaction to a fresh frozen plasma transfusion. Instead of steroids, he received only HBOT therapy for 1 hour at 2 ATA. The result was reversal of the allergic reaction.

**CASE #2:**
A 3-year-old female mixed breed dog presented with a severe degloving wound to the left rear leg. After cleaning and debriding the wound, supplemental HBOT therapy was instituted at 2.5 ATA for 1 hour twice daily for 3 days, followed by treatment at 2 ATA for 45 minutes twice daily for 2 days before being reduced to every other day for 2 days, along with other supportive care. The end result was rapid migration of healthy granulation tissue and new skin and hair growth.

**SIDE BAR 1:**
These are endorsed and recommended by Medicare/Medicaid—that list has not been updated since 2006.

- Acute carbon monoxide intoxication
- Decompression illness
- Gas embolism
- Gas gangrene
- Acute traumatic peripheral ischemia
- Crush injuries and suturing of severed limbs
- Progressive necrotizing infections (necrotizing fasciitis)
- Acute peripheral arterial insufficiency
- Preparation and preservation of compromised skin grafts (not for primary management of wounds)
- Chronic refractory osteomyelitis, unresponsive to conventional medical and surgical management
- Osteoradionecrosis as an adjunct to conventional treatment
- Soft tissue radionecrosis as an adjunct to conventional treatment
- Cyanide poisoning
- Actinomycosis, only as an adjunct to conventional therapy when the disease process is refractory to antibiotics and surgical treatment
- Diabetic wounds of the lower extremities
- Acute retinal artery occlusion
- Idiopathic sudden sensorineural hearing loss

Check with your patient’s insurance plan to ascertain coverage for animal medical conditions.
CASE #3:
A 7-year-old male intact corgi with lymphoma suffered an undetected extravasation event after chemotherapy with Adriamycin. The patient presented 40 days post treatment with severe swelling, tissue necrosis and compartment syndrome resulting in nerve entrapment with knuckling of the left forepaw. It was determined that standard immediate post-extravasation event treatment with dexrazoxane and sargramostim would likely be ineffectual and so HBOT was instituted at 2 ATA for 1 hour twice daily for 10 days, followed by 36, almost daily, additional treatments at the same dose for a total of 52 days. At the end of treatment, the wounds were healed and the corgi was walking normally. No adverse effects on cancer therapy were noted as he survived for 20 additional months before succumbing to lymphoma.

We have also seen improvement in patients affected by intervertebral disk disease, pancreatitis, burns, smoke inhalation, ischemic stroke, spider/snake bites, head trauma, and many other conditions. HBOT has also been used as adjunctive post-operative therapy in orthopedic cases in order to reduce swelling and speed healing. As a general rule, HBOT is most effective for acute conditions, although it has been shown to lessen pain and improve function in osteoarthritis, chronic intervertebral disk disease, long-term management of Aspergillosis and many others.

There are no established treatment regimens currently available, although anecdotal recommendations and guidelines abound. Many recommendations are extrapolated from human medicine. The number of treatments, frequency, and duration varies according to results, the owner’s personal schedule, and cost.

SAFETY AND TRAINING FOR HBOT

Overall, HBOT chambers are easy to use but can be dangerous to both the patient and the operator. Patient contraindications include certain lung pathologies, fever, and predisposition to seizures. There is also danger in prolonged exposure to 100% oxygen. However, because 100% oxygen is extremely flammable, operators must take meticulous attention to its proper use. In February of 2012, a horse-specific monoplace chamber in Florida exploded, killing the patient and the attendant. The cause was probably a spark created when the horse became agitated and kicked a metal plate on the inside of the chamber. Operators need to be aware that although rare, these accidents can happen and proper training [SIDEBAR 2] and thorough adherence to safety precautions are musts.14

If you do decide to offer hyperbaric oxygen to patients, it should be made affordable and accessible. You should also invest in specialized training [SIDEBAR 2]. It is an adjunctive therapy, and you must be prepared to treat the entire patient and any underlying or comorbid conditions. For more information on how to start, visit the Veterinary Hyperbaric Medical Society website at www.vhbot.org, or e-mail them at info@vhbot.org.

3 Ways Client Service Representatives Can Build Client Loyalty

By Amanda L. Donnelly, DVM, MBA

(continued from cover)

HERE ARE 3 WAYS CSRS CAN CONNECT WITH PET OWNERS AND BUILD CLIENT LOYALTY:

1. FOCUS ON CLIENT ENGAGEMENT.

Although most CSRs inherently know or have been told to be friendly, they often don’t receive training on how to use specific communication skills to enhance client engagement. Client engagement is about making an authentic connection with people. It’s about showing you care about the client and the bond they share with their pet. With high levels of engagement, client loyalty increases because pet owners can’t imagine taking their pet somewhere else where the service might not be as exceptional. The following communication skills are some of the easiest ways with which to engage clients:

Make engaging comments

This skill works well even when CSRs are extremely busy. Examples of engaging comments include “Congratulations on your new family member” or “It’s so great to meet you and Jake. I just love black labs.” Compliments are another excellent way to connect with clients. CSRs might say, “Chloe is so beautiful. I love her markings” or “Mrs. Smith, that is a lovely scarf. The color looks great on you.” While this communication skill may seem simple, to be most effective, team members need to remember 2 essential elements. First, the comment must be genuine. People can spot flattery that is insincere. The second element is to make eye contact. Engaging comments lose their power if a CSR is looking at the computer while speaking or is otherwise distracted.

Ask engaging questions

Asking questions increases engagement if the questions are inquisitive and demonstrate a genuine desire to find out more about the client or their pet. This skill may come naturally to a CSR that knows a particular client. He or she might ask the pet owner about their family or job. The skill is more difficult with new clients or those who only visit the practice once or twice a year. In these situations, front office teams are more likely to use the skill if they’ve been trained to consider appropriate questions. A prepared team might identify the following questions to ask to connect with clients:

- Why did you name your cat Peppermint?
- How did you decide to get a corgi?
- Tell me how you found out about our practice.
- What summer activities do you all have planned?

2. CONVEY A DESIRE TO HELP.

Conveying a desire to help involves letting clients know the team wants to do whatever it can to make a visit to the veterinarian easy, efficient, and enjoyable. Create a dialogue with team members about being client-focused rather than task-oriented. CSRs who focus on building relationships, rather than just completing transactions, will enhance client engagement and build client loyalty.

Convey empathy and understanding

Clients may be experiencing anxiety, sadness, or frustration while at the practice. Their emotions may or may not be related to the reason for their visit. They could just be having a bad day. Unfortunately, one of the most common responses to upset clients is silence because the team member is unsure what to say. CSRs trained to respond with kind and reassuring words can create lasting impressions. The best way to train this skill is to facilitate a team meeting that discusses common scenarios involving an upset client. This could include someone upset about a bill or an owner who is clearly tired after being up all night with a sick pet. For the client upset about the cost of care, a trained CSR would know to respond by saying, “I’m so sorry you’re going through this. I know these are unexpected expenses for Scooter.” When talking to the exhausted client, they might say, “Wow, so Charlie kept you up all night. I can see how tired you are. That must have been so frustrating.” Remember that making eye contact is an essential component of this skill.

Asking about owners’ pets is a good way to build trust and loyalty.
Conveying a desire to help should go beyond the basics of saying, “We’ll get you in an exam room as soon as possible” or “Call us back if Josie doesn’t get better.” Because clients expect those cordial statements, they don’t bond pet owners to a practice. On the other hand, CSRs who say or do something that isn’t expected will impress clients. For example, rather than just asking, “Do you need help carrying everything?” (or, worse yet, not offering help), a client-focused CSR will come from behind the front desk carrying the client’s products and say, “Let me help you out to your car.”

One of the most critical times for conveying a desire to help occurs during service recovery. Service recovery refers to the process of trying to return a customer to a state of satisfaction when a service hasn’t met their expectations. CSRs need to be trained to use specific communication skills to let clients know they’re eager to help them. Ideally, the process involves these 3 steps:

• An apology or expression of empathy, such as “I’m sorry to hear this happened.”
• Validating the client’s position with a response, such as “I understand you’re upset. Thank you for bringing this to my attention.”
• Informing the client what specific action will be taken to assist them. Follow through to take action, and keep the client informed is paramount to this step.

Interestingly, this “service recovery paradox” means customers may think more highly of a business that has taken action to correct a problem than they would have if a service problem never happened. The concept is that people form opinions based on whether they think service providers care and have gone above and beyond to help them.

3. COMMUNICATE WITH CONFIDENCE ABOUT THE VALUE OF SERVICES

Communicating with confidence helps to build client trust, which, in turn, builds client loyalty. The best way for CSRs to gain confidence is to set up training programs that include learning about services and products, as well as how to convey this knowledge confidently. Take the example of making a recommendation for a heartworm test. A CSR might simply state, “Josie is due for her heartworm test on this visit.” Contrast this recommendation to one from a trained CSR who says, “It has been a year since we tested Josie for heartworm. This blood test will screen her for the presence of heartworms, which is a serious disease transmitted by mosquitoes. Annual testing is extremely important to verify she hasn’t become infected and to ensure we treat her as soon as possible, if necessary. Assuming she has a negative test, we’ll refill her prescription for [brand name of preventive].” This recommendation more confidently conveys the value of a heartworm test.

CSRs that are mindful about using specific communication skills and strategies to connect with pet owners and build trust increase client loyalty and ultimately help more pets get the care they deserve.
Factors that Adversely Affect Reproductive Success in Mares

By Karen Todd-Jenkins, VMD

Obesity, insulin resistance, and dyslipidemia have long been associated with reproductive difficulties in women. According to an article published in the December 2016 issue of *Veterinary Clinics of North America: Equine Practice*, similar associations likely occur in pregnant mares. This article reviewed current research on the possible impact of obesity, Equine Metabolic Syndrome (EMS), and pituitary pars intermedia dysfunction (PPID) on reproductive physiology in mares.

Although exact prevalence numbers are lacking, obesity is believed to affect a surprisingly large number of horses. The author notes that “obesity is a highly prevalent condition in equids in developed nations (as in humans) and is associated with morbidity in both species”.

Obesity, however, is only part of the problem, as it is associated with a larger group of physiologic alterations known as EMS. Equine Metabolic Syndrome is understood to comprise obesity, systemic insulin resistance, and historical or current laminitis. Current evidence suggests that additional physiologic derangements, such as dyslipidemia, hypertension, altered levels of the adipokines leptin and adiponectin, and alterations of the reproductive cycle in mares may eventually be included among the metabolic changes associated with EMS.

Research has shown that alterations in levels of two important hormones, insulin and leptin, may contribute to reproductive complications in mares with EMS. EMS-associated insulin resistance (leading to hyperinsulinemia) may result in poorer reproductive performance and reduced fertility in horses, although the exact mechanism has not been fully described. Additionally, percentage of body fat and overall body condition score correlate inversely with insulin sensitivity in mares, and correlate positively with the expression of inflammatory cytokines Interleukin-1 and tumor necrosis factor alpha. Although further investigation in this area is needed, these alterations may be linked to age-related declines in fertility in older mares.

Similarly, increased leptin levels seem to promote insulin resistance and subsequent hyperinsulinemia in horses. Leptin is produced primarily by adipose tissue, and levels increase with body condition score. However, leptin levels fall in response to short-term feed restriction even without concurrent reductions in body condition score, suggesting that leptin levels can perhaps be modified through dietary manipulation.

Pituitary pars intermedia dysfunction, or PPID (also known as equine Cushing’s syndrome) is a common hormone condition that can affect older horses and has also been associated with reproductive complications in mares. PPID is a slowly progressive disorder characterized by hyperplasia of the pars intermedia region of the pituitary gland. In healthy horses, dopamine (secreted from the hypothalamus) helps regulate secretion of hormones from the pars intermedia; but horses with PPID experience degeneration of hypothalamic dopaminergic neurons, which leads to reduced inhibition of the pars intermedia and increased release of its hormones.

Although the exact processes are not fully understood, PPID has been associated with changes in reproductive seasonality of mares, possibly due to the overall influence of the pars intermedia on seasonal functions (such as hair growth and shedding) in horses.

Fortunately, there are ways to help manage EMS and PPID in pregnant mares. Dietary modification and exercise (along with management of laminitis, if present) play important roles in the treatment of EMS. Providing a diet consisting primarily of grass hay (containing less than 10% non-structural carbohydrate on a dry-matter basis) and a ration that provides adequate trace minerals and vitamins is recommended for management of EMS. Offering continuous access to forage is also beneficial for broodmares receiving a modified diet as part of the treatment plan for EMS. Additionally, if the mare can safely exercise, as few as 30 minutes of daily exercise can help improve insulin sensitivity as part of a management plan.

Pergolide, a dopaminergic agonist that suppresses secretory activity of the pars intermedium, is the FDA-approved treatment for PPID in horses. However, administration during pregnancy (or when attempting to breed) can increase the risk of complications including altered cyclicity, prolonged gestation, premature placental separation, and suppressed prolactin secretion, which can adversely affect milk production. For broodmares with PPID, pergolide can be administered, but dosage modification is recommended. It may be wise to discontinue the it 30 days before the expected foaling date, and start treatment 30 days after foaling to minimize the potential effect on length of gestation and milk production. Mares should also be monitored after foaling, to assess milk production. Horses with PPID may also exhibit insulin resistance, which can be improved by dietary modification. Calories should be derived primarily from fat and fermentable fiber, but minimized sugars, starches, and fructans.

As the equine population ages, and advances in medical care permit breeding well into the third decade of life, endocrine disorders such as PPID and EMS are likely to be encountered more frequently in equine practice. According to Dr. Bentz, “it is important to perform annual examinations to assess for diseases such as PPID.”

Although the exact processes are not fully understood, PPID has been associated with changes in reproductive seasonality of mares.
Extractions in the Real World

By Heidi Lobprise, DVM, DAVDC

After years of writing articles and chapters as well giving many lectures on extraction techniques, there are common questions I receive over and over again about diagnostics, equipment and surgical closure. Here are helpful hints and tips that address those concerns.

RADIOGRAPHS: THEY ARE A NECESSITY!

An AVMA/PLIT Professional Liability newsletter (Summer 2015) summarized three cases in which mandibular fractures occurred during the extraction process. Without dental radiographs, the insurance carrier and veterinarians agreed that the standard of care would be difficult to defend, and consented to settle the cases. In the same newsletter, Sharon Hoffman, DVM, ACVD (board-certified veterinary dentist) stated: “Without seeing the anatomy of the tooth roots and the mandibular bone, surgery (extraction) should not be attempted.”

In cases of feline tooth resorption (TR—formerly known as FORL—feline odontoclastic resorption lesions), radiographs are absolutely essential! If the periodontal ligament (PDL) space is intact and visible, or if there is any periapical bone loss, the entire root structure must be completely elevated. Modified extraction (crown amputation with intentional root retention) can ONLY be done if odontoclastic resorption has been proven with radiographs (loss of PDL definition, replacement of root with bone structure).

Of course, preoperative radiographs are essential for any extraction. An important aspect to evaluate will be the presence of the PDL space: if it is visible and distinct, then there is likely a ligament that can be fatigued during elevation forces. If there is no visible ligament space, then the tooth could be ankylosed or resorbing, and this would make extraction more challenging. These teeth may need more aggressive alveolar bone removal in order to loosen the root segments.

EQUIPMENT

A high-speed hand piece can be used with a variety of carbide burs for sectioning teeth, removing alveolar bone for access and finishing or smoothing the bony edges. Cross-cut fissure burs are best for sectioning teeth, from the very slender #699 for cat and small dog teeth to #700 and #701 for larger dogs. Surgical length (#700L) with a longer cutting tip is helpful for sectioning maxillary fourth premolars. Round burs (small #1/2 to #2, #4 or larger) can be used to remove buccal bone for access for elevation or to make ‘ditches’ around a root tip for easier elevation. Diamond burs can be used to smooth the alveolar edges (osteoplasty) prior to gingival flap closure. (Figure 1)

For gingival flap elevation, periosteal elevators also come in a variety of sizes. Double-ended periosteal elevators can have a Molt #2 on one side and a Molt #4 on the other. Both ends are fairly small, thin spoon-shaped working ends. (Figure 2) A Molt #7 can also be used for larger flaps. Many dental elevators are winged, or cup-shaped, in a variety of sizes to fit the diameter of the root section being loosened.

(A Figure 3) Flat tipped elevators (sometimes called luxators) facilitate initial separation of the tooth from the alveolar bone, or help elevation on flatter tooth surfaces, such as the buccal or palatal aspects of maxillary canine teeth.

It is critical to keep the ends of the dental elevators (and periosteal elevators) sharpened on a regular basis. Dental elevators are most effective when the tip can be inserted into the PDL space between tooth and alveolar bone, so thick, blunt instruments are ineffective. Sharpness should be evaluated daily, and if a particular instrument gets dull during the procedure, additional sharpening may be needed intraoperatively, or a different sharpened instrument may be substituted. Sharpening techniques may vary, but the goal it to form a ‘knife-edge’ on either the outer or inner surface of the elevator blade. Eventually, as sharpening removes some structure, elevators must be replaced if the working end gets too thick.

ACCESS

Unless the tooth to be removed is one-rooted and extremely mobile, taking appropriate steps to facilitate better access
to the roots is worth the time and effort. In most multi-rooted teeth and canine teeth, designing a gingival flap for exposure is the first step. An envelope flap (stretching out the buccal mucosa near without making vertical releasing incisions) may be sufficient for incisors, smaller premolars and the maxillary first molar in dogs. Releasing incisions at the rostral (mesial) or mesial and distal aspects of canine and carnassial teeth (maxillary fourth premolars and mandibular first molars). The vertical releasing incisions are made through the attached gingiva at the mesial and/or distal aspects of the tooth, and are extended a few millimeters in the loosener alveolar mucosa past the mucogingival line. Be sure to fully excise through the gingiva at the corners, as the tissue is thicker and can be more difficult to elevate initially. A scalpel blade can be used to excise a millimeter or two of the gingival margin before elevation, to get a fresh epithelial edge before starting. The blade can also be carefully inserted into the sulcus or pocket to start the elevation. The periosteal elevators are used to detach a full thickness gingival flap, including the peristeum, from the surface of the alveolar bone. In most extractions, particularly with maxillary canine teeth, this periosteal sheet must be separated, cutting the fibers that keep the flap anchored to the underlying bone. Carefully cutting this layer on the underside of the flap can release the tension, so the flap can be sutured easily later. If you developed a good flap, the buccal gingiva/mucosa can be used for better leverage. If the crown breaks off, you can use a round bur to remove bone around the remaining root, again creating a ditch for elevators. Just be careful using too much force apically—you don’t want the root to slip into the nasal sinus!

**SUMMARY**

Extractions can be challenging and frustrating, but by using the correct, SHARPENED instruments and following basic steps, you can avoid some common pitfalls.

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**Unless the tooth to be removed is one-rooted and extremely mobile, take appropriate steps to facilitate better access to the time and effort.**
In a study recently published in *Acta Veterinaria Scandinavica,* cats with a previous diagnosis of unilateral cranial cruciate ligament (CCL) injury displayed gait patterns and owner-assessed behavioral changes that differed from those of sound cats.

Older cats frequently suffer from appendicular joint osteoarthritis (OA), which is quite painful and limits a cat’s physical abilities. Like other orthopedic conditions, feline OA can cause a body weight (BW) redistribution away from the affected limb. Diagnosing OA in cats remains a challenge, in part because cats are so adept at disguising their lameness. In addition, radiographic results are not always consistent with orthopedic examination findings in cats suspected of having OA, despite radiography being the primary diagnostic tool for identifying this condition.

Kinetic data, such as measurement of peak vertical force (PVF), has proven useful in assessing feline appendicular OA. PVF is measured as a percentage of body weight (% BW) and is evaluated using a pressure-sensitive mat, which can detect gait pattern abnormalities potentially associated with OA. In a prior study comparing cats with coxofemoral joint OA and sound cats, hindlimb PVF was lower in cats with OA than sound cats.

CCL injury alters the normal mechanics in the feline stifle joint, contributing to OA. In previous studies, CCL transection has been used to demonstrate the degenerative changes associated with OA. Inonestudy,CCL transection led to significantly decreased muscle mass in the experimental hindlimb compared with the contralateral hindlimb. In addition, the synovium within the experimental stifle joint was hypertrophic and hemorrhagic; medial joint capsule thickening and osteophyte formation were also present.

The exact etiology of feline OA is not yet known. There is continued debate within the veterinary community about whether obesity contributes to OA in cats, as it does in humans. Dr. Sarah Stadig, the lead author for this current study on feline CCL injury, offered her comments on obesity’s role in feline OA development. Based on her clinical experience, Dr. Stadig says there is “likely to be an association between OA and [excess weight] or obesity in cats.” However, she notes that “we cannot say whether [excess weight] or obesity contributes to OA or if the cats with OA are less physically active and therefore become overweight or obese.”

For this current study, authors used a patient database from a local animal hospital to select cats aged 1 to 12 years with a previous diagnosis of unilateral CCL injury.
(n = 10). Sound cats (n = 15), selected from a prior data set,7 were weight- and body condition score (BCS)-matched with the cats with previous CCL injury to rule out the influence of weight on kinetic data.

Authors used a pressure-sensitive walkway to collect kinetic data on PVF and vertical impulse (VI; % BW*sec). After acclimatizing to the testing room, each cat walked along the walkway until it completed five valid trials—a straight walking path at an even pace with a forward-facing head position. Following kinetic data collection, each cat underwent a clinical and orthopedic examination. The clinical examination included BCS assessment using the 5- and 9-point scoring systems; joint changes were categorized as mild, moderate, or severe during the orthopedic examination.

Cats with previous CCL injury and normal blood work were then sedated for radiographic examination of the joints determined to be affected on orthopedic examination; sound cats did not undergo blood sampling or radiography.

During kinetic data collection, cat owners completed a questionnaire asking them to classify behaviors within four behavioral domains (mobility, activity, grooming, temperament) as normal or abnormal in their cats. Owners rated abnormal behaviors from 1 (mild) to 10 (severe).

A significant difference in average age was observed between cats with previous CCL injury (9.5 years ± 1.8) and sound cats (5.9 years ± 3.3). Because the sound cats were BCS-matched with the cats with previous CCL injury, no correlations between body weight, BCS, and gait parameters were identified.

Compared with sound cats, cats with previous CCL injury had a significantly lower hindlimb PVF and significantly higher front limb/hindlimb symmetry index for PVF; VI was also lower in cats with previous CCL injury, but this was not statistically significant.

In cats with previous CCL injury, PVF and VI were significantly lower in the affected hindlimb versus the unaffected hindlimb.

To analyze vertical force distribution within the paws, authors divided the hind and front limb paw prints into equally-sized quadrants: cranio medial, cranio lateral, caudomedial, and caudolateral. Pressure distribution within the hindlimb paw quadrants varied between cats with previous CCL injury and sound cats; in each quadrant, PVF was lower and duration of stance phase was longer with cats with previous CCL injury. Significant differences in pressure distribution within the front limb paw quadrants were not observed between cats with previous CCL injury and sound cats.

Total scores on the questionnaires were significantly higher for cats with previous CCL injury than sound cats, indicating physical dysfunction and a negative change in daily activities due to CCL injury.

Authors suggested that biomechanical instability of the stifle joint and physical discomfort could explain the differences in kinetic data, particularly PVF, between the cats with previous CCL injury and sound cats. For cats with previous CCL injury, the pressure asymmetry observed between the affected and unaffected hindlimbs could be explained by stifle joint instability, as well as muscle atrophy and a different gait pattern to minimize pain in the affected limb. However, the pressure asymmetry does not have to be pain related; clinical examination findings would aid in determining why the pressure asymmetry is present.

Because cats in this current study were pet cats with naturally occurring OA, it is possible that OA was present in more than just the affected stifle joint; authors noted that this could be a limitation with studying naturally occurring OA, rather than experimentally inducing OA, such as with CCL transection. In addition, pressure-sensitive mats have a limited ability to detect bilateral changes in gait pattern; this limitation could be avoided by analyzing the pressure distribution within the paws.

Given the challenges in diagnosing feline OA, authors emphasized the need for improved assessment tools to evaluate chronic pain associated with OA. Dr. Stadig suggested the use of clinical metrology instruments (CMIs), also known as questionnaires. She said that “CMIs can be used both for screening for OA and other problems in the musculoskeletal apparatus, as well as evaluating ongoing treatment,” noting that “several CMIs for cats with musculoskeletal disease are undergoing validation at the moment.” Dr. Stadig believes it would be useful for a “cat owner to fill in the CMI before the vet performs the clinical examination.”

Because radiographic findings are not always consistent with orthopedic exam findings, Dr. Stadig commented that veterinarians could use a pressure-sensitive mat in clinical practice to evaluate a cat for OA, To use the mat most effectively, Dr. Stadig advises veterinarians to take a simultaneous video recording and be aware of “common sources of errors, such as a cat looking to the side” when walking on the mat.

Providing veterinarians, veterinary technicians, and veterinary assistants with the latest information in veterinary medicine, including:

- Diagnosis
- Treatment and prevention of species-specific diseases
- Product and recall information
- Case studies
- Client education, and
- Legal and regulatory updates.
Ed Turner was staying in patient housing provided by Cancer Treatment Centers of America, feeling weak, tired and anxious about what he was facing. After years of remission from kidney cancer, the disease had returned, this time in his liver. The Elkton, Virginia, resident’s white blood cell count soared; he had an infection and felt too sick to even talk to family. When Cynthia Ingram, a registered nurse and animal therapy coordinator at CTCA, brought therapy dog Tori to visit Turner and his wife, Michelle, at their guest quarters, Turner was touched. “She didn’t have to do that,” the 61-year-old says, his voice breaking up. The visit from old friends Cindy and Tori took his mind off his worries. “I was apprehensive about when we could go home and not knowing what the future was,” Turner says. Michelle Turner called Tori a “welcome distraction.” Seeing the joy Tori brought her husband gave them both comfort. “When you’re a patient in the hospital, people mean well,” she says. “With people, you feel like you have to interact. You feel like you have to carry on a conversation. You may not feel like visitors. With Tori, she just wants a rub on the head.” Tori is part of the couple’s support system, she says, and lifts their spirits.

Animal-assisted therapy involves a trained volunteer or staff member and his or her trained animal – usually a dog – visiting cancer patients while they’re in the hospital or chemotherapy infusion center or awaiting radiation treatments. Home visits to patients are much less common, and must be arranged by a host organization, such as a hospital or a hospice group.

The method falls under the larger umbrella of animal-assisted intervention, a goal-oriented intervention that includes animals incorporated into health, education and human service work to provide therapy to people, according to the International Association of Human Animal Interaction Organizations.

For people who have cancer, the visits can be as brief as a stop by their hospital-room doorways to say hello, or the therapy dog can rest his head in a patient’s lap for 20 minutes.

Within the organization Pet Partners, some 94 percent of therapy animals are dogs, but other therapy animals include cats, miniature horses, rabbits, rats, guinea pigs, potbellied pigs, birds and even llamas and alpacas, says Mary Margaret Callahan, the group’s senior national director for program development. When it comes to dogs, there is no single breed that is used for therapy visits; it’s often more about the individual dog’s personality, say the leaders of several animal-assisted therapy groups.

For years, patients and animal-assisted intervention handlers have reported boosts to patient and caregiver moods after visits from therapy animals. That idea was supported by a 2015 study, conducted by researchers at the Continuum Cancer Center at Beth Israel Medical Center in New York and published in the Journal of Community & Supportive Oncology, that shows that animal-assisted therapy has measurable benefits.

Thirty-seven patients with head and neck cancers visited by therapy animals reported feeling better socially and emotionally, even as their bodies felt sicker while receiving combined chemotherapy-radiation treatment, the study shows. “As the patients’ physical function was declining – they

Trained Therapy Animals Boost the Moods of Cancer Patients

By Theresa Sullivan Barger
were coughing all day, losing weight — their social and psychological and emotional functioning actually improved,” says Stewart B. Fleishman, a psychiatrist and founding director of Cancer Supportive Services at Continuum Cancer Centers of New York (now part of the Mount Sinai Health System.) “You usually see, as physical function declines, social and emotional function declines as well. We saw the reverse.”

Visits from the therapy dogs motivated people to come in for their treatments, regardless of how sick they were feeling, Fleishman adds. “Some people said, ‘I would have stopped coming, but I came because I knew the dog and volunteer would be waiting for me,’” he says.

Typically, volunteer handlers and their dogs have set days and time periods for visits, so patients get to know a therapy team. Patients in the study said they looked forward to their meetings with the team because they felt the dog was loving them and that they were supported, Fleishman says. However, he adds, the study could not conclude whether the animal therapy had any long-term impact on the patients’ health.

Funded through a grant from The Good Dog Foundation and Pfizer Animal Health (now Zoetis Animal Health,) the study was not randomized because only patients who like dogs and agreed to receive visits from Good Dog Foundation volunteer handlers and their dogs were enrolled.

A review of all the studies on animal-assisted therapy up until 2004 shows moderate improvements in outcomes for some specific groups, according to a 2007 report published in Anthrozoos, a scholarly journal concerned with human/animal interactions that was formerly published by Delta Society and is now published by the International Society for Anthrozoology.

Janelle Nimer and psychologist/social worker Brad Lundahl conducted the review of 250 studies of animal-assisted therapy serving a variety of groups, including those who are autistic and those with medical conditions or behavioral or emotional problems. The researchers concluded that 49 of the studies met their criteria for closer analysis.

One of those studies found pediatric cancer patients receiving chemotherapy, who also received animal-assisted therapy, reported decreased stress, decreased anxiety and improved quality of life, says Nimer, a licensed clinical social worker who holds a doctorate in veterinary social work. She is president and co-founder of the Animal-Assisted Healing Center in Murray, Utah, and a researcher and clinical assistant professor with the University of Utah College of Social Work.

The animals “distracted them and helped them not get as sick when they were getting chemotherapy,” she says.

There has been extensive research on the ability of animals to reduce stress in humans, and research shows that cancer patients and their loved ones experience high levels of stress and its effects, including insomnia, weight gain, anxiety and depression. While therapy dog programs are common in hospitals throughout the United States, more research is needed before drawing conclusions on the long-term benefits of animal-assisted therapy and intervention.

There is also a lack of scientific research on how animal-assisted therapy may impact therapy animals. Anecdotally, handlers say their dogs enjoy the experience and seem to sense what patients need.

HOW ARE HANDLERS AND ANIMALS SCREENED, TRAINED AND MONITORED?

Within the United States, there are more than a dozen organizations registered with the International Association of Human-Animal Interaction Organizations (IAHAIO). Each organization, says Pet Partners’ Callahan, establishes its own criteria for how to screen and train people and animals to provide animal-assisted interventions.

Some allow volunteers to undergo training through online instruction, while others require people and animals to be screened and trained in a classroom setting. (Pet Partners volunteers who choose the online training must pass an in-person screening conducted by a volunteer evaluator, Callahan says.)

There is a great deal of variance in how therapy teams are vetted, Callahan says, so she suggests that the institutions hiring or engaged with animal therapy teams adopt a “buyer beware” mindset and check that the teams have comprehensive liability insurance.

Animals must receive annual veterinarian checkups and shots, and handlers have to provide written proof that their animals are healthy. Pet Partners, Caring Critters and The Good Dog Foundation require animals to be bathed, and to have their nails clipped and teeth and coats brushed, on the days they visit patients.

Fleishman, who is semi-retired and visits hospitals around the country as part of their accreditation review, says quality control varies by organization.

Kathleen Bouchillon, a retired advanced practice registered nurse and vice president of Houston-based Caring Critters, says her organization’s temperament test includes seeing how an animal reacts to an angry stranger who shouts, “Get that dog away from me!” After animals pass the temperament test, they’re on probation for six months.

Meanwhile, at the Animal-Assisted Healing Center, once potential therapy animals pass the temperament test, their screening involves proving that they can stay calm and in control when in a room with other animals; can follow basic commands to sit, stay and lie down; and are comfortable accepting hugs and petting in unconventional ways, since some patients may have challenges to their motor skills, Nimer says. As part of the therapy animals’ training through various animal-assisted therapy groups, they are
exposed to loud, sudden noises, rides in elevators and people who use wheelchairs, walkers, IV poles or oxygen, say group leaders.

Medical facilities vary widely in how they manage therapy animals. While Cynthia Ingram is part of the integrative medicine staff at the Cancer Treatment Centers of America’s suburban Chicago facility, most other therapy animal handlers are volunteers who are vetted by nonprofit organizations, such as Pet Partners, that have contracts with medical facilities.

The Good Dog Foundation’s volunteer handler and dog teams visit about 300 medical facilities in Connecticut, Massachusetts, New Jersey, and New York, where the organization is headquartered. While Good Dog Foundation founder Rachel McPherson says animal-assisted therapy teams are on most floors of Memorial Sloan Kettering Cancer Center in New York, MD Anderson Cancer Center only allows Caring Critters’s therapy animals to visit pediatric oncology patients, and only on doctors’ orders.

Patients are asked whether they want to be visited by a therapy animal, and, depending on their comfort level, they can pet, play with, snuggle with or simply observe the animal. The main function of the visits is to help reduce stress and boost patients’ moods.

Anne Murray, 46, a three-time cancer survivor being treated for a brain tumor, says she isn’t a big fan of dogs. But a positive experience with therapy dogs following the Sandy Hook School shooting showed her that the dogs are predictable, calm and listen to their owners. (Murray is an occupational therapist for the Newtown school system, and her son was at Sandy Hook School the day of the massacre.)

Before Murray receives a chemotherapy infusion at Greenwich Hospital, therapy dog Pippa lays on her lap. Murray pets her for about 10 minutes while her arm is wrapped in a heat pack to help bring her veins to the surface.

“I’m a very hard stick to get the needle in to get the chemo,” says the Newtown, Connecticut resident. “All I had to do was pet her. That brought down the tension of being in the chemo area … It’s gotten to the point where I don’t even feel the needle going in anymore.”

CONTRAINDICATIONS

Generally, people with dog allergies shouldn’t receive visits from therapy dogs, but there are exceptions. For example, Ingram’s therapy dog is an Australian labradoodle that doesn’t shed, so that even some with dog allergies can tolerate Tori.

Cancer patients should check with their oncologists before receiving animal-assisted interventions. Patients with low white blood cell counts, infection control issues, fear or dislike of animals and some psychiatric disorders are not good candidates for therapy animal visits. Also, children whose parents or caregivers have an aversion to animals or who are allergic should avoid these visits, says Nimer.

Handlers apply hand sanitizer to their own hands and patients’ hands before and after each visit, to protect both the patient and the animal. Handlers also put a clean towel on top of a patient’s lap or chest before placing the dog on the patient (and this is only done with the patient’s permission).

FINDING AND PAYING FOR ANIMAL THERAPY

Most health insurance doesn’t cover animal-assisted intervention, but it is usually offered free to patients because most handlers are volunteers.

While Cancer Treatment Centers of America uses a full-time holistic nurse, because the service is one of several forms of integrative oncology services the hospital provides alongside conventional treatment, animal-assisted therapy there is also free, says Ingram.

In addition, the nonprofit organizations that supply the volunteer handlers and animals provide liability insurance coverage through organizational fundraising.

Cancer patients and their families often learn of the option of animal-assisted intervention during new-patient orientation. While there’s no central location that allows people to search for which treatment centers offer animal-assisted intervention, many centers provide it to patients who request it.

THERAPY ANIMALS’ WORKDAY

Therapy animal handlers say they limit their animals’ therapy visits to one to two hours per day, and that they monitor their animals for signs of fatigue.

Ingram brings Tori to work every day, but the dog naps or hangs out in her handler’s office while Ingram does her other work.

Each day, Ingram gets an animal therapy eligibility list of inpatients who are medically cleared to have a visit from Tori.

“I walk up and down the hall, we knock on the door and we ask if they’d like a visit from Tori and me,” she says. They’ll visit for a couple of minutes up to about 20 minutes, depending on the patient’s interest.

“Tori does provide a lot of stress relief and a lot of comfort,” says Ingram, and not only to patients. The therapy animals also help staff members to cope with the emotional intensity of caring for cancer patients.

“It’s not uncommon for an employee that works here to have some challenge throughout their day,” she says. “They’ll either call us or they’ll come to our office. They just get on the ground with her, talk to her. She’s attentive. After five minutes, they’re able to get back to work.”

Therapy animals often help family members as much as they do patients. Tori visited a young patient in the ICU who was at the end stage of life and not very responsive.

“He could not reach down to pet her. I put a chair next to his bed. She put her head on his chest. I put his hand on her head. You could feel in the air the comfort that provided for his family, seeing him smile,” Ingram says. “He passed away shortly afterward.”

Some people who were sick from side effects said, ‘I would have stopped coming in for head and neck cancer treatment, but I came because I knew the dog and volunteer would be waiting for me.’

“I’m very hard to get the needle in to get the chemo,” says the Newtown, Connecticut resident. “All I had to do was pet her. That brought down the tension of being in the chemo area … It’s gotten to the point where I don’t even feel the needle going in anymore.”

PHOTOS COURTESY OF GREENWICH HOSPITAL
The importance of early environmental exposure for puppies has been recognized since the early 1960s. However, not all exposure is the same and proper implementation takes thoughtful preparation and planning. When most people think about socialization, they might think about letting their dog play with other dogs. Yet, there is more to it than a romp in the park. The broader meaning of socialization incorporates localization.

- Socialization is the process of learning to communicate and relate with humans, members of the same species, and other animals.
- Localization is the process of learning to be attached to specific environments.

Animals tend to be the most comfortable with environments to which they were exposed at a young age. Socialization and localization includes exposure to various environments, sounds, people, animals, and novelty. Both, socialization and localization, shape future behavioral responses and they prepare dogs for the myriad of social and environmental experiences thrown at them later in life.

WHEN SHOULD SOCIALIZATION AND LOCALIZATION OCCUR?
The socialization period occurs between 3 and 12 weeks of age and it is a sensitive period for the development of long-lasting social attachments and foundation memories. However, socialization and exposure are part of a lifelong process. As a puppy comes out of its socialization period and becomes more suspicious of novelty, controlled and positive exposure is probably equally important. If a puppy owner were to stop socializing a puppy at 3 months of age, the puppy would be more likely to become fearful as an adolescent. Even the well-socialized dog might regress if positive exposure does not continue into adolescence. After the socialization period is over, strive for at least 3 to 4 novel and/or repeated positive experiences a week. This can easily occur while out on a daily walk in the neighborhood.

A dog who is obtained after the socialization period is over, with an unknown or suspected lack of early positive experiences, can benefit from exposure if the dog is relaxed and having fun during the experiences.

HOW IS POSITIVE PROACTIVE EXPOSURE IMPLEMENTED?
A common mistake that well-meaning people make is to rely solely on habituation when introducing a puppy or adult dog to novel experiences.

- Habituation is the process of acclimating or becoming familiar and comfortable with stimuli through repeated exposure. It is the decreasing of a response to a stimulus.

Yet, socialization is not just about exposure and habituation. The problem is that habituation does not focus on creating pleasant associations, rather it focuses simply
Behavior Focus

on repeated exposure. Puppies may easily become overwhelmed and sensitized to environmental stimuli, especially if there are negative associations with the first experience. It is difficult to habituate to experiences that produce strong negative emotional responses. Dogs don’t readily habituate to scary situations. Instead, undesirable flight or fight responses become ingrained. Socialization is not simply about habituation; it is first and foremost about making exposure pleasant and fun.

Positive proactive exposure (PPE) is an active process that involves classical conditioning, classical counter-conditioning, and desensitization.

• Classical conditioning is the process of replacing a neutral emotional response to a stimulus with, in this case, a positive emotional response. Pleasant emotional responses in puppies can be easily conditioned by using food rewards.

• Classical counter-conditioning is the process of replaying a negative emotional response to a stimulus with a positive emotional response. Negative emotional responses can often be changed by using food rewards.

• Desensitization is the process of reducing sensitivity or reactivity toward stimuli through gradual and controlled exposure.

Although desensitization and counter-conditioning techniques are often used retroactively to treat existing fears or aversions, it is important to apply these techniques proactively to help prevent fearful associations. During PPE, food rewards are used extensively and overwhelming situations are avoided. Prevention is the key: it is much better to be proactive rather than reactive. PPE fosters pleasant emotions with the first introduction or exposure to stimuli.

Implementing Positive Proactive Exposure (PPE):

• Bring a hungry puppy with a proper fitting collar or harness and a 4-6-foot leash.

• Take a variety of pea-sized “puppy-approved” treats and a favorite toy. Include water and bowl for extended trips.

• Stay clear of the “action” when first arriving and observe from a non-stressful distance before reducing the distance. Allow the puppy to acclimate at its own pace.

• Be proactive; assume the puppy could potentially be afraid of a new person, object, or environment and use treats liberally.

• Control the environment and what the puppy learns; keep experiences positive.

• Be aware of body language and recognize signs of fear, anxiety, or stress (FAS). Be your puppy’s advocate. Do not wait for signs of fear before initiating food rewards.

• Keep sessions short and positive; 5 to 10 minutes is often enough. Avoid going over 30 minutes unless the puppy can have a reprieve. Sessions can be gradually lengthened.

• Measure out the amount of treats the puppy will be fed and end the session before running out.

• Have fun!

WHAT TO DO IF THE PUPPY BECOMES FRIGHTENED

Utilize the behavior modification techniques, classical counter-conditioning and desensitization. These techniques were utilized with PPE. Here, the techniques are implemented in reaction to fear inducing stimuli.

Food treats are paired with the sight of or reaction to fear evoking stimuli. Food changes the emotional response from an unpleasant to a pleasant emotion.

Gradual exposure is accomplished by controlling the distance and intensity of the stimulus. In general, the further away from the stimulus, the less frightening.

If frightened:

• Use food rewards liberally to change the emotional state

• Get the puppy out of the situation and find a non-stressful starting point for exposure

• Allow the puppy to investigate novelty at his own pace

• Reinforce exploration with food rewards and movement away from the stimulus

• Avoid coddling or reprimanding. Dramatic changes in your behavior may become predictive of fear eliciting stimuli and they may worsen the fear response. Remain relaxed and neutral. Let the treats do the talking!

• Utilize PPE with future exposure... Rather than a neutral experience or, even worse, an overwhelmingly negative experience, new and repeated experiences are made positive from the start.

SUMMARY

PPE involves planning ahead and preparing to make associations positive. Anticipate that first-time and repeated experiences may be scary for puppy and human alike. Socialization and exposure are only valuable if it is enjoyable for the puppy. Taking a positive proactive approach from the start will prevent the needing to do “rehabilitation” later.

Rub a dub dub,
Three fools in a tub,
And who do you think they be?
The butcher, the baker,
The candlestick maker.
Turn them out, knaves all three.

Along with butchers, bakers, and candlestick makers, veterinarians are representatives of the 28 million small businesses in the United States. However, as any of the approximate 78,000 working veterinarians in this country will attest to, practicing veterinary medicine is very different from just about any other occupation. With that being said, veterinarians provide a service for which they expect payment, just like any other small business, and just like any other small business, sometimes clients refuse to or cannot pay for services rendered.

Six out of 10 (63%) pet owners consider their pets to be family members, so the impetus to get care when their animal is sick is strong. But in today’s society, disposable income is often a rarity, and people often do not budget for emergency veterinary care. James F. Wilson, DVM, JD, founder of Priority Veterinary Management Consultants in Yardley, Pennsylvania, who specializes in veterinary management and legal consulting, and is a practicing veterinarian, finds that most people want to and intend to pay, but other bills take precedence. As Dr. Wilson put it, the mindset often is “If the phone bill doesn’t get paid, the phone gets shut off; if the veterinarian doesn’t get paid, he/she just gets angry.”

Failure to pay is not just a problem of inner-cities or poor rural regions. Jennifer Schneider, VMD, is the medical director of a midsize veterinary practice that employees 7 veterinarians for 15,000 active clients and says that even in her fairly affluent, suburban Virginia neighborhood, they experience about 0.5% to 1% in uncollectable receipts.

For many other small businesses, if a client does not pay, the recourse is to refuse to relinquish the item or attempt to impose a lien. However, although pets are considered property under the law, neither choice is acceptable when dealing with a living animal. Options are limited after the service has been provided and the client is ready to head out the door, but much can be done to prepare for this eventuality.

Every veterinary practice should have a formal policy, with the steps that will be taken clearly defined if there are difficulties with acquiring payment. However, both Dr. Wilson and Dr. Schneider said that they approach each situation on a case-by-case basis. They mentioned several factors that influence their decisions to offer different payment options, including how long the person has been a client, if the person makes an attempt to pay, if the person is elderly or on some form of public assistance, and how pleasant (or belligerent) the person is.

With all clients, the estimated costs of various options should be discussed before any procedures are initiated. Clients may need to make difficult decisions regarding the care of their pets, but at least they will have a clear picture of what can and cannot be done within their budget. Be prepared for a tough conversation as people do not like to hear that their pet cannot be helped, and more often than not, they will blame you for not caring.

Ideally, it is best to broach the subject of payment at the same time you present the patient’s medical care plan. Dr. Wilson recommends eradicating use of the word “estimate” when discussing potential costs because medical care plans include a diagnostic plan and treatment options,
Wellness plans, where clients pre-pay for such services as physical exams, vaccinations, and health screenings, can also be offered, with discounts often given to “members” for sick care. Although credit cards are an often-used method of payment, medical-only (including veterinary) credit cards, of which CareCredit is the most popular, are an alternative. These allow clients to secure a credit line at the exact time they need it—when their pet is at the clinic receiving treatment. However, clients have to have reasonable credit to qualify, and the merchant fees can be double what a traditional credit card charges.

Once a client agrees to a particular treatment plan, if there is any doubt regarding the client’s ability/willingness to pay, secure a 50% deposit and then, as Dr. Wilson put it, “hope and pray you get the rest.” If the client balks at the deposit, a more in-depth conversation will need to happen, and this is when having a formal protocol is critical. If the client cannot secure payment through one of the aforementioned methods, you may offer the client a payment plan directly with your practice, but you still must consider how you will collect the payments (eg, mailed checks, automated bank account withdrawals) and what you will do if the client does not pay on schedule.

Another option is to outsource this function to a traditional third-party financing company, although these companies are often inflexible with respect to repayment terms. A relatively new solution comprises the numerous hybrid companies that assist you in assessing a particular client’s risk (eg, run credit checks) and offer payment plans on your terms, managing the practical aspects of fund transfer, including handling late payments, expired credit cards, etc. Examples of these types of companies include vetbilling.com and veterinarycreditplans.com.

Bartering, where you exchange veterinary care for other service, like plumbing repairs, is generally not recommended because it is difficult to ensure equal quality of work performed, and it could be viewed as a form of tax avoidance.

Euthanasia is a last resort, but is far superior to letting an animal suffer. Knowing that you can treat, and possibly even cure, a particular animal but have to euthanize it because there are no funds is one of the most stressful parts of being a veterinarian. These economic euthanasias can be difficult for the entire staff and are often a source of compassion fatigue. An alternative to euthanasia is having the client transfer ownership to the clinic. This can have substantial legal implications, not to mention the potential to lose public goodwill if the previous owner encounters the new owner and creates a stir in the community. Thus, you must have iron-clad contracts and should consult a lawyer who specializes in veterinary practices or, at the least, a book, such as Dr. Wilson’s that references a variety of forms, including transfers of ownership and adoptions.

Options are limited after the service has been provided and the client is ready to head out the door, but much can be done to prepare for this eventuality.

At the end of the day, when it looks like the balance is not forthcoming, you can contract with a debt collection agency. There are agencies that specialize in veterinary business (eg, veterinarycollect.com, americanprofit.net). These companies take a percentage of the debt, but recovering some of the lost revenue is better than none. Going to small claims court may be another possibility, but with court fees, potential legal fees, and the time involved, it is often more trouble than it is worth.

For clients who are sincere in wanting to pay but are truly indigent, some practices establish good Samaritan funds. These funds are often raised by the clinic staff, and so deciding who is worthy for assistance can create serious tension among the staff who may not agree with the decisions being made. Therefore, it is critical to have established guidelines that outline who is eligible and how the funds will be divested.

Veterinary costs are increasing due to expanding knowledge and improving technology that have introduced new diagnostic techniques, an escalating array of drugs, and more sophisticated surgical procedures. However, even though clients have a desire to treat their pets like family, their disposable income is decreasing in today’s economic climate. Thus, practices need to be prepared for clients who cannot pay. With human healthcare, there is a mandate to provide care, but there is no such requirement, other than ethical, to provide veterinary services. This often necessitates difficult conversations with clients, but if you are well prepared, you can reduce the stress to both you and your clients while providing the best treatment for the pets in your care.

Dealing with Fleas

By Laurie Anne Walden, DVM, ELS

Most people want to know only one thing about fleas: how to kill them. Flea control is much easier than it once was, though preventing fleas is still simpler than treating an established infestation.

HOW TO KNOW IF YOUR PET HAS FLEAS
Fleas are tiny brown insects about the size of a pinhead. Their bodies are oval and flattened a bit from side to side. You can sometimes see fleas on your pet. If you try to capture a small insect crawling on your pet and it jumps an enormous distance (for its size), it’s probably a flea. If it’s attached to the skin, it’s more likely a tick.

Fleas can be hard to find if they are present in small numbers or if the pet has been chewing the skin. However, you might see flea dirt, which looks like black dandruff. Fleas are blood suckers, so flea dirt is actually digested blood that they have excreted. If you’re not sure if what you’re seeing is flea dirt, brush some of it onto a white cloth or paper and add a drop of water. If the wet dirt leaves reddish streaks on the white surface, it’s flea dirt.

You can sometimes see fleas on your pet. If you try to cap-

FLEAS can also cause a telltale pattern of hair loss. Dogs with hair loss on the lower back, tailhead, and inner thighs often have fleas even if no fleas can be found. Cats may have skin problems over a wider area of the body, especially the face and neck.1

FLEA-RELATED DISEASES
Fleas are more than just an itchy nuisance. They can cause a number of problems:

• Flea-related dermatitis and flea allergy: Fleas cause skin irritation and infection in any pet that chews at itchy skin. For pets that are allergic to flea saliva, the bite of even one flea can cause intense itching and serious skin disease. Signs of flea-related skin disease include redness, bumps, and scabs.1
• Anemia: A heavy flea infestation can cause anemia and even death from blood loss.
• Transmission of infection: Fleas carry bacteria and parasites that can infect both pets and people, including the following:
  > Tapeworms
  > Typhus
  > Tularemia
  > Bartonellosis (cat scratch disease)
  > Plague2

WHY ONE DOSE OF FLEA TREATMENT ISN’T ENOUGH: THE FLEA LIFE CYCLE
The most common flea species affecting dogs and cats in the United States is Ctenocephalides felis, the cat flea. Cat fleas survive best in warm, humid climates and have a 4-stage life cycle1,2:

• Eggs: Fleas deposit eggs in their host’s fur; the eggs then drop into the environment.
• Larvae: Eggs hatch into larvae, which develop in protected areas away from sunlight like carpet fibers and shaded places outdoors.
• Pupae: After a few days to weeks, larvae spin cocoons and become pupae. Pupae can remain stable in their cocoons for months if they do not dry out. Pressure, carbon dioxide (from breathing), and increased temperature all stimulate pupae to develop into adults. Simply walking around a room can trigger the emergence of adult fleas, even if the room has been vacant for weeks or months.
• Adults: Most adult fleas emerge within a month after pupa formation. They jump onto a passing host and begin feeding right away. Females usually lay eggs within 24 hours. By the time you notice fleas, they have already begun laying eggs.3 Larvae and pupae that are still in the environment continue to develop. After you use a flea control product that kills adult fleas, more will emerge over the next few weeks. These newly emerging fleas are the reason to use a flea product that has residual activity and to continue using it for several months.

FLEA PREVENTION
The Companion Animal Parasite Council recommends the following3:

• Treat all dogs and cats with flea control products year-round for life.
• To eliminate an established flea infestation, treat all pets in the home and understand that controlling the infestation could take months.
• Consider flea infestations a public health concern.

Very effective flea control products have become available in the past several years. Talk to your veterinarian about the best product to use on your pet; many are available by prescription only.

If you are considering over-the-counter products, be aware that those containing synthetic pyrethrins, including permethrin, can be toxic to cats. Flea combing is the safest way to remove fleas from puppies and kittens that are too young for flea products.4

You might see fleas after using a recommended product even if you have followed label instructions and treated all household cats and dogs. This does not necessarily mean that the product failed. It takes time for all of the pupae in the environment to develop into adults. Many of these products kill adult fleas before the females can lay eggs, so in time the flea population will be eliminated because no new eggs are being laid.

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