



2015 AAHA Canine and Feline Behavior Management Guidelines*

From The Pet Doctor, O'Fallon, MO (M.H.); Mesa Veterinary Hospital, Golden, CO (C.H.); Animal Emergency and Referral Associates, Fairfield, NJ (E.L.); University of Pennsylvania, Biology Department, Philadelphia, PA (K.O.); Coral Springs Animal Hospital, Coral Springs, FL (L.R.); Springville, NY (M.R.-R.); and Davis, CA (S.Y.).

Correspondence: kloverallvmd@gmail.com (K.O.)

AAHA, *American Animal Hospital Association*; BZD, *benzodiazepine*; MAOI, *monoamine oxidase inhibitor*; SARI, *dual serotonin 2A antagonist/serotonin reuptake inhibitor*; SSRI, *selective serotonin reuptake inhibitor*; TCA, *tricyclic antidepressant*

*These guidelines were prepared by a task force of experts convened by the American Animal Hospital Association for the express purpose of producing this article. They were subjected to the same external review process as all JAAHA articles. This document is intended as a guideline only. Evidence-based support for specific recommendations has been cited whenever possible and appropriate. Other recommendations are based on practical clinical experience and a consensus of expert opinion. Further research is needed to document some of these recommendations. Because each case is different, veterinarians must base their decisions and actions on the best available scientific evidence, in conjunction with their own expertise, knowledge, and experience. These guidelines were supported by a generous educational grant from CEVA Animal Health, Virbac Animal Health, and the AAHA Foundation.

†Deceased 28 September 2014.

Marcy Hammerle, DVM, DABVP (C/F), Christine Horst, DVM, Emily Levine, DVM, DACVB, MRCVS, Karen Overall, MA, VMD, PhD, DACVB, CAAB, Lisa Radosta, DVM, DACVB, Marcia Rafter-Ritchie, LVT, CPDT, VTS-Behavior, Sophia Yin, DVM, MS, DACVB†

Abstract

The *2015 AAHA Canine and Feline Behavior Management Guidelines* were developed to provide practitioners and staff with concise, evidence-based information to ensure that the basic behavioral needs of feline and canine patients are understood and met in every practice. Some facility in veterinary behavioral and veterinary behavioral medicine is essential in modern veterinary practice. More cats and dogs are affected by behavioral problems than any other condition. Behavioral problems result in patient suffering and relinquishment and adversely affect staff morale. These guidelines use a fully inclusive team approach to integrate basic behavioral management into everyday patient care using standardized behavioral assessments; create a low-fear and low-stress environment for patients, staff, and owners; and create a cooperative relationship with owners and patients so that the best care can be delivered. The guidelines' practical, systematic approach allows veterinary staff to understand normal behavior and recognize and intervene in common behavioral problems early in development. The guidelines emphasize that behavioral management is a core competency of any modern practice.

(*J Am Anim Hosp Assoc* 2015; 51:205–221. DOI 10.5326/JAAHA-MS-6527)

Introduction

The purpose of these guidelines is to provide practitioners and staff with up-to-date, evidence-based information to ensure that the basic behavioral needs of canine and feline patients are met. More dogs and cats are affected by behavioral problems than any other condition, often resulting in euthanasia, relinquishment of the patient, or chronic suffering. These guidelines were written to help veterinary professionals accomplish the following objectives:¹⁻⁵

1. Integrate basic behavioral management into all aspects of clinical practice so that every patient gets the best hands-on care in a low-stress environment.
2. Understand age-specific normal and abnormal behavior for dogs and cats to ensure developing or existing behavioral problems are recognized and addressed.
3. Promote routine assessment of behavioral development and changes in behavior through the use of standardized assessment tools.
4. Provide owners with guidance regarding the most common canine and feline behavioral conditions so clients seek help early (if needed).
5. Create co-operative patients and superb client-veterinarian-patient relationships so the patient and client can benefit from a lifetime of the best possible care.
6. Impress upon the entire veterinary health care team the importance of making behavioral management a core competency of the practice.

These guidelines will help readers develop the expertise and confidence to teach clients about their pets' behavioral needs. If staff and clients are effectively educated regarding pet behavioral needs, veterinarians will create a health care team that produces the best patient outcomes. Improved outcomes translate to increased client retention and decreased frequency of euthanasia. Veterinarians play a pivotal role in increasing the quality of life for their patients and for their patients' owners. Knowledge about behavior also reduces the risk of injury for staff and clients and improves staff members' job satisfaction. More efficient physical examinations, better information exchange, and staff trained to conduct behavior modification and instructional appointments lead to improved patient care, better case outcomes, and profitability for veterinary practices. These guidelines will help veterinarians become clients' first source of information so they will not seek services or advice from those not qualified to provide optimal care.

The Importance of Client Opinion and Perception

Client perception is key in all aspects of veterinary medicine. Veterinarians and their staff lose credibility if they are unable to compassionately handle active, fractious, fearful, and distressed animals. Clients are disinclined to return if their pet was fearful, if their pet threatened/injured staff, or if the veterinarian was angry or uncomfortable. Clients judge clinical expertise, at least in part, on how their pet is handled and responds to the veterinarian. Unfortunately, surveys indicate that clients typically rely on nonclinically trained individuals instead of veterinarians for advice on pet behavior problems.⁶⁻⁸ These guidelines provide practitioners with tools to help reverse that trend.

Take-Home Messages

Topics and methods discussed in these guidelines are not part of the traditional curriculum in many veterinary medical schools. These guidelines are based on the following key messages:

1. Veterinarians must institute a culture of kindness in the practice and avoid using either forced restraint or punitive training or management methods.
2. Veterinarians must be aware of the patient's body language at all times, understanding that it conveys information about underlying physiological and mental states.
3. Practitioners must educate staff and clients to recognize early indicators of behavioral problems.
4. A standardized behavioral assessment should be a part of every examination and part of the patient's permanent medical record.
5. All staff must be familiar with basic behavioral management techniques and be proficient in applying them.
6. Veterinarians must be committed to healthy brain development in puppies and kittens through proper nutrition and social exposure.
7. The development of competencies in veterinary behavioral medicine, behavior management, and behavioral wellness is an opportunity for the practice, its clients, and especially, its patients.

Incorporating Behavioral Assessments into Every Examination

All veterinary visits should include a behavioral assessment. Such assessments encourage the client to talk to the veterinarian regarding any concerns or questions they may have about their pet's behavior and allow the staff

to better meet the behavioral needs of their patients during and after the evaluation. Assessments should include the use of a standardized behavioral history form that becomes part of the patient's permanent medical record. Using the same questionnaire at every visit, individual behavioral changes can be tracked and problems can be addressed early in development.

Behavioral evaluations on record are useful after patients have had surgery or emergency treatment. Convalescence is best evaluated with respect to the patient's normal behaviors.

Good behavioral evaluations are especially important in young animals. Studies show that 10 percent of puppies that were fearful during a physical exam at 8 wk of age were also fearful at 18 mo.^{9,10} Patients do not outgrow pathologic fear.

Veterinary staff should be able to recognize signs of fear and distress, understand when behaviors deviate from normal, and identify patients at risk for developing problematic behaviors. The behavioral history will identify whether such behaviors are exceptional and contextual (e.g., the dog is truly only afraid at the veterinarian practice) or more generalized (e.g., the cat is never seen upstairs and must be trapped in the basement for a trip to the veterinary practice). Such assessments help clients monitor the patient's behavior while educating them about risk.

The most commonly recognized signs of nonspecific anxiety and distress are listed in **Table 1**.^{11–22} Clients easily recognize trembling, shaking, and high-pitched vocalization as signs of distress but may not recognize less overt signs. Veterinary professionals are in an ideal position to educate clients about potential behavior problems and risk factors. Behavioral conditions are progressive. Early intervention is essential to preserve quality of life for both the patient and client and to provide the best chance of treatment success.

Age and Behavior

Age and life-stage patterns of behavior should be considered during behavioral and physical examinations. Normal patterns of behavioral change are predictable as the brain matures, whereas atypical changes may signal the development of a behavioral problem.

Puppies and Kittens

The pre-, peri-, and postnatal environments are critical for creating calm, nonreactive animals. Calmer dogs and

TABLE 1

Most Commonly Recognized Signs of Nonspecific Anxiety/Distress in Dogs and Cats^{11–22}

- Urination
- Defecation
- Anal sac expression
- Panting
- Increased respiration and heart rate
- Trembling, shaking
- Muscle rigidity (usually with tremors)
- Lip licking
- Nose licking
- Grimace (retraction of lips)
- Head shaking
- Smacking/popping lips or jaws together
- Salivation/hypersalivation
- Vocalization (excessive and/or out of context)
- Frequently repetitive sounds, including high-pitched whines, like those associated with isolation
- Yawning
- Immobility, “freezing,” profoundly decreased activity
- Pacing, profoundly increased activity
- Hiding or attempted hiding
- Escaping or attempted escaping
- Body language of social disengagement (i.e., turning head or body away from signaler)
- Lowering of head or neck
- Inability to meet a direct gaze
- Staring at some middle distance
- Body posture lower than normal (in fear, the body is extremely lowered or tail tucked)
- Ears lowered/possibly droopy because of changes in facial muscle tone
- Mydriasis
- Scanning (i.e., moving eyes and/or head across the environment to continually monitor all activity)
- Hypervigilance/hyperalertness (may only be noticed when touched or interrupted, but pet may hyperreact to stimuli that otherwise would not elicit this reaction)
- Shifting legs
- Lifting paw in an intentional movement
- Increased closeness to preferred associates
- Decreased closeness to preferred associates
- Profound alterations in eating/drinking (acute stress is usually associated with a decrease in appetite and thirst, whereas chronic stress is often associated with an increase)
- Increased grooming, possibly with self-mutilation
- Decreased grooming
- Possible appearance of ritualized/repetitive activities
- Changes in other behaviors, including increased reactivity or increased aggressiveness

cats are easier to handle and train and may be less likely to become aggressive and fearful. If patients experience early stress (such as neglect, abuse, isolation, nutritional

compromise, or environmental instability) or their mothers experience gestational stress, it's likely that there will be adverse effects on early behavior. Clients and veterinarians must communicate about early behavior and risk.

Animals are best able to learn to respond to social and physical environments during specific neurodevelopmental life stages. Responses to stimuli during those periods may be accurate predictors of future behavior and should alert clients and veterinarians to early problems. Veterinarians should conduct multiple behavioral assessments throughout the first 18 mo in addition to those made during vaccine visits to ensure that the patient is progressing normally. While developmental landmarks have typical ages at onset (**Tables 2, 3**), dogs and cats never stop learning from their experiences. Appropriate interventions should occur early and as needed.

“Socialization” is loosely based on the changes that occur during sensitive periods for development. Given appropriate access, dogs and cats will expose themselves to social situations; however, human lifestyles may deny pets those opportunities. Clients should be encouraged to allow their pets to interact with other people, experience new places and activities, and encounter other animals or species in a positive manner during those sensitive periods.

There are two risks associated with the concept of socialization. First, the assumption that social exposure should occur only during certain periods is incorrect. There is extensive individual variation in development. Allowing dogs and cats the opportunity to develop at their own rate is important. Second, either the presence or development of fear during sensitive periods is aggravated by forced social exposure. Overexposure can make fearful dogs worse, creating a behavioral emergency. Clients should be advised that any dog either beginning to withdraw from interactions or exhibiting outright fear should not have more exposure unless recommended by their veterinarian. If the behavior is extreme, a veterinary behavior specialist should be consulted. Continuing to expose fearful puppies in the guise of “socializing them” instead sensitizes them.

If dogs and cats are deprived of appropriate exposure during critical sensitive periods, they have an increased risk of developing problematic behavior. Because sensitive periods begin so early, social exposure should start under the supervision of the breeder. Puppies and kittens born

to healthy, properly vaccinated mothers and engaged in an active vaccination program have a low risk of contracting infectious diseases.^{23,24} There is no medical reason to delay puppy and kitten classes or social exposure until the vaccination series is completed as long as exposure to sick animals is prohibited, basic hygiene is practiced, and diets are high quality.^{24,25} The risks attendant with missing social exposure far exceed any disease risk.

Puppies should not be separated from their littermates and dam until at least 8 wk of age. Puppies separated at 30–40 days versus 56 days experienced a greater incidence of problems related to the early separation, such as excessive barking, fearfulness on walks, reactivity to noises, toy or food possessiveness, attention-seeking behavior, and destructive behavior as adults.²⁶

The risk of behavioral problems can be assessed during vaccination appointments or preventive care exams. The development of fear and other behavioral pathologies can be detected at an early age. A few key tests and observations can be helpful in detecting high-risk animals (**Table 4**). Any worrisome behaviors should be taken seriously and addressed immediately to avoid the risk of relinquishment and/or euthanasia.

Adolescents and Adults

From ~6 mo of age to social maturity (12–36 mo in dogs and up to 48 mo in cats), dogs and cats are maturing physically and developing their first independent behavior patterns. The juvenile period is a period of intensive social exploration and learning, which ideally contributes to resiliency. If dogs and cats become less resilient, more withdrawn, or more reactive or aggressive, redress should be immediate. Veterinarians should advise clients during puppy and kitten visits that there is no evidence that pets “grow out” of behavioral problems as they socially mature. Any change warrants a professional assessment.

Mistaken or misinformed beliefs may become apparent early. Clients may not understand that some undesirable behaviors are normal (e.g., young puppies cannot last 8–10 hr without urinating). Clients may not understand the difference between a behavior that is undesirable but possibly normal and responsive to training (e.g., grabbing someone during play) and abnormal behavior that requires professional care (e.g., becoming aggressive if not permitted to play after grabbing). Clients may

TABLE 2**Behavioral Development in Dogs¹⁴**

Age	Behavioral patterns and relevant stimuli	Potential problems if exposure during relevant period is absent
0–13 days	<ul style="list-style-type: none"> • Exposure to handling, especially tactile and thermal stimuli 	<ul style="list-style-type: none"> • Hyperreactivity • Altered sensitivity to touch (consider role for tactile stimuli and attendant neurodevelopment in dogs with docked/bobbed tails and docked ears)
13–20 days	<ul style="list-style-type: none"> • Exposure to handling by humans and other dogs • Exposure to novel auditory and visual stimuli 	<ul style="list-style-type: none"> • Concerns with visual and auditory acuity (based on laboratory animals)
3–8 wk	<ul style="list-style-type: none"> • Puppies begin to eat semisolid food by ~3 wk and solid food by ~5 wk • Puppies will begin to explore/ interact with other dogs • As the period progresses and puppies become more co-ordinated, they engage in pouncing, rolling, rough and tumble play, mouthing, grabbing, and growling at other puppies or older dogs that play with them • Species identification may occur as early as 2.5–3 wk of age. Puppies raised only with cats from 2.5–13 weeks of age do not recognize dogs (consider the concern of raising dogs of one breed with only dogs of that breed, which is a common occurrence in very small breeds) 	<ul style="list-style-type: none"> • Heightened reactivity to dogs • Heightened reactivity to other species, including humans • Lack of inhibition in both arousal levels and behavioral responses to arousal • Learn to be calm/settle/relax. Such learning has profound responses for how dogs later handle situations that are potentially anxiety-provoking
From 5–7 wk to 12 wk	<ul style="list-style-type: none"> • Beginning at ~5 wk, puppies begin to recognize “other” and interact with/ seek out other species, including humans. This interaction is more complex than the approaching that they will begin to do at 3 wk of age • Maximum distress, as indicated only by vocalization, occurs at the 5th wk of development. • At 5 wk, dogs begin to truly hone intraspecific skills • Interaction with humans intensifies beginning around ≥6 wk • Housetraining is most successfully learned at ~8.5 wk, when there is sufficient cortical development to (1) make an association with preferred substrate; and (2) understand that inhibition of micturition may be desirable. Note that puppies with small bladders and high metabolisms may still need to go out hourly even if they are housetrained. • Dogs begin to bark by 4–5 wk and growl shortly thereafter. The amount of vocalization and age of onset is affected by breed. • By 7 wk, weaning is normally completed 	<ul style="list-style-type: none"> • Fear of humans and other species • Fear of the approaches of humans • Lack of learned inhibition for elimination of feces/urine • First true pathological fear responses reliably reported for laboratory animals in genetically susceptible lines
From 10–12 wk to 16–20 wk	<ul style="list-style-type: none"> • Intense period of learning how to explore/learn about novel environments. Puppies learn about risk and how to make a mistake successfully • Play becomes rougher/appears to be about successfully making and learning from mistakes 	<ul style="list-style-type: none"> • Neophobia • Lack of plasticity in responses • Inappropriate play and lack of play
14–20 wk	<ul style="list-style-type: none"> • Dogs not allowed to explore new environments by 14 wk will not voluntarily do so. If forced, they freeze and become extremely distressed • Normal marking behaviors may begin to appear as dogs approach sexual maturity 	<ul style="list-style-type: none"> • Neophobia • Profound panic • Plasticity of response is characteristic of normal behaviors. Lack of plasticity in response is characteristic of abnormal behaviors

Table adapted from *Manual of clinical behavioral medicine for dogs and cats*.

not know that treatment by a veterinarian is an option for problematic behaviors and that treatment may be needed for puppies or kittens. It is the job of the veterinary team to determine if a client is concerned or should be concerned about a pet’s behavior and to know when medical intervention, behavioral modification, or referral

is appropriate. For such early intervention to occur, the clients must be encouraged to have a regular dialog with their veterinarian.

The term “social maturity” is used to describe the neurodevelopmental stage characterized by an increase in

TABLE 3**Behavioral Development in Cats¹⁴**

Period/age	Behavioral patterns and hallmarks
2 days	Purring begins
10–14 days	Eyes open
2 wk	Age at which separation from mother leads to fearful/aggressive behavior to cats/humans
2–4 wk	Closeness of other kittens has a calming effect
End of 3rd wk	Kittens able to recognize their mother by sight and smell
3 wk	Queen begins to teach predatory behavior
3 wk	Kittens eliminate voluntarily
3–7 wk	Age at which singleton kittens emerge from nest box
3–4 wk	Normal social play behavior starts
4 wk	Age at which kittens exposed to another species (e.g., dogs) show no fear at 12 wk
4 wk	Age through which kittens cannot retract their claws
5 wk	Age at which kittens will use scratching material if provided
2–5 wk	Early period for social play. Early exposure to humans essential
5–6 wk	Kittens independent in their ability to eliminate and find suitable substrates. Appropriate materials should be provided
~6 wk	Adult-like response to visual/olfactory stimuli, including the silhouettes of adult cats/adult cat urine
5–7 wk	Middle period for social play. Continued exposure to and play with humans/other species essential
~6 wk	Gape/Flehmen response appears (open mouth sniff to volatilize compounds through the vomeronasal organ)
7 wk	Gape/Flehmen response fully developed
Birth to 45 days	During this period, if kittens are handled regularly, their approach to unfamiliar objects is rapid and more time is spent with objects and environment at 4–7 mo
5.5–9.5 wk	Age at which if kittens are handled by multiple people less fear is shown later/more interest in people later. More complex interaction recommended
7 wk	Kittens begin to cover their urine/feces if they are going to do so
7–10 wk	Late period for social play. Last age at which first exposures to humans can still readily ease the extent to which cats are comfortable with humans. More time/day with humans than required earlier to get the same result
By 60 days	Object play increases
4–12 wk	No sex differences in social play behavior
6–12 wk	Pounce, belly-up, and stand-up displays are 90% effective in obtaining play response from another kitten
By 12 wk	Social play patterns become more associated with predatory behavior/social fighting
Birth to 12–14 wk	Handling kittens for only 15 min/day produces kittens more solicitous of people
14 wk	Postsocial play period
14 wk	Social fighting may start
12–16 wk	Sex differences appear in social play behavior
12–14 wk	Social play behavior begins to decline

Table adapted from *Manual of clinical behavioral medicine for dogs and cats*.

neuronal modification. It is a common time for behavioral problems to either develop or progress and for clients to notice behavioral changes.

Dysregulation of some previously acquired behaviors may occur, requiring clients to monitor and report changes in learning ability, recoverability, or the development of fears and aggressions. Those behavioral changes are not associated with hormones or sexual maturity

(6 mo in cats and 6–9 mo in dogs). While many dogs and cats emerge from social maturity calmer and more attentive, those with behavioral pathologies invariably worsen. Most dogs and cats relinquished to shelters, euthanized for behavioral problems, or abandoned are 1–3 yr old and in the midst of social maturity.^{1,12,27} Changes in pet behavior are potentially life-threatening, yet many of the problems emerging during that time can be addressed with simple intervention.

Because there is a gap between the last puppy or kitten vaccine visit, which is generally at 16 wk of age, and the first adult preventive care visit, which is at either 1 yr of age or 1 yr after the last vaccine (16 mo of age), this Task Force recommends that veterinarians educate clients about pet behavior at a 6 mo visit and that a behavioral health check be implemented at 1 yr of age. Additionally, clients should be reminded to consult their veterinarian at the first signs of any problematic behavior. A list of those behaviors (**Table 5**) should be provided to and reviewed with all clients.

Senior Dogs and Cats

Canine and feline behavioral changes can be physiological or cognitive and both may be amenable to treatment and intervention.¹³ Monitoring both age-associated cognitive and physiological changes should be conducted at least annually in dogs (starting at 5–8 yr for larger breeds and 8–10 yr for smaller breeds) and cats (starting at 10–12 yr). Those evaluations can be combined with annual preventive care examinations (**Table 4**). Clients are usually excellent at monitoring older pets if told what to look for.

Providing clients with older pets an assessment tool to be completed *q* 2–3 mo provides guidance regarding the potential rate of behavioral change, shows empathy, and encourages the client to intervene on behalf of their pet.

Clinical signs of behavioral anomalies in senior pets may include house soiling, changes in elimination patterns, decreases/changes in interactions with other pets or humans, onset of aggression in a normally nonaggressive dog, disorientation, poor problem solving (e.g., getting stuck behind doors), changes in sleep patterns, changes in vocalization, and recent onset of novel phobias. There are medications, diets, supplements, and behavioral or environmental interventions that can help aging dogs and cats and improve their quality of life and that of their owners. All interventions work best if they can be implemented as soon as possible after onset of the problem.

Many early changes in reactivity and problem-solving behavior are associated with loss of either visual or auditory acuity and physical flexibility. Low-level lighting, clear verbal signals augmented by either visual or tactile cues, and range-of-motion exercises all may help and should be part of any intervention for aging, distressed dogs and cats.

Assembling a Support Team

Working with a Qualified Trainer

Qualified trainers can be valuable partners on a veterinary behavior management team.²⁸ “Training” is an unregulated field, and unskilled, poorly schooled trainers may cause harm. It is worthwhile to establish a collaborative relationship with a qualified, certified, and insured pet trainer. An accomplished trainer can work seamlessly with the veterinary team to help clients implement behavioral interventions, provide feedback, and elevate the practice’s level of behavioral care. Diagnosis and medical intervention remain the purview of the veterinarian.

Trainers should have obtained certification from a reliable organization that has, as its foundation, the sole use of positive methods. Certification for trainers should require annual continuing education, liability insurance, and testable knowledgeable in behavior and learning theory trainers. Unfortunately, credentials don’t guarantee the use of humane methods or honest marketing. It is essential that clients ask trainers about specific tools and techniques

TABLE 4

Key Behaviors Used in Clinical Settings to Identify Fearful Dogs and Cats

Behavior patterns associated with normal development	Behavior patterns associated with problematic development
Approaches unfamiliar people	Will not approach/actively avoids unfamiliar people
Approaches and/or plays with other friendly and/or solicitous animals	Doesn’t interact or play with other solicitous animals, avoids them or responds aggressively to their solicitations for play
Not fearful of most noises and recovers quickly from exposure to loud noises	Fearful of many noises and does not immediately recover from exposure to loud noises
Takes treats and explores exam room	Doesn’t take treats, hides, freezes, or panics in the exam room
Uses litter box/eliminates outside when taken out and does not soil the house if otherwise given reasonable access	House/litter box training is either not progressing or regressing

Table adapted from *Manual of clinical behavioral medicine for dogs and cats*.

TABLE 5**Cat and Dog Behaviors Appearing During Social Maturity that Should Prompt Veterinary Assessment**

- Fear of/withdrawal from people or other dogs/cats
- Aggression to people/other dogs or cats
- Stereotypical/repetitive/ritualistic behaviors (e.g., circling, overgrooming, licking, sucking)
- Elimination changes and elimination in inappropriate areas
- Development of fears/phobias associated with environments/stimuli (e.g., storm phobias, fear of car rides, leash walks, new places/toys)
- Distress when left alone
- Increased reactivity in any situation
- Profound changes in activity level (either less or more) and reactivity when resting or asleep

used. If the tools or techniques include prong collars, shock collars, or leash/collar jerks/yanks, or if the trainer explains behavior in terms of “dominance” or throws anything at a dog, advise clients to switch trainers. Ensure that individuals teaching the class do not force fearful, reactive dogs to stay in class. Forcing dogs to remain where they are fearful, even using crates or baby gates, worsens fear. Classes should have a high ratio of instructors to clients and dogs.²⁸

The Role of Technicians

Canine and feline behavior management is a certifiable veterinary technician specialty acquired through training and testing. Veterinary Technician Specialists in Behavior and the Academy of Veterinary Behavior Technicians understand the value of a team approach in implementing scientifically proven and humane behavioral treatments in clinical practice. Many technicians are interested in training and behavior and would benefit from joining the Society of Veterinary Behavior Technicians (www.svbt.org), a group that provides quality continuing education in this specialty.

Specialists in Veterinary Behavioral Medicine

Behavior cases can be complex, often involving public health and safety issues. Board-certified veterinary behaviorists (diplomates of the American College of Veterinary Behaviorists, www.dacvb.org) are specifically trained and qualified to treat clinical behavior problems in companion animals. Referral to a veterinary behaviorist may be recommended in cases involving self-injury, aggression, multiple concurrent behavioral diagnoses, profound phobias, or for patients not responding to conventional treatment despite the primary care veterinarian’s best efforts. Dogs either inflicting deep bites or those injuring

immunocompromised individuals should be referred to a specialist. Under no circumstances should aggression or any condition involving a clinical diagnosis be referred to a trainer for primary treatment. Referral to a dog trainer is appropriate for normal but undesired behaviors (e.g., jumping on people), unruly behaviors (e.g., pulling on leash), and teaching basic manners.

Changing Behaviors**Behavior Modification**

Learning theory, operant conditioning, and classical Pavlovian conditioning are mature sciences and offer a wealth of information to veterinarians. The following concepts and definitions should help the health care team incorporate basic learning theory and behavior modification into clinical practice and to recognize and make recommendations against inappropriate, unkind, and dangerous behavior correction practices often recommended by nonprofessionals. Avoidance and safety are the cornerstones of behavioral treatment. Comprehensive behavior treatment plans include medication, behavior modification/training, and environmental change/management. Commonly accepted principles of behavior treatment and modification are as follows:²⁹

- When behaviors are rewarded they are repeated and increase in frequency.
- New behaviors are learned best if they are rewarded each time they occur.
- After a behavior has been acquired, it is best maintained if it is rewarded randomly and intermittently, which is more often than “seldom.”
- Dogs and cats will repeat a learned behavior if it is rewarded and will exhibit behaviors their owners desire if those behaviors are rewarded.

Behavior modification is often described using the following terminology:

- Positive: something is given to the animal (e.g., a reward is positive reinforcement given for desired behavior).
- Negative: something is taken away from the animal (e.g., attention is withheld from a dog as negative reinforcement for an undesirable behavior, not petting a jumping dog).
- Reinforcement: a consequence that increases the likelihood of the behavior in the future.
- Punishment: a consequence that decreases the likelihood of the behavior in the future.

The term “behavior modification” refers to techniques that either increase or decrease the frequency and expression of behaviors. The basic techniques discussed here are part of an integrated approach to treating problem behaviors:

- **Desensitization:** the process by which a stimulus associated with an undesirable behavior is presented to the individual at a level below that which elicits the response followed by a gradual increase in the stimulus level. If desensitization is properly done, individuals do not become aroused following exposure to the stimulus.
- **Counterconditioning:** a process in which an animal that is reactive, fearful, or aggressive to a specific stimulus (e.g., the doorbell, an approaching dog) learns to become happy and accepting of that stimulus. This is accomplished by pairing the stimulus with something that the dog or cat likes and wants. Counterconditioning and desensitization are often combined so that rewards are given when a dog or cat does not react to a stimulus to which they previously reacted, even when the stimulus gradually increases. For example, if a dog is fearful of a vacuum cleaner, gradual exposure to the vacuum cleaner is paired with something the animal likes and on which the dog can focus (e.g., highly desirable food), enabling the dog to associate the vacuum cleaner with something good. This technique is not the same as flooding, which should be avoided.
- **Flooding:** prolonged exposure to the worrisome stimulus at a level that causes the anxious, aggressive, or fearful response in the hope that simply by presenting the stimulus continuously, the undesirable behavior will stop. Unlike desensitization (where the goal is to expose the dog or cat to a worrisome stimulus at a level below that which will trigger the response), flooding exposes the animal to the stimulus at a level that triggers the response. In the case of distressed patients, flooding actually sensitizes the patient to the stimulus and worsens it by causing shutdown or collapse of a patient. Dogs and cats repeatedly exposed to inescapable unpleasant or painful stimuli may develop learned helplessness, that is, they cease offering any behaviors because they learn they have no control over outcomes. Flooding is never recommended.
- **Training an alternate behavior:** a process in which an appropriate behavior that is incompatible with the problem behavior is taught as an alternate response using positive reinforcement. For example, if a cat

habitually chases a person’s feet, the cat is taught to go to a high perch for a treat in response to a cue, in this case the appearance of a human being. The cue indicates that a treat will be given if the cat goes to the perch when someone enters the room.

- **Distraction and redirection:** a process in which food or another reward is used to lure the individual’s attention away from a stimulus to preempt a response, decreasing fear or aggression. For example, a cat that habitually chases a person’s feet is distracted (redirected) when a toy is waved in its face so the cat plays with the toy instead of focusing on the person’s feet.
- **Environmental enrichment:** the addition of one or more external factors in order to reduce the frequency of abnormal or unwanted behaviors while increasing the frequency of normal, desired behaviors. For example, if a dog that paces when left alone is provided with a food toy, the dog will work with the toy rather than pace. Many dogs with behavioral problems are too distressed for simple environmental enrichment alone to have an effect.
- **Avoidance:** the act of preventing an individual from engaging in unwanted behaviors. This technique protects distressed dogs and cats from exposure to adverse behavioral stimuli that will make them worse. Protection is the first treatment step. For example, a dog barks at people seen outside the window. Closing the blinds or sequestering the dog at the back of the house avoids the stimulus that triggers the barking response.

Aversive Techniques

This Task Force opposes training methods that use aversive techniques. Aversive training has been associated with detrimental effects on the human–animal bond, problem-solving ability, and the physical and behavioral health of the patient.^{29–32} It causes problem behaviors in normal animals and hastens progression of behavioral disorders in distressed animals.³³ Aversive techniques are especially injurious to fearful and aggressive patients and often suppress signals of impending aggression, rendering any aggressive dog more dangerous.^{34–36}

Aversive techniques include prong (pinch) or choke collars, cattle prods, alpha rolls, dominance downs, electronic shock collars, lunge whips, starving or withholding food, entrapment, and beating. None of those tools and methods should be used to either teach or alter behavior. Nonaversive techniques rely on the identification and reward of desirable

behaviors and on the appropriate use of head collars, harnesses, toys, remote treat devices, wraps, and other force-free methods of restraint. This Task Force strongly endorses techniques that focus on rewarding correct behaviors and removing rewards for unwanted behaviors.^{33–35,37}

Pharmacological Intervention

Medications commonly used to treat behavioral conditions in dogs and cats include the following:

- Benzodiazepines (BZDs): alprazolam, diazepam, midazolam, clonazepam, and related medications like gabapentin.
- Tricyclic antidepressants (TCAs): amitriptyline, nortriptyline, clomipramine, imipramine, and doxepin.
- Selective serotonin reuptake inhibitors (SSRIs): fluoxetine, paroxetine, sertraline, fluvoxamine, citalopram, and escitalopram.
- Dual serotonin norepinephrine reuptake inhibitors: venlafaxine and duloxetine.
- Dual serotonin 2A agonist/serotonin reuptake inhibitors (SARIs): trazadone and nefazodone.
- Monoamine oxidase inhibitors (MAOIs): selegiline.
- Azapirones: buspirone.
- Centrally acting 2A agonists that may act as hypotensives (decrease in cardiac output and peripheral vascular resistance): clonidine, guanfacine, medetomidine, and dexmedetomidine.
- Local anesthetics (such as lidocaine gel): used before venipuncture, vaccination, or anal sac expression, especially in patients that have experienced procedure-related fear or pain.

Of those medications, only clomipramine^a and fluoxetine (for canine separation anxiety) and selegiline^b (for canine cognitive dysfunction syndrome) are approved for dogs in the United States. Controlled studies have demonstrated the efficacy of clomipramine and fluoxetine in combination with behavior modification for treating separation anxiety.^{38–44} Because there are few controlled studies for other medications or indications, most medications are used on an extra-label basis. Extra-label use of pharmaceuticals must be done in the context of diagnosis, a comprehensive treatment plan, a discussion of mechanism of action and expected changes, and full disclosure that use is nonapproved.

Some medications can be used as needed (e.g., BZDs, 2A agonists, some SARIs, gabapentin) for fears, phobias, and

panic. Daily medications may also include TCAs, SSRIs, SARIs, BZDs, 2A agonists, some SARIs, and gabapentin for general fears and anxieties. Onset of action may depend on biotransformation and subsequent regional brain molecular receptor changes; therefore, treatment effects for some medications may not appear for 5–8 wk. Dosage recommendations are available elsewhere.¹⁴ Keep in mind that when combining medications, dosages may change, and interactions may occur.

Medications should be used only as part of an integrated treatment program. The goals of that approach are to protect the patient and their owners, provide a suitable environment for improvement, and implement appropriate behavior modification, including use of humane, positive-reinforcement tools.

Risk assessment is essential for medication use. For example, BZDs can have occasional side effects that render some animals extraordinarily sedated and at risk for self-trauma. Other animals are extraordinarily aroused and also at risk for self-injury. It is impossible to know if a particular animal will experience undesirable effects in advance; therefore, a team approach to treatment, observation, reporting, and recording outcome is essential. Veterinarian and client monitoring should include observation of heart rate, agitation or sedation, profound changes in appetite, vomiting, diarrhea that is not transient, and any new problematic behaviors or behavior changes.

Nutraceuticals and specialized diets are available that may or may not aid in the treatment of behavior problems. Research on nutraceuticals is ongoing and usage recommendations are not evidence-based at this time.

This Task Force recognizes that there are many alternative therapies used for behavioral problems. As a general rule, such treatments have not been adequately studied to warrant specific recommendations by the Task Force on either their use or benefit at this time. For example, although pheromonal products are commonly used to alter canine and feline behavior, there is no consensus among experts regarding their value, and definitive clinical study evidence of their efficacy is lacking.

Common Behavioral Problems

Aggression

Aggression occurs any time an animal growls, snarls,

snaps, or bites. Fear is one of the most common causes of aggression. Punishment should not be used in aggression cases because it increases the risk of bites and aggravates aggressive behavior. Treatment of the underlying cause is key. That approach usually involves avoidance, protection (of the dog and humans), behavior modification, extra-label medication use [TCAs, SSRIs, and sometimes gabapentin or certain BZDs (e.g., alprazolam)], and various restraint tools such as head collars and harnesses. Management of unwanted aggression may be lifelong.



Fear is one of the most common causes of aggression.

Use of a liability release form containing the following disclaimers is recommended in the treatment of aggression:

- Any animal that is aggressive for any reason has the potential to cause serious damage and harm to itself and other pets and people.
- Special precautions must be taken to ensure that everyone is safe when interacting with aggressive dogs. These precautions may include some form of confinement (e.g., gates, crates) or the use of leads, harnesses, head collars, and muzzles.
- Proof of current rabies vaccination should be provided to anyone involved in the treatment of the aggression.
- Treating a behavioral aggression problem is not a substitute for adherence to local laws.
- Owning an aggressive dog or cat carries with it responsibility and potential liability for any damage done to people or property. This responsibility is not changed or transferred by seeking behavioral help.
- Problems involving pathological behaviors, including aggression, are never cured but can be treated and managed. Failure to do so may lead to euthanasia of the animal.

Elimination Disorders

Elimination disorders in cats are typified by elimination outside of a preferred area. Diagnostic indicators include urine marking (which can also be a normal behavior) and toileting outside of the litter box. Prior to implementing behavioral treatment, treatment of any underlying

medical conditions that may be contributing to the problem is essential.

Environmental changes are the first line of treatment and are often effective. Examples include providing extra litter boxes, cleaning litter boxes more often, and changing litter type/litter box style to improve access.⁴⁵ Behavioral treatments can also have positive effects on animals treated for primary medical disorders because medical and behavioral conditions can exist concurrently and exacerbate each other.

Separation Anxiety

Separation anxiety can occur when a pet is either left home alone or separated from its owner. Separation anxiety usually presents as signs of clinical distress such as pacing, panting, vocalizing, urination, destruction of property, and salivation. This condition should be considered to be a behavioral emergency. Medications, including clomipramine and fluoxetine, have both been approved for use in dogs and should be used as a first-line treatment at the earliest sign of clinical distress. A comprehensive treatment plan includes behavior modification, environmental enrichment, and minimizing separation to the extent possible. Signs of separation anxiety may not be apparent to the owner. This Task Force encourages all clients to annually videotape their pet when they are not home as a way to detect behavioral abnormalities, including less obvious forms of separation anxiety. Medications have a higher likelihood of treatment success if they are used early in the development of observed anxiety. Duration of treatment depends on severity of the anxiety and response to treatment.

Noise Phobia

Noise phobia during thunder, fireworks, or storms is a profound fear manifested by hiding, trembling, destruction of property, salivation, or panting. Those behaviors occur in response to a specific sound or circumstances associated with that sound. Anxiolytic medications (e.g., alprazolam and clonazepam for dogs and oxazepam for cats) are used on an as-needed basis as the first line of treatment and should be given 1–2 hr before an anticipated triggering event.¹⁴ Some patients may also need daily medication, and every one should have concurrent nonpharmacologic management for long-term treatment.⁴⁶ Other anxiety diagnoses often coexist with noise phobia. Screening for potential comorbidities is important because comorbidity worsens each condition.¹⁵

Cat-to-Cat Aggression

Cat-to-cat aggression is evidenced by behaviors such as staring, hissing, swatting, scratching, growling, or biting other cats in the home environment. Treatment plans include medication (generally start with fluoxetine), environmental enrichment, training, play therapy, and safety tools. Regardless of the underlying cause for inter-cat aggression, a critical step in treatment involves separating the cats until a course of medication and behavior modification has been completed. The cats may then be gradually reintroduced. Cases of aggression within a cat's social group can take anywhere from 2 to 12 mo to resolve, requiring patience. Permanent separation of cats is always an option.

Using a Case Approach

All veterinary personnel should be able to use standardized behavior assessment tools and provide general guidance on managing canine and feline behavioral problems. A recommended case approach includes the following steps:

1. Identify a behavioral problem during a preventive care appointment after the client either completes a brief screening questionnaire or requests help for a specific behavioral concern.
2. Monitor the patient's stress level as it enters the clinic and is moved to the exam room (see the section, "Minimizing the Patient's Fear in the Veterinary Hospital").
3. Provide client-education materials about common behavioral disorders, their prevention, and treatment.
4. While the patient is in the exam room, review the behavioral history by asking general questions, such as the age of onset and progression of any behavioral

problems and situations that trigger the problem behaviors. A risk assessment should be made, including the likelihood of injury to the pet and human handlers and any risk of relinquishment of the pet.

5. Complete a comprehensive physical exam, including diagnostic testing.
6. Make a list of problem behaviors and a presumptive diagnosis based on specific behavioral descriptions (e.g., a dog bites a child only in the presence of food).
7. Develop a management plan designed to reduce stress in any clinical situation.
8. Make a list of differential diagnoses based on the current literature and the existence of possible comorbidities.
9. Advise clients to implement the first treatment step, avoidance and protection, immediately. For example, when a child is near food, restrict the dog's access to the child. Conversely, restrict the child's access to the dog when the dog is eating. That strategy avoids the manifestation of problem behavior and protects both the dog and child.
10. Make a final diagnosis based on the overall analysis, consultations with veterinary behavior specialists, and reference materials.
11. Devise a written treatment plan based on best practices.
12. Follow up with the owner by phone or text.
13. Schedule regular rechecks.

Sample Case: Canine Separation Anxiety

Appointment 1: The Treatment Plan

Avoidance

Avoid leaving the dog alone or loose in the home. Determine if the dog can safely be crated by questioning the client and/or videotaping the dog entering a crate and remaining inside when the owner is absent. If the dog panics in the crate or resists entering the crate (e.g., freezes, destroys the crate, or injures itself) consider pet sitters, home day care, or boarding in the hospital so the dog can be observed and protected. Encourage clients to be calm during departures and either avoid or minimize cues associated with departure-based distress.

Pharmacology

Start medications that act quickly (e.g., BZDs, SARIs, 2A agonists) immediately after the baseline behavioral assessment. If necessary, dosages can be adjusted once lab results

Continued on page 63

are available. Conduct laboratory evaluation (complete blood cell count, serum biochemical analysis, thyroid testing [thyroxine, free thyroxine], and urinalysis) to rule out any medical complications before starting long-term medications (i.e., TCAs, SSRIs). Arrange for a stable care situation for the dog for a period of at least 5 days while starting long-term medications and monitoring for adverse effects.

Management

Minimize absences from the dog. Have the owner offer the dog food toys when at home. If the dog uses them, offer those types of toys when the dog is alone. If the dog is able to eat the food obtained from the toy it is a sign that dog's anxiety is lessening. Dogs that are extremely distressed cannot eat.

Behavior Modification

Encourage the client to practice passive behavior modification by praising the dog for calm behavior and ignoring behaviors that are not calm. Clients can videotape their interaction with the dog to identify behaviors they should ignore and those that should be rewarded.

Data Collection, Follow Up, and Further Recommendations

Request that videotapes be taken over a 7 day period when the dog is left alone and submitted for assessment. Schedule an appointment 2 wk later to start active behavior modification.

Appointment 2: Treatment Plan

Avoidance

Assess the client's ability to avoid triggering the distress response in the dog.

Pharmacology

Question the client about subjective changes in behaviors the dog is exhibiting and objective changes (i.e., frequency, duration or intensity of problem behaviors, any change observed) since the last visit. Assess whether any behavioral changes should be treated with additional medications. For example, is panic a component of the problem? If yes, then a panicolytic medication (alprazolam) should be suggested.

Management

Decide whether food toys are helpful and what safe containment tactics are needed.

Behavior Modification

Teach the dog to relax using positive reinforcement steps (e.g., sit and look commands, offering a treat) in preparation for active behavior modification, including desensitization and counterconditioning to aspects of being left alone. Have the client keep a log of the dog's behaviors. As soon as the dog has acquired calm learned behaviors, a qualified person can then coach the clients and dog through desensitization and counterconditioning using a stepwise program. Ask the client to provide short videos every few days so that the health care team can determine if the behavioral modification is progressing satisfactorily. Client videos also provide an excellent source of continuing education for veterinary personnel.

One study reported that 106 out of 135 canine patients (78.5%) were fearful on the examination table.⁴⁷

Data Collection, Follow Up, and Further Recommendations

Rechecks performed by veterinary medical staff should occur *q* 2–4 wk until the dog's behavior is stable and *q* 3–6 mo thereafter. Electronic follow up using videotapes and behavior logs is helpful.

Minimizing the Patient's Fear in the Veterinary Clinic

Adverse Effects of a Stress Response

One study reported that 106 out of 135 canine patients (78.5%) were fearful on the examination table.⁴⁷ Eighteen of the dogs (13.3%) had to be either dragged or carried into the practice, and, <50% of the dogs entered the practice calmly. Dogs <2 yr, a patient population that is presented to veterinary hospitals relatively often, were more fearful than older dogs that see veterinarians less frequently, suggesting that recent exposure to the hospital environment on a repeated basis may increase fear. Hernander (2008) noted that dogs that had recently visited the veterinary hospital had higher stress levels than those that had not.⁴⁸ Dogs that had some control over their examination were less stressed,

and dogs that had had only positive experiences were less fearful than others, suggesting that dogs learn from interacting with empathetic veterinary personnel.⁴⁷

Fear and stress also affect hospitalized patients. Postoperative patients that were not fearful and stressed had fewer physiological indicators of stress, experienced fewer nosocomial infections, had faster rates of recovery, and required fewer postoperative visits.⁴⁹ Patients that underwent anesthesia were anecdotally often reported to later be more fearful or reactive, suggesting that postoperative distress behaviors may warrant medication and behavioral intervention to calm the patient. Those findings have profound implications for how hospitalized patients are cared for. Compliance and frequency of exams decline when clients believe that the inevitable result of a visit to the veterinarian is anxiety in their pets.^{48,50}

Manual restraint and forceful handling of animals in the veterinary hospital may interfere with successful case outcome. A heavy-handed approach can affect the ability to obtain accurate physical and laboratory data and may increase levels of physiological stress. Manual restraint also increases the likelihood of struggle and risk of injury to staff and patients.^{16,51,52} The physiological after-effects of physical restraint can lessen the efficacy of subsequently administered sedatives or other forms of chemical restraint. This Task Force recommends that the least stressful, most humane methods of restraint be used first, an approach that allows the patient's response to treatment and handling to determine the degree and duration of pharmacologic intervention. Examples of inappropriate physical restraint include nail trims that require several people to hold the animal; blood draws that require complete physical immobilization; "scruffing" cats that show no signs of arousal; "stretching" cats that may do better wrapped; and pinning dogs against walls or between gates, in runs, or fences for injections. All of those techniques make calm animals fearful and make fearful animals worse, less reliable in terms of safety, and less able to be calmly examined in the future. For humane, low-stress exams, less is truly more.

Benefits of Low-Stress Handling

Veterinarians who understand that the examination experience can be stressful for their patients and who instead emphasize low-stress handling will increase their credibility with clients. Using behavior-centered patient handling

techniques will enhance efficiency, increase client perception of compassion, increase client retention, and vastly improve the quality of patient care. Calmer patients pose fewer risks to themselves and human handlers. A less stressful workplace environment is best for everyone. Reducing fear in veterinary patients requires that the practice leadership make this approach a priority. The most progressive staff in the world cannot effect change if the leadership does not support it.

Tips for Reducing Patient Fear in the Veterinary Clinic

1. Reduce stress by having separate waiting areas for dogs and cats with separate air-handling systems, if possible.
2. Ensure that all dogs can have at least 1–1.5 body lengths between themselves and other dogs. Barriers can help keep animals separated.
3. Invest in nonslip floors that are back friendly and provide secure footing for dogs and cats.
4. Create a protocol for reactive patients. That may include either calling or texting clients when they can walk directly to the exam room, having the veterinarian already in the exam room, using a blind or bringing a reactive dog into the hospital through either a side or back door. Reactive dogs may do best as the first or last patient of the day. They generally do worse in a busy practice in which appointment delays are common. Giving preanesthetic medication with the client present may facilitate care.
5. Move at the animal's pace. Rushing may cause delays or intractability at a later visit.
6. Teach staff to use standardized questionnaires to evaluate stress at the hospital and invest in ensuring that everyone can accurately read canine and feline normal and stress-related behaviors and body language (**Tables 1, 4**).

Handling Anxious or Reactive Patients

The following items are suitable for creating a less stressful hospital environment for canine patients:

- Nonskid mats, rubber shelf liners, or yoga mats on horizontal surfaces.
 - Blue is a preferred color because it can be readily seen by dogs.
 - Dogs have greater control and feel safe from falling when they stand on nonslip mats, which also warm the exam table.

- Towels for wraps and bolsters.
 - Clean towel wraps provide safe containment of limbs and heads.⁵³ They are easy to use, not offensive to owners, provide better control and surface area coverage without human contact, and may induce a sense of security and muscle relaxation.
 - If the occasional patient finds being wrapped in a towel stressful, simply do not use the wrap.
 - Practice using towels and wraps on calm animals before attempting them on distressed patients.
- Treats.
 - Treats can include fish-flavored snacks (e.g., dried/tinned shrimp/anchovies), flavored hair ball preparations, yeast spreads, cream cheese, cheese spreads, and shredded cooked chicken. Treats must be palatable, have an olfactory component at room temperature, and be small enough so that dogs and cats can have several without appreciable caloric intake.
 - Treats can be used for distraction, redirection, counterconditioning, and reward techniques.
 - Caution is urged for patients/handlers with food allergies (e.g., peanut butter) and for dogs that become more aggressive in the presence of any food.
- Toys.
 - Toys can be used for distraction, redirection, counterconditioning, and lowering a patient's fear and stress.
 - Toys should either be kept clean and washed between patients or sent home with the patient.
- Basket muzzles.
 - Well-fitted basket muzzles prevent bites to staff and clients that handle anxious animals. Other forms of muzzles may not prevent bites.
 - Staff members may be less fearful and use less restraint if a difficult patient is muzzled and is accustomed to the muzzle.
 - Basket muzzles pose less of a health risk for dogs compared with nonbasket muzzles (e.g., vomiting), can be put on easily, and allow dogs to accept treats and drink.
 - To minimize risk, dogs must be taught to voluntarily put their face into the muzzle using reward-based training.
 - Muzzles can become weapons that cause injury to humans and other animals if the muzzled dog is distressed. Cautious, calm handling still applies to muzzled dogs.
- For the safety of the staff and the patient, all fractious animals under chemical restraint or sedation should wear a well-fitted basket muzzle throughout the procedure if not medically contraindicated.
- Remote-controlled treat dispensers.
 - Treat dispensers can be used with techniques involving distraction, redirection, and counterconditioning and can lower fear and stress.
 - Treat dispensers located some distance from personnel will direct the dog's attention away from handlers.
 - Dogs that are aggressive in the presence of food or treats may either guard dispensing devices or become aggressive in their presence.
 - Some treat dispensers may require a specific type of treat that may not be palatable to all dogs.
- Spreadable treats and squeezable food.
 - Spreadable treats (e.g., cream cheese, spray cheeses, pâtés, yeast spreads, some tinned foods) can be delivered at a distance rather than by hand.
 - A treat can be placed on tables, walkways, long spoons, toys with long handles, or pizza boards, encouraging the dog to move away from handler to get the treat.
 - Treats can be distributed over a large area, creating a wide area of focus and interest for the patient.
 - Spreadable treats can be used in distraction, redirection, counterconditioning, and to reduce fear and stress.
 - Spreadable treats and squeezable foods should not be used with dogs that become reactive or aggressive around food.
 - When food treats are used, veterinary personnel and clients should be screened or cautioned about possible food allergies.
- Head collars and halters.
 - Head collars and halters provide better control than standard collars, allowing the handler to turn the dog's head or close its mouth without force.
 - Head collars and halters should be well-fitted.
 - Dogs must become accustomed to these devices.
 - Immediately stop using a head collar or halter if the dog feels trapped or panics.
 - Because of the risk of injury or strangulation, leads, collars, head collars, harnesses, and halters should not be left on unsupervised dogs.



When behavior management is a core competency, the practice will value a culture of kindness toward its patients and empathy with its clients.

The following equipment is useful for minimizing in-clinic stress for feline patients:

- Cat squeeze boxes and cat bags.⁵³
 - Intramuscular sedation of fractious cats is an ideal use for a cat squeeze box.
 - Squeeze boxes may have a calming effect on a cat.
 - The squeeze box allows for the application of less restraint and is best used by a skilled handler.
 - Some cats may become anxious or freeze when their movement is restricted; therefore, the use of squeeze boxes or cat bags are not suitable for such cats.
 - Injury to the handler or cat is still possible with cat bags.
- Box, basket, or carrier for cats to hide in.
 - Cats hide as a normal coping behavior in response to a stressful situation.
 - Providing feline patients with a box, basket, or carrier as a place to hide has a calming effect for many cats.

Medications for Fearful Dogs and Cats

Anxiolytic medications or sedatives can make veterinary visits less stressful for canine and feline patients. Some medications can also provide chemical restraint when needed. The following medications are suitable for

administration by the owner the day before and the day of the exam: BZDs (e.g., alprazolam, midazolam, lorazepam), gabapentin, SARIs (e.g., trazodone), and clonidine. All of those medications can be used with dexmedetomidine^c (a 2A-agonist class sedative) and antipamezole^d (a 2A-antagonist reversal agent). All of those medications can be given *q* 12–24 hr or as needed for veterinary visits.

BZD dosing is highly individualized, and trial and error is needed to find the best dose for each patient. BZDs are given 1–2 hr before the exam and repeated 30 min before the exam. Whole or half-dose increments can be given to achieve optimal dosages. Most BZDs are scored and easily cut.

For patients that do not take tablets well, BZDs can be made into a paste with a small amount of liquid and immediately smeared on the gums or tongue. As soon as the patient licks or swallows, the medication enters the system.

Maropitant citrate^e is approved for use in dogs and may quell nausea associated with travel to a veterinary exam. Maropitant citrate in a weight-adjusted dose can be given in tablet form 1–2 hr before an appointment. For mild sedation of cats, oral chlorpheniramine given *q* 12–24 hr or phenobarbital given 1 hr prior to travel (and repeated during travel if needed) are appropriate medications. Recommended canine and feline dosages for medications are described in detail elsewhere.¹⁴

The time to prevent difficulties in administering medication is when the patient is a puppy or kitten. All patients should be taught at an early age to take pills or liquid medications in real or placebo form.

Establishing Behavior Management as a Core Competency

Companion animal practices that develop behavior management as a core competency have taken an important step toward ensuring that their patients maintain a safe, happy relationship with their owners and live in a low-stress environment. For that effort to succeed, the

entire health care team must be committed to a scientific approach to assessing behavior and diagnosing/treating behavior problems. It is helpful to identify a champion in the practice to lead this effort, but there must be a commitment from the practice leadership to support the implementation of humane handling techniques and preventive and interventional behavioral medicine.

That effort requires a commitment to staff education. Every member of the health care team, including kennel workers, must be adept in reading basic animal body language and be able to spot at-risk behaviors that signal stress, fear, aggression, or withdrawal. All staff members should be knowledgeable about humane handling techniques and types of restraint and understand that restraint is a procedure in itself, not just the means to a procedure. Using that approach will mean manual restraint will be used less often and only when necessary.

When behavior management is a core competency, the practice will value a culture of kindness toward its patients and empathy with its clients. An evidence-based approach to pet behavior management is an investment in a long-term veterinarian-pet-client relationship that focuses on case outcomes rather than expediency. Humane, gentle handling techniques help ensure that patients will experience minimal stress during an exam visit and will be manageable during the next visit.

Primary care veterinarians should not hesitate to seek specialized animal behavior expertise outside their practices when necessary. Veterinary behavioral medicine is a specialty requiring training, testing, and certification. Referring clients to a qualified veterinary behavior specialist extends the primary care practice's services to ensure the well-being of their patients.

All team members should be committed to a program of "behavior prophylaxis," whereby puppies and kittens are treated in a nonthreatening manner from their first visit. As part of that approach, team members should educate all clients about normal and abnormal pet behavior and the importance of avoiding situations that create behavioral health problems. Clients that either rescue or breed animals should be specifically counseled about the importance of exposure and handling in the first 2 mo of life. Clients should be advised that brain and behavioral development occurs the fastest between 5 and 24 wk and

that animals are not socially mature until at least 1–1.5 yr. During that 18 mo period, the practice team must act as an educational resource for the behavioral care of puppies and kittens. Because behavioral medicine is a rapidly developing field, numerous educational opportunities are available to all team members in this important practice specialty.

Conclusion

Behavioral abnormalities in dogs and cats include anxiety, stress, depression, aggression, and inappropriate elimination. Behavioral problems affect more dogs and cats than any other medical condition and are one of the most common causes of euthanasia, relinquishment, or abandonment of pets. For that reason, behavioral management of dogs and cats is now recognized as an essential component of primary companion animal practice. Each health care exam should include an evaluation of the pet's behavior. A basic tenet of behavioral management is that patterns of social and other behaviors, both normal and abnormal, are established early in development. Correction of problem behaviors is most effective if accomplished soon after onset, particularly if they occur during puppy- or kittenhood.

Treatment of social or behavioral problems is multifactorial. Behavior can be modified by proven techniques that can be implemented by the owner with veterinary guidance. The primary role of pharmacologic intervention in pet behavior management is to reduce anxiety and to enable patient-friendly physical handling in the clinical setting.

Practices that want to establish behavioral management as a core competency should involve each member of the health care team in a comprehensive approach to problematic behavior recognition, assessment, correction, and counseling. Extreme or intractable behavior problems in pet dogs and cats may fall outside the capabilities of even an experienced primary care veterinarian; therefore, referral to a veterinary behavior specialist is an important and viable option.

By developing expertise in pet behavioral management across the entire health care team, veterinary practices provide an added dimension of value that increases the quality of life for its patients and clients and reinforces the pet-veterinarian-client relationship for the lifetime of the patient. ✱

Footnotes

- a. Clomicalm; Novartis Animal Health US, Inc., Greensboro, NC
- b. Anipryl; Zoetis, Inc., Florham Park, NJ
- c. Dexametor; Zoetis, Inc., Florham Park, NJ
- d. Antisedan; Zoetis, Inc., Florham Park, NJ
- e. Cerenia; Zoetis, Inc., Florham Park, NJ

References

1. Salman MD, Hutchison J, Ruch-Gallie R, et al. Behavioral reasons for relinquishment of dogs and cats to 12 shelters. *J Appl Anim Welf Sci* 2000;3(2):93–106.
2. Shore ER, Peterse CL, Douglas DK. Moving as a reason for pet relinquishment: a closer look. *J Appl Anim Welf Sci* 2003;6(1):39–52.
3. Marston LC, Bennett PC, Coleman GJ. What happens to shelter dogs? Part 2. Comparing three Melbourne welfare shelters for non-human animals. *J Appl Anim Welf Sci* 2005;8(1):25–45.
4. Shore ER. Returning a recently adopted companion animal: adopters' reasons for and reactions to the failed adoption experience. *J Appl Anim Welf Sci* 2005;8(3):187–98.
5. Casey RA, Vandenbussche S, Bradshaw JWS, et al. Reasons for relinquishment and return of domestic cats (*Felis silvestris catus*) to rescue shelters in the UK. *Anthrozoös* 2009;22(4):347–58.
6. Roshier AL, McBride EA. Canine behaviour problems: discussions between veterinarians and dog owners during annual booster consultations. *Vet Rec* 2013;179(9):235.
7. Roshier AL, McBride EA. Veterinarians' perception of behaviour support in small animal practice. *Vet Rec* 2013;172(10):267.
8. Strickler BL, Shull EA. Returning a recently adopted companion animal: adopters' reasons for and reactions to the failed adoption experience. *J Vet Behav* 2014;9(5):207–14.
9. Godbout M, Palestini C, Beauchamp G, et al. Puppy behavior at the veterinary clinic: a pilot study. *J Vet Behav* 2007;2(4):126–35.
10. Godbout M, Frank D. Persistence of puppy behaviors and signs of anxiety during adulthood. *J Vet Behav* 2011;6(1):92.
11. Mariti C, Gazzano A, Moore JL, et al. Perception of dogs' stress by their owners. *J Vet Behav* 2012;7(4):213–9.
12. Scarlett JM, Salman MD, New J, et al. Reasons for relinquishment of companion animals in U.S. animal shelters: selected health and personal issues. *J Appl Anim Welf Sci* 1999;2(1):41–57.
13. Vite CH, Head E. Aging in the canine and feline brain. *Vet Clin North Am Small Anim Pract* 2014;44(6):1113–29.
14. Overall KL. *Manual of clinical behavioral medicine for dogs and cats*. St. Louis (MO): Elsevier; 2013.
15. Overall KL, Dunham AE, Frank D. Frequency of nonspecific clinical signs in dogs with separation anxiety, thunderstorm phobia, and noise phobia, alone or in combination. *J Am Vet Med Assoc* 2001;219(4):467–73.
16. Beerda B, Schilder MHB, Van Hooff JA, de Vries HW, et al. Behavioural, saliva cortisol and heart rate responses to different types of stimuli in dogs. *Appl Anim Behav Sci* 1998;58(3):365–81.
17. Yin S, McCowan B. Barking in domestic dogs: context specificity and individual identification. *Anim Behav* 2004;68(2):343–55.
18. Beerda B, Schilder MBH, van Hooff JA, et al. Manifestations of chronic and acute stress in dogs. *Appl Anim Behav Sci* 1997;52(3):307–19.
19. Overall KL. *Clinical behavioral medicine for small animals*. St. Louis (MO): Mosby; 1997.
20. Rooney NJ, Gaines SA, Bradshaw JWS. Behavioural and glucocorticoid responses of dogs (*Canis familiaris*) to kenneling: investigating mitigation of stress by prior habituation. *Physiol Behav* 2007;92(5): 847–54.
21. Rooney N, Gaines S, Hiby E. A practitioner's guide to working dog welfare. *J Vet Behav* 2009;4(3):127–34.
22. Tod E, Brander D, Waran N. Efficacy of dog appeasing pheromone in reducing stress and fear related behaviour in shelter dogs. *Appl Anim Behav Sci* 2005;93(3–4):295–308.
23. De Cramer KGM, Stylianides E, van Vuuren M. Efficacy of vaccination at 4 and 6 weeks in the control of canine parvovirus. *Vet Microbio* 2011; 149(1–2):126–32.
24. Stepita M, Bain MJ, Kass PH. Frequency of CPV infection in vaccinated puppies that attended puppy socialization classes. *J Am Anim Hosp Assoc* 2013;49:95–100.
25. Zicker SC, Jewell DE, Yamka RM, et al. Evaluation of cognitive learning, memory, psychomotor, immunologic, and retinal functions in healthy puppies fed foods fortified with docosahexaenoic acid-rich fish oil from 8 to 52 weeks of age. *J Am Vet Med Assoc* 2012;241(5):583–94.
26. Pierantoni L, Albertini M, Pirrone F. Prevalence of owner-reported behaviours in dogs separated from the litter at two different ages. *Vet Rec* 2011;169(18):468.
27. Salman MD, New J, Scarlett JM, et al. Human and animal factors related to relinquishment of dogs and cats in 12 selected animal shelters in the United States. *J Appl Anim Welf Sci* 1998;1(3):207–26.
28. Brammeier S, Brennan J, Brown S, et al. Good trainers: how to identify one and why this is important to your practice of veterinary medicine. *J Vet Behav* 2006;1(1):47–52.
29. Horwitz DF, Pike AL. Common sense behavior modification: a guide for practitioners. *Vet Clin North Am Sm Anim Pract* 2014;44(3):401–26.
30. Schilder MB, van der Borg JA. Training dogs with help of the shock collar: short and long term behavioural effects. *Appl Anim Behav Sci* 2004;85(3):319–34.
31. Schalk E, Stichnoth J, Ott S, et al. Clinical signs caused by the use of electric training collars on dogs in everyday life situation. *Appl Anim Behav Sci* 2007;105(4):369–80.
32. Grohmann K, Dickmeit MJ, Schmidt MJ, et al. Severe brain damage after punitive training technique with a choke chain collar in a German shepherd dog. *J Vet Behav* 2013;8(3):180–4.
33. Rooney NJ, Cowan S. Training methods and owner-dog interactions: links with dog behaviour and learning ability. *Appl Anim Behav Sci* 2011;132(3–4):169–77.
34. Hiby EF, Rooney NJ, Bradshaw JWS. Dog training methods: their use, effectiveness and interaction with behavior and welfare. *Anim Welfare* 2004;13(1):63–9.
35. Blackwell EJ, Twells C, Seawright A, et al. The relationship between training methods and the occurrence of behavior problems, as reported by owners, in a population of domestic dogs. *J Vet Behav* 2008;3(5): 201–17.
36. Herron ME, Shofer FS, Reisner IR. Survey of the use and outcome of confrontational and non-confrontational training methods in client-owned dogs showing undesired behaviors. *Appl Anim Behav Sci* 2009; 117(1):47–54.
37. Feuerbacher EN, Wynne CDL. Shut up and pet me! Domestic dogs (*Canis lupus familiaris*) prefer petting to vocal praise in concurrent and single-alternative choice procedures. *Behav Processes* 2015;110:47–59.
38. King J, Simpson B, Overall KL, et al. Treatment of separation anxiety in dogs with clomipramine: results from a prospective, randomized, double-blinded, placebo-controlled clinical trial. *J Appl Anim Behav Sci* 2000;67(4):255–75.
39. King JN, Maurer MP, Altman B, et al. Pharmacokinetics of clomipramine in dogs following single-dose and repeated-dose oral administration. *Am J Vet Res* 2000;61(1):80–5.
40. King JN, Steffan J, Heath SE, et al. Determination of the dosage of clomipramine for the treatment of urine spraying in cats. *J Am Vet Med Assoc* 2004;225(6):881–7.
41. King JN, Overall KL, Appleby D, et al. Results of a follow-up investigation to a clinical trial testing the efficacy of clomipramine in the treatment of separation anxiety in dogs. *Appl Anim Behav Sci* 2004; 89(3–4):233–42.
42. Laines C, Frank D, Meucci V, et al. Pharmacokinetics of clomipramine and desmethylclomipramine after single-dose intravenous and oral administrations in cats. *J Vet Pharmacol Ther* 2006;29(4):271–8.
43. Simpson BS, Landsberg GM, Reisner IR, et al. Effects of Reconcile (fluoxetine) chewable tablets plus behaviour management for canine separation anxiety. *Vet Ther* 2007;8(1):18–31.
44. Landsberg GM, Melese P, Sherman BL, et al. Effectiveness of fluoxetine chewable tablets in the treatment of canine separation anxiety. *J Vet Behav* 2008;3(1):12–9.
45. Carney HC, Sadek TP, Curtis TM, et al. AAFP and ISFM guidelines for diagnosing and solving house-soiling behavior in cats. *J Fel Med Surg* 2014;16(7):579–98.
46. Crowell-Davis SL, Seibert LM, Sung W, et al. Use of clomipramine, alprazolam, and behavior modification for treatment of storm phobia in dogs. *J Am Vet Med Assoc* 2003;222(6):744–8.
47. Döring D, Roscher A, Scheipl F, et al. Fear-related behavior of dogs in veterinary practice. *Vet J* 2009;182(1):38–43.
48. Hernander L. Factors influencing dogs' stress level in the waiting room at a veterinary clinic. Swedish University of Agricultural Sciences Student report; 2008:190. Available at: http://ex-epsilon.slu.se:8080/archive/00003006/01/huvudversion_klar_lollo.pdf.
49. Roddenberry A, Renk K. Locus of control and self-efficacy: potential mediators of stress, illness, and utilization of health services in college students. *Child Psychiatry Hum Dev* 2010;41(4):353–70.
50. Rodan I, Sundahl E, Carney H, et al. AAFP and ISFM feline-friendly handling guidelines. *J Feline Med Surg* 2011;13(5):364–75.
51. Carlstead K, Brown JL, Strawn W. Behavioral and physiological correlates of stress in laboratory cats. *Appl Anim Behav Sci* 1993; 38(2):143–58.
52. Kuhne F, Höbner JC, Struwe R. Behavioral and cardiac response by dogs to physical human-dog contact. *J Vet Behav* 2014;9(5):93–7.
53. Yin S. *Low stress handling, restraint and behavior modification of dogs and cats*. (Davis, CA): CattleDog Publishing; 2009.