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PRACTICE GUIDELINES

2022 AAFP/ISFM Cat Friendly Veterinary Interaction Guidelines

Approach and Handling Techniques

Practical relevance: The '2022 AAFP/ISFM Cat Friendly Veterinary Interaction Guidelines: Approach and Handling Techniques' (hereafter the 'Cat Friendly Veterinary Interaction Guidelines') support veterinary professionals with feline interactions and handling to reduce the impact of fear and other protective (negative) emotions, in so doing enhancing feline welfare and In implementing these Guidelines, team satisfaction and cat caregiver confidence in the veterinary team will increase as the result of efficient examinations, better experience, more reliable diagnostic testing and improved feline wellbeing. Veterinary professionals will learn the importance of understanding and appropriately responding to the current emotional state of the cat and tailoring each visit to the individual.

Clinical challenges: Cats have evolved with emotions and behaviors that are necessary for their survival as both a predator and prey species. A clinical setting and the required examinations and procedures to meet their physical health needs can result in behavioral responses to protective emotions. Cat friendly interactions require understanding, interpreting and appropriately responding to cats' emotional states and giving them a perceived sense of control while performing the required assessment.

Evidence base: These Guidelines have been created by a Task Force of experts convened by the American Association of Feline Practitioners and the International Society of Feline Medicine, based on an extensive literature review and, where evidence is lacking, the authors' experience.

Endorsements: These Guidelines have been endorsed by a number of groups and organizations, as detailed on page 1127 and at catvets.com/interactions and icatcare.org/cat-friendly-guidelines.

Keywords: Cat Friendly Practice; Cat Friendly Clinic; behavioral needs; feline emotions; non-physical interactions; physical interactions; handling; chemical restraint; anxiolytic; cooperative care

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Introduction

In 2011, the American Association of Feline Practitioners (AAFP) and International Society of Feline Medicine (ISFM) published the 'AAFP and ISFM Feline-Friendly Handling Guidelines'[1] and in the interim the understanding of what is 'cat friendly' has expanded considerably. As numerous studies have advanced our knowledge in this field, these Guidelines replace the previous handling guidelines. A cat friendly approach encompasses both non-physical and physical interactions, which in a veterinary context usually includes 'handling'. Moderating the impact that non-physical interactions (eg, visual, auditory, olfactory) have on the cat is equally as important as considering interactions involving physical contact. Hence, there is the new name of 'Cat Friendly Veterinary Interactions' for these Guidelines. (Additional terminology is listed in the 'definitions' box on page 1095.) The other notable change in this set of Guidelines reflects concerns around the concept of restraint. The former guidelines used the term 'minimal restraint', but restraint implies a lack of control or consent on behalf of the cat, and there is evidence to prove that interactions without restraint are more efficient and effective.[7] Understanding, interpreting and appropriately responding to cats' emotional states and giving them a sense of control through cooperative care are fundamental to being cat friendly.

Because cats are non-verbal mammals, we rely on their proxies to understand what causes patient distress surrounding veterinary appointments/visits. Proxies include veterinary professionals, animal welfare researchers and cat caregivers. A survey of over 1000 caregivers indicated that most cats (88.7%) had impaired welfare at all stages of the visit, including before and after the appointment,[8]

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Cat Friendly Guidelines

The '2022 AAFP/ISFM Cat Friendly Veterinary Interaction Guidelines: Approach and Handling Techniques' are published together with the '2022 ISFM/AAFP Cat Friendly Veterinary Environment Guidelines' in this special issue of *JFMS* dedicated to optimizing the veterinary visit for cats.

Cats' emotional health and wellbeing are intricately related to both the interactions they experience and the environment they find themselves in. As such, the two Cat Friendly Guidelines go hand in hand, and are intended to be read closely in conjunction with one another.

A number of important principles underpin the cat friendly approach, and these are described in an additional article in this special issue: 'ISFM's Cat Friendly Principles for Veterinary Professionals'.

All three articles, and related content, are available at: bit.ly/JFMSCatFriendly

Further information:
- AAFP Cat Friendly Practice® Program: catvets.com/cfp
- ISFM Cat Friendly Clinic programme: catfriendlyclinic.org

A cat friendly approach encompasses both physical and non-physical interactions.

as well as during the veterinary examination. A further, very recent survey study of caregivers reports that travel to the practice, the waiting room and examination itself are the most stressful events for the cat, with one-third of respondents indicating that witnessing their cat's stress discouraged them from bringing their cat to the practice.[9] In both surveys, the caregivers reported that they, themselves, experienced stress.[8,9] Caregiver stress influences the perception of their cat's stress.[10] Surveyed veterinarians and animal welfare researchers also determined that feline welfare was impaired, starting at home and during practice visits.[11] The key stress-causing factors that were suggested to impair welfare in the clinical setting were auditory and olfactory stimulation, lack of analgesia and the use of restraint.[11] Those surveyed also said that the majority of factors impairing welfare in the veterinary practice and home can be improved through practical approaches, including recognition of species-specific signs of fear and pain, use of cognitive techniques to prepare cats prior to veterinary visits, and use of food to cue positive (engaging) emotions as well as to provide positive reinforcement of specific desired feline behaviors during the visit.[11]

Adhering to these 'Cat Friendly Veterinary Interaction Guidelines' reduces distress for cats, caregivers and veterinary professionals. This is critically important. Cats have good long-term memory and can remember a single event, such as a negative experience during a veterinary visit.[12] Our interactions, therefore,

SYNONYMOUS TERMS

Many of the words used in the veterinary industry have the same meaning. These Guidelines are written in American English and use terms that are common in this language. The following are synonymous terms that may be used and/or be more familiar in other countries.

- Practice/clinic/hospital
- Appointment/examination/consultation
- Examination room/exam room/consulting room/consult room
- Physical examination/clinical examination
- Treatment area/'the back'/preparation area/prep area/'out back'
- Cages/kennels/condos
- Hospitalization ward/kennel room

DEFINITIONS

- **Cat friendly interaction** An interaction between a person and a cat that respects the cat as an individual while still achieving the required clinical outcome.
- **Practice/clinic/hospital** Veterinary practice or business; in these Guidelines, often referring to the physical building.
- **Welfare** Encompasses both the physical health and mental wellbeing of the cat.
- **Wellbeing** Encompasses both welfare and quality of life.[2] Mental wellbeing includes emotional and cognitive health.
- **Quality of life** There is not a widely accepted definition of quality of life in cats. Therefore, the following definition has been proposed: an individual's satisfaction with their physical, emotional and cognitive health, physical and social environment, and ability to successfully interact with that environment.[3,4]
- **Engaging and protective emotions** These Guidelines adopt the new terminology of 'engaging' and 'protective' for 'positive' and 'negative', respectively, when discussing emotions (as all emotions aid the cat's survival).
- **Valence** Extent to which an emotion is positive (engaging) or negative (protective).
- **Positive emotional bias** To have more engaging than protective emotions.
- **Temperament** The cat's consistent behavioral tendencies (eg, confident, timid).
- **Distress** Umbrella term for the impact of all protective (negative) emotions (eg, fear–anxiety, pain, frustration) when the individual's perceived threats exceed coping ability.[5,6]
- **Stress** The physiological response to emotional change as a result of a perceived threat or an upset to physiological homeostasis. In common language this term has a much broader meaning. In these Guidelines it is used as a broad term to describe complex and not well understood cognitive, emotional and physiological responses to various stimuli (both pleasant and aversive).
- **Cooperative care** This involves teaching an animal to enable them to be an active, willing participant in handling and husbandry procedures.
- **Classical conditioning** The cat learns through association (ie, one thing predicts another).
- **Operant conditioning** The cat learns from the consequence of their behavior.
- **Training** Use of operant and classical conditioning techniques to modify behavior.
- **Positive reinforcement** Based on providing a pleasant action or event (a consequence, such as a food treat) to an animal in association with a desired behavior, to prolong the behavior or increase its frequency.
- **Procedures** As used in these Guidelines – phlebotomy, blood pressure measurement, cystocentesis, ultrasound, radiology, etc.

not only affect the cat at that time but will also influence their emotional responses and behaviors at subsequent veterinary visits.[12–14] Classical conditioning will lead to emotional associations with the veterinary experience even when there has not been any one specific negative experience. For example, if a cat is painful or fearful during a veterinary visit, which may be as a result of their physical health condition, that protective emotional bias will become associated with the veterinary context and the cat may, therefore, respond protectively at future visits. Simply avoiding obvious negative interactions, such as excessive restraint or scruffing, is not enough. It is important to enhance a positive emotional bias.

Cat friendly interactions involve considering emotional and cognitive health throughout the journey of the veterinary visit, even before leaving the patient's home. Mounting evidence suggests that first veterinary visits can impact a young animal for life. A negative veterinary experience in young puppies can impact their long-term welfare, leading to chronic fear or anxiety regardless of the environment; the same is likely to be true in kittens.[15] The investment to incorporate these Guidelines into practice also enhances appointment efficiency[7,16] and human safety.[1,17–20] See Box 1 for a summary of the wide-ranging benefits of cat friendly interactions, and always keep in mind that:

- Working cooperatively with cats increases human safety by reducing the intensity, and thus minimizing the impact, of fear and other negative (protective) emotions. Restraint increases negative emotions and undesirable behavioral responses.
- With consistent positive handling, cats become safer and easier to work with, which means that appointments can be completed more quickly and with minimal handlers.

Interactions not only affect the cat at the time, but will also influence their emotional responses and behaviors at subsequent veterinary visits.

Box 1

Benefits of cat friendly interactions

- Improved feline wellbeing during visits and more broadly, due to improved care
- Better human safety[19,20]
- Improved feline responses during future visits
- Increased efficiency, with shorter examination times and fewer team members involved[7,16]
- Increased veterinary care for cats: AAFP Cat Friendly Practices and ISFM Cat Friendly Clinics see a higher percentage of feline patients and have a 30% higher frequency of visits with their feline patients compared with non-Cat Friendly Practices/Clinics[21]
- More accurate examination findings:
  - Heart and respiratory rates, body temperature, pupil size[22]
  - Fewer dynamic heart murmurs[23,24]
- More complete examination[25]
- More accurate diagnostic tests:
  - Blood glucose[26]
  - Blood pressure[22,27]
  - Stress leukogram
  - Urine pH (alkaline urine occurs with hyperventilation due to stress)[28]
- Improved anesthesia and shortened induction time to anesthesia[29]
- Wider benefits:
  - When surveyed, 94% and 80% of practices, respectively, stated that being an AAFP Cat Friendly Practice or ISFM Cat Friendly Clinic has positive effects on team dynamics (AAFP and ISFM 2021 survey results)
  - 94% of AAFP Cat Friendly Practice teams report they have seen an improvement in feline clinical and behavioral knowledge and care since implementing the Cat Friendly Practice Program (AAFP 2021 survey results)
  - Improved client satisfaction[10]
  - More frequent feline visits[10,21] (also confirmed by the AAFP 2021 survey results)
  - Improved financial outcome with increased numbers of feline patients, increased frequency of examinations and ability to achieve clinical outcomes, as well as greater individual transaction values, annual spending and pet food sales[21]

Feline behavioral needs during human–cat interactions

Our interactions with cats must take into consideration species-specific behavior as well as individual differences.

The cat as a species

Cats are solitary survivors and territorial animals who need a sense of control, safety, choice and familiarity, not only in their physical environment but also in their social environment.

Sense of control and choice It is always preferable to interact with cats in their preferred location. Hiding is common in a novel or stressful situation, increasing the cat's ability to cope.[30–33] The preferred location in the practice is often the bottom half of their carrier or other safe, contained area (eg, high-sided cat bed, small pet weighing scales with higher sides, or under towels or blankets; Figure 1). Confident

Figure 1 Examples of places and opportunities for cats to hide during their visit. (a) High-sided cat weighing scales, (b) blankets and towels, (c) igloo beds or (d) high-sided beds, with or without an added blanket/towel, are all excellent options and items that can easily be washed and dried in the veterinary practice. (e) An additional towel or blanket 'roll' draped over the neck can also give cats a sensation of being hidden. *Images courtesy of Kelly St Denis (a,b,e) and Ilona Rodan (c,d)*

Figure 2 **(a,b) A veterinary team member approaching a cat in their carrier with a soft hand; note the curved fingers.** *Images courtesy of Ellen Carozza*

cats may choose to explore, and often prefer perches or elevated space. Calm cats who enjoy treats, human interactions or object play may be enticed or redirected to a suitable location that offers some sensation of protection (as described above). Research has shown that human–feline interactions are of longer duration when the cat chooses to approach a person rather than when a person approaches them.[34] It is, therefore, preferable to give the cat the opportunity to initiate the interaction, and this can be encouraged by getting down to the cat's level a few feet away from them and extending a soft (relaxed and gently curved) hand to invite approach (Figure 2), rather than picking up or restraining them.[35]

✣ **Respecting feline senses** Using their well-developed senses, cats can detect information about people before any handling begins, and this can impact their emotional state and the quality of physical interactions. Cats are highly sensitive to olfactory stimuli, and strong perfumes and other potentially aversive smells, such as the scent of other animals, should be avoided where practically possible. Additionally, cats' sensitivity to a wide frequency of auditory stimuli and reactivity to loud noises means that the surrounding area should be quiet, and all human vocalization should be soft, gentle and slow in tempo. Visual communication is also important to cats and direct eye contact from an unfamiliar person can be perceived as threatening. Many cats respond positively to slow blinks in their direction, even from unfamiliar people, as demonstrated by reduced body tension and increased likelihood to approach the person.[36,37] It is important to keep movements slow when working with cats and avoid sudden and unpredictable motions.

Preferred areas of touch are the head and neck areas, particularly in the region of the facial glands, which produce the pheromones used in facial rubbing.

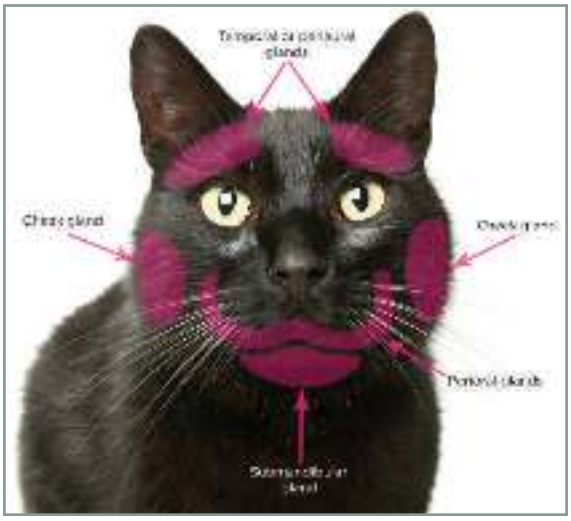


Figure 3 **Feline facial glands are preferred areas of touch for the head region.** *Image courtesy of International Cat Care*

✣ **Tactile interaction** Once human introductions have been made through non-physical interactions, it is important to consider how cats prefer to be physically handled. Preferred areas of touch are the head and neck areas, particularly in the region of the facial glands, which produce the pheromones used in facial rubbing (Figure 3; see also Video 1 in the supplementary material).[38,39] Cats are most comfortable when being petted or massaged in the direction of their fur. They demonstrate negative behavioral responses when touched over the caudal area of their body, just before the base of the tail,[39] and on their belly. Providing the cat with the choice to sit, stand, lie down and to move body parts during handling leads to more positive interactions when compared with restraint.[7]

The individual cat

An individual cat's sociability toward humans, other cats and other species, and their ability to cope in different situations is influenced by a number of factors, including genetics, their parents' sociability to humans, the queen's health and experiences during pregnancy, and the cat's own experiences. If the father is bold or friendly toward people, the probability that the kittens will respond well to socialization increases.[40] The queen impacts kittens genetically, prenatally and through her behavior and interactions with them after birth. Prenatally, kittens are negatively impacted if the queen is malnourished, suffering from physical illness, or has a negative emotional bias during pregnancy. Her emotional bias will be influenced by her general emotional health as well as any specific experiences during her pregnancy and can likely cause epigenetic changes and influence physical and behavioral development of the kittens.[41]

Kitten experiences between 2 and 9 weeks of age can have a significant impact on the behavior of the individual throughout life.[40,42] If handled positively and frequently during this time period, and by a diverse range of humans including children, the kitten will be more likely to develop into a cat who is more amenable to handling and less fearful of people, including those who are unfamiliar.[40,42]

In contrast, cats who are not appropriately introduced to people early in life will have a significant risk factor for being more fearful, including during veterinary visits.[40] While learning is most influential during these early weeks of development, kittens will continue to learn throughout their lives. Age of weaning may have an impact on behavior, but further work is needed to ascertain this.[43–46]

Above all, handling needs to respect natural feline behavior and all interactions need to be considered from a feline perspective. An adverse experience during a veterinary visit, such as tight restraint or triggering of pain or fear, can lead to the cat becoming highly reactive at future visits. If not well socialized to humans as a kitten, it may only take a single negative experience for a cat to become wary of humans vs many positive ones to become friendly toward them.[15,47] Thus, even in cat friendly environments, many cats who were not adequately and appropriately socialized to humans and habituated to human environments can benefit from the use of anxiolytics to reduce their protective emotional bias during veterinary visits. The negative factors that can impact a cat's emotional state at the veterinary practice are numerous and some examples are listed in Box 2.

The emotional state

The information contained in these Guidelines regarding emotional motivations and the behavioral responses to those emotions is based on the work of Jaak Panksepp and on the recently described Heath Model of emotional health.[49–51]

Both positive and negative emotions can occur in relation to the veterinary visit and recognizing these emotions is important in tailoring the approach to the individual cat (Algorithm 1). Sarah Heath, one of the Task Force members, has developed new terminology in relation to emotional health in order to explain the purpose of the emotional motivations and the behavioral responses they lead to.[5] This terminology, and the Heath Model explanatory approach to emotional health,[50] are being used throughout these Guidelines.

Use of negative terminology when describing feline patients, such as evil, nasty or aggressive, erroneously labels them and can negatively impact the veterinary team's response.

Although the scientific terms for emotions are positive and negative, the emotional motivations aid the cat's welfare and these terms may erroneously imply that the emotions and subsequent behaviors are good or bad. Heath, therefore, refers to positive emotions as 'engaging emotions'. These are emotions that cause the cat to actively seek out something that results in benefit to their survival; an example would include desire-seeking in relation to food, attention or comfort.

Negative emotions occur in environments and with interactions that are perceived to be threatening, and their goal is self-protection to enhance the cat's survival.[51] Heath uses the term 'protective emotions' to emphasize why they occur.[5,50] Although a predominantly protective emotional state in a feline patient can lead to behavioral responses that are considered undesirable, the cat is responding to their emotions by employing behaviors that are designed to protect them and ensure their survival in the face of what they perceive as a threatening experience. To this end, the terms 'aggressive' and 'fight' are not used within the Heath Model, in the context of cat handling. These behaviors are referred to as repelling responses, and have the aim of increasing distance from, and decreasing interaction with, a potential threat.[5,50]

It is important that veterinary professionals use terminology that reinforces understanding of the underlying emotions that lead to cats' behavioral responses; hence these Guidelines emphasize the terms 'protective' and 'engaging' emotions. Use of negative terminology when describing feline patients, such as evil, nasty or aggressive, erroneously labels them and can negatively impact our response, leading to a lack of sensitivity among team members toward cats in general or to individual feline patients. Negative terms such as these also prevent us from understanding the feline perspective,

Box 2

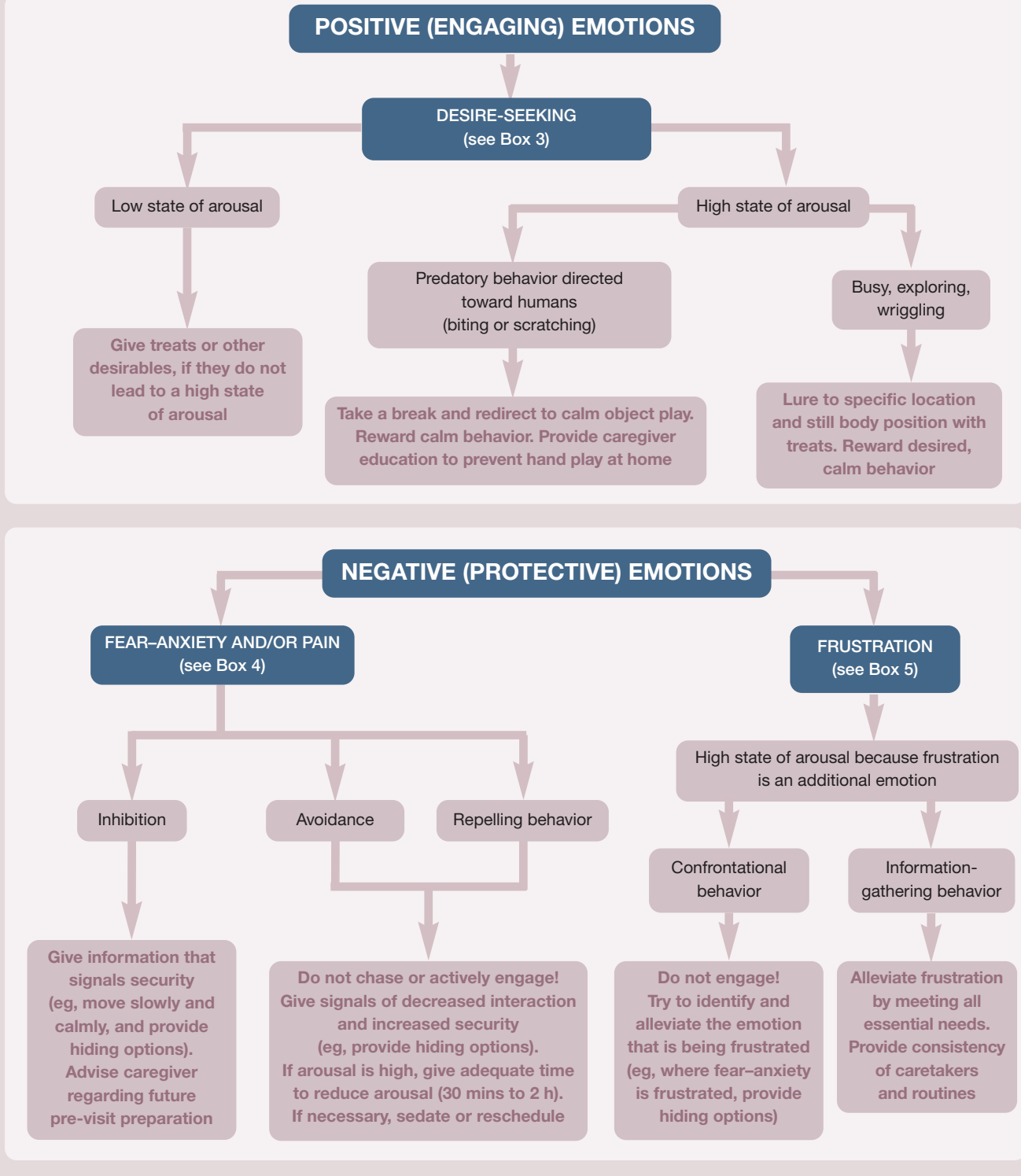
Underlying negative factors that can influence a feline patient's emotions and resulting behaviors during a veterinary visit

- Genetic influence on timidity (eg, through paternal and maternal factors)[40,48]
- Prenatal stress
- Lack of socialization to people during the early sensitive period of development
- Lack of socialization to other cats and other non-human species
- Early removal from queen and siblings
- Previous negative experience(s) with unfamiliar people
- Previous veterinary visits that led to protective behaviors
- Compromised physical health, including pain
- Factors immediately prior to the visit:
  - Caregiver emotions and behaviors
  - Carrier and transport experience
- Practice environmental factors
- Cumulative exposure to protective emotional triggers during the visit (eg, noises, visual triggers)
- Approach from an unfamiliar person
- Unfamiliar physical interaction

identifying underlying stressors and establishing what works to minimize or resolve the situation rather than exacerbate it. Behavioral responses are driven by the cat's emotional state at that specific point in time (Algorithm 1). A combination of the environment, interactions and the individual cat's previous experiences influence the immediate emotional state.

ALGORITHM 1

Emotional states seen in the veterinary practice, driven by the individual cat's experiences, environment and interactions



Cats can experience more than one emotion at any one time, and positive (engaging) and negative (protective) emotions can be triggered by the same stimulus or during the same experience, resulting in emotional conflict.[5] A good example is the offering of a treat to a highly fearful feline patient. The treat will trigger an engaging emotion, but if it is being offered by a person who triggers a protective emotion, the resulting emotional conflict can be detrimental to the cat and negate any potential benefit of offering a treat.[6] If a treat is to be offered, it should be done passively and placed on the floor or table, rather than given directly from the human hand, in order to reduce the potential for inducing conflict. The cat then is able to choose whether to take the treat and will only do so if the engaging emotional response to the treat is the predominant emotion they are experiencing (S Heath, personal communication).

Carrier training, cooperative care, and a cat friendly veterinary environment and interactions that help cats feel safe, greatly increase the potential for feline positive (engaging) emotional states. For more information on how the veterinary practice environment can be manipulated to minimize feline patient distress, see the accompanying '2022 ISFM/AAFP Cat Friendly Veterinary Environment Guidelines'[60] (hereafter the 'Cat Friendly Veterinary Environment Guidelines').

Although it is often easier to work with cats in a positive emotional state, some kittens and young confident cats are very active, which can make it more challenging to complete the necessary examinations and treatment. In the Heath Model there is an emphasis on the equal significance of emotional valence (the extent to which an emotion is positive or negative) and emotional arousal (the intensity of the emotion) in terms of the emotional health of the individual (see supporting material at bit.ly/JFMSCatFriendly).[61,62] The wriggly kitten illustrates the importance of considering both emotional arousal and the valence of an emotional stimulus. Too much emotional arousal, even when it is engaging in nature, can lead to behavioral responses that make handling problematic.[63] The aim, therefore, is to encourage a positive, engaging emotional bias while keeping levels of emotional arousal low.

It should also be remembered that positive emotions can lead to behavioral responses that can be problematic if they occur in an inappropriate context. One example is the emotion of desire-seeking, motivating the behavior of predatory play. If a caregiver encourages predatory play through the use of hand play, it can lead to kittens or cats attempting to play with the hands of veterinary team members during physical interactions. To prevent these types of problems, caregivers should be encouraged to engage in object play with their kittens, and direct playful interactions toward appropriate toys. Object play may be used to facilitate veterinary visits, but it is important to avoid high levels of arousal.

The aim with any veterinary interaction is to encourage a positive, engaging emotional bias while keeping the cat's level of emotional arousal low.

Positive (engaging) emotions

The desire-seeking system is the positive emotion most commonly seen in the veterinary practice (Box 3). This emotional state motivates cats (and other animals) to move to locations where they are more likely to find resources for survival, such as food, water, shelter, warmth or coolness.[52] It is also the emotional system that is triggered in reward-based or positive reinforcement learning and training, such as carrier training.[53]

Negative (protective) emotions

Negative or protective emotions that can be relevant to feline behavior in the veterinary practice are fear, anxiety, pain and frustration. When we identify the cause of protective emotion(s), especially early on, we can often minimize the cat's perception of threat, and sometimes even activate positive emotions instead.[64]

❖ **Fear–anxiety and pain** Fear and anxiety are the same emotional system and will be considered together. It is important to recognize that pain is both a sensory and emotional response, impacting physical function and the patient's emotional welfare.[65,66] Pain can be considered part of the fear–anxiety emotional system and these emotions can impact one another: fear–anxiety can alter the perception of pain and make it more significant to the individual; and the presence of pain can exacerbate emotions of fear–anxiety.[6,51,64] The administration of an anxiolytic is often necessary to reduce fear–anxiety but additional analgesia is indicated if acute or chronic pain is also present.

There are four primary behavioral responses to protective emotions. Using the Heath Model terminology, these are referred to as inhibition, appeasement, avoidance and repulsion, and they are of equal significance when considering feline emotional health and welfare.[5] Within the context of the veterinary experience the three responses that are of most importance are inhibition, avoidance and repelling behaviors.

Box 3

Desire-seeking motivated behaviors seen in the veterinary practice

- Predatory behavior
- Seeking food, treats and play
- Social interaction (with caregivers and the clinical team)
- Exploration of the environment
- Seeking pleasure
- Seeking comfort
- Seeking warmth or coolness

The information in this box is based on references 51–55.

Box 4

Body language and behavioral responses associated with the protective emotions of fear–anxiety and/or pain

Body language

- Ears rotated to the side or back (Figures 4 and 6a–c)
- Pupils partially or fully dilated, or oblong (Figure 6a)
- Rapid blinking or half-blinking
- Left head and gaze bias (see Video 2 in the supplementary material)
- Eyes partially closed (Figure 4) or pressed tightly shut
- Focused attention
- Whiskers splayed (Figures 5 and 6b,c)

Behavioral responses (listing examples of increasing intensity within each category)

- **Inhibition (passive gathering of visual, auditory and olfactory information):**
  - Listening
  - Watching
  - Passively gathering scent information
  - Inhibition of normal behaviors (inappetence, lack of elimination, disruption of normal sleep, inactivity)
  - Freezing, tense muscles, ventral flat posture, crouching
- **Avoidance:**
  - Passive eye avoidance
  - Hiding
  - Sitting at the back of the cage
  - Backing away/retreating/fleeing
- **Repelling:**
  - Hissing and/or growling and other vocalizations to increase distance (Figure 6c)
  - Swatting/swiping/striking/scratching
  - Biting/bite attempts

Figure 4 Example of an inhibited cat. The cat is passively gathering information, with eyes half-shut and ears rotated laterally. *Image courtesy of Sarah Heath*

Figure 5 Splayed whiskers is one of the signs a cat may display when experiencing protective emotions. *Image courtesy of Ilona Rodan*

The information in this box is based on references 56–59.

The selection of the response is based on the individual cat, their previous and current experiences, and the context in which they experience the emotion.[51] Their selection is not directly related to the intensity of the emotional response and, therefore, all three responses are of equal importance when assessing a patient's emotional health. Inhibition is a passive response and is often not recognized by people interacting with the cat (Figure 4; see also Video 2 in the supplementary material). As such, the inhibition response may not succeed in protecting the cat from the perceived threat and the cat remains in a negative (protective) emotional state. When this happens, the cat must turn to one of the other responses – avoidance (escaping from the perceived threat) or repelling the perceived threat (eg, growling, hissing, striking, biting). These behaviors can have more significant consequences for veterinary professionals, making examination and any necessary procedures more difficult to complete. There may also be an increased risk of cat or human injury.[17,51] See Box 4 and Figure 6a–c for signs of fear–anxiety.

Cats become stressed when they are not able to respond successfully to protective emotions and resolve them.

- **Frustration** Frustration is the emotional response to an inability to succeed in responding to one of the other emotions, whether positive or negative. It can be triggered by an inability to acquire access to resources such as safety, or a failure to achieve expectations (eg, when receiving fewer rewards than anticipated).[49] As an example, frustration in the veterinary context can occur when a more social individual does not receive what they seek in the form of food or human attention (Figure 7).[56] Frustration can occur in conjunction with fear–anxiety and be triggered when an attempt to resolve those emotions (eg, by avoidance) is thwarted through handling. Frustration might also occur when an individual has the sensation of not being in control – for example, when experiencing tight restraint or being removed from a cage or carrier against their will.[49] Frustration leads to more intense and rapid behavioral responses and often results in behaviors that are confrontational in nature (eg, growling, scratching or biting; Box 5).

Protective emotions can still be present in

a cat friendly environment but the aim is for the cat to be able to express them through successful behavioral responses – for example, have the ability to hide, reducing the emotional arousal associated with the veterinary visit (see Algorithm 1). When the feline behaviors needed to achieve this aim are not compatible with the veterinary context then the use of anxiolytics and/or chemical restraint needs to be considered.

Figure 6 **Behavioral responses to protective emotions are shown in images (a–c), while image (d) shows a behavioral response to engaging emotions. If avoidance and inhibition responses have not been successful for the cat, this increases the probability that repelling responses will then be selected. In this case, an anxiolytic within a treat was offered passively and the cat was left alone for 2 h, which was successful (see image d). The alternative would have been to sedate the cat for the procedure to be carried out, or send the cat home with advice for the caregiver to carry out carrier training and administer anxiolytic medication (eg, gabapentin) before the next visit.** *Images courtesy of Ilona Rodan*

(a) This cat is exhibiting a fearful body posture in the examination room and attempting to use avoidance as the behavioral response to the fear–anxiety motivation, but the door and wall are preventing this from succeeding. The cat is also using inhibition (staring, listening) to gather information in an attempt to resolve his emotional state.

(b) The whiskers are splayed with increased intensity of the protective emotion of fear–anxiety.

(c) The cat is exhibiting repelling behaviors. If attention is not paid to the signs of fear–anxiety, the protective emotion will not be resolved and frustration can be triggered, which then intensifies and accelerates the behavioral responses, and increases the level of confrontation.

(d) After being administered anxiolytic medication and left to calm down, the cat is then presented with a toy to activate the engaging emotion of desire-seeking.

Box 5

Body language and behavioral responses associated with the protective emotion of frustration

- **Displacement behaviors:**
  - Rapid grooming
  - Gulping
- **Repetitive behaviors:**
  - Persistent vocalizing
  - Pacing
  - Repeated biting or pawing at cage doors or walls, and/or attempts to escape (Figure 7)
- **Disruptive behaviors:**
  - Disruption of cage contents
- **Confrontational behaviors:**
  - These include behaviors listed in Box 4 under 'Repelling', but have a different emotional trigger

Frustration leads to more intense and rapid behavioral responses.

Figure 7 **Young cat becoming frustrated in relation to their desire-seeking system due to confinement and the presence of the soft collar. Strategies to prevent frustration aim to increase fulfillment of the desire-seeking system; for example, through providing social interactions at consistent times by one or two veterinary team members and, for some patients, allowing the caregiver to visit. Consistency in the timing of feeding and playing is also helpful; remove the soft collar for feeding. If the cat is hospitalized for more than 24 h, ensure that all environmental needs are met, either in the cage or a small room environment (see the accompanying Cat Friendly Veterinary Environment Guidelines).[60]** *Image courtesy of Sam Taylor*

What is appropriate and what is no longer appropriate

... times have changed!

Every cat friendly visit should be framed around providing the cat with a sense of control, emphasizing positive experiences while lessening the potential for negative experiences through alternative approaches. As addressed in these Guidelines, key areas of focus for ensuring this sense of control include developing a plan in advance based on the cat's history and preferences, minimizing potential physical and emotional disturbances, appropriately managing introductions and handler interactions, and allowing the cat to move and position themselves in ways that are most comfortable for them.

For these strategies to be effective, examinations and procedures should take place in quiet and secure enclosed spaces (eg, an examination room) where the cat has the opportunity to move freely without any form of physical interaction, if required – for example, if the cat is becoming aroused and needs a break. Releasing the cat must always be an option, without putting anyone, including the cat, in danger. The examination room has been demonstrated to be the most appropriate location for physical examinations to be performed.[67] Unless insurmountable barriers exist, any additional outpatient procedures required should also be performed in the examination room, to increase the accuracy of certain diagnostic tests, to reduce sensory arousal and exposure to unfamilar animals, and to avoid separation of cats from their caregivers.[67]

All veterinary visits are likely to induce protective emotions to some degree, as these are natural and necessary responses to experiences the cat perceives as threatening. It is important to minimize the triggering of these emotions, including fear–anxiety, pain and frustration, and to enable the cat to select appropriate behavioral responses. For example, the provision of places and opportunities to hide enables the successful selection of an avoidance response. When protective behavioral responses occur, it is essential for the veterinary team to recognize them and ensure that they react appropriately. The aim of the cat's behavioral responses to protective emotions is to reach a physical and emotional place of safety and security, and it is the job of the veterinary team to facilitate this. Cats become stressed when they are not able to respond successfully to protective emotions and resolve them. Cat friendly interactions aim to enable the cat to cope and thereby prevent them from becoming stressed. The overarching objective is to protect cat welfare in the current moment and encourage ongoing improvement during future visits.

Understanding, interpreting and appropriately responding to cats' emotional states and giving them a sense of control through cooperative care are fundamental to being cat friendly.

When cats are showing low-intensity behavioral responses of inhibition and avoidance (passive eye avoidance rather than fleeing),[5] it is often possible to ensure success through simple measures such as allowing the cat to hide in the bottom of their carrier, using towels or a high-sided cat bed to encourage a sensation of being hidden and protected (see Figure 1), and maintaining the cat's sensation of comfort by allowing them to select their chosen location for examination. This is discussed further in 'Principles for interacting with cats'.

When repelling behaviors are the primary response, it can be more difficult for the cat to use them successfully without risking injury to themselves or the veterinary team members. In these situations it is more appropriate to select chemical restraint to enable handling to continue without intensifying the protective emotional state and resulting physiological stress.[68,69] In some cases, chemical restraint can be employed in the moment, but this may not be appropriate if the cat has already reached a state of extreme emotional arousal. In these cases, and if the procedure is not urgent, the caregiver can be asked to take the cat home and schedule a return visit. An appropriate approach to chemical restraint can then be discussed and anxiolytic medication dispensed to be given at home before the visit, with the caregiver also encouraged to provide carrier training, if possible; if still needed, suitable chemical restraint can be employed on arrival.

If rescheduling is not an option, it is necessary to minimize arousal by leaving the cat in a quiet and secluded location for at least an hour, where possible, before administering chemical restraint. In extreme cases it might be necessary to momentarily use higher levels of handling to deliver required medications for chemical restraint (eg, restraint cages for feral cats; loose towel wraps or coverage with blankets in the bottom of the carrier for companion cats), always ensuring that all required supplies are immediately available so that the handling time is the absolute minimum necessary to administer the medication.

When caregivers are resistant to chemical restraint or rescheduling the appointment, the veterinarian must advocate for the cat's welfare and explain that this approach is necessary to reduce the risk of negative emotional associations with the veterinary visit, which can seriously threaten the ability to provide quality veterinary care now and in the future. Caregivers can also be offered advice and materials to assist them with training their cat at home for

carrier travel and handling in order to improve responses during future visits (see later).[16]

It is important to remember that protective emotions are normal when they are justified. While avoidance behaviors and repelling responses may be easy to identify and are more commonly recognized as being problematic, the response of inhibition is also associated with protective emotion and must be recognized as such. Inhibition can certainly make cats easy to handle and work with, but those showing this response are indicating that they feel the need to protect themselves. Thus, they too are in need of assistance through alternative approaches.

Given this focus on 'cooperative care' (see 'Cooperative care, the future of cat friendly'), handling methods that cause discomfort or elevate a cat's fear or frustration levels should be avoided. Studies have demonstrated that cats examined with minimal handling show fewer negative responses than cats handled with more heavy restraint methods (Figure 8).[7,70,71] A survey of Canadian and American veterinary teams found that most respondents reported using a range of handling methods, with both calm and fearful cats, aimed at minimizing restraint and improving the cat's experience during examinations and procedures.[70] However, many respondents also reported routine use of heavy restraint (eg, full body restraint, scruffing) with calm and fearful cats,

Figure 8 **Images from Couture et al[72] provide evidence to support the benefit of minimal feline handling (a,b) over restraint. Blinded observers reviewed video clips and pictures, including those shown here. The methods of restraint illustrated in images (c–e) resulted in increased objective indicators of fear and aversion.[7,71]** *Images courtesy of Lee Niel*

(a) Minimal handling, with the option to sit, stand, lie down and move the limbs, has been determined to be preferable for cats. Cats handled in this way chose to spend time in the locations where this handling was performed.[7]

(b) Minimal handling using a loose towel cover to give the cat an additional sense of safety.

(e) Full body restraint. Cats handled in this way showed a greater frequency of side and back ear positions, more lip-licking, greater pupil dilation and a higher respiratory rate.[7,71] Cats that received full body restraint were also more likely to struggle when being placed into restraint, and to remove themselves from the handler by jumping off the table after the handling session was complete. They avoided areas where this type of handling occurred on subsequent assessments. Appointment times were longer with tight restraint.

(c) Scruffing. Cats restrained by scruffing showed a greater frequency of side and back ear positions (as opposed to up and forward) than cats that experienced minimal handling.[71]

(d) Use of clips as a form of restraint. Cats restrained by clips showed greater pupil dilation, more vocalization and a greater frequency of side and back ear positions than cats that experienced minimal handling.[71]

HANDLING METHODS THAT SHOULD NEVER BE USED

Based on current evidence indicating clear negative impacts on cat welfare, the following handling methods should never be used with cats during veterinary care: scruffing (image [c]), clips intended to mimic scruffing (ie, Clipnosis restraint clips, image [d]) and full body restraint (image [e]).[7,71] As discussed in the accompanying 'Cat Friendly Veterinary Environment Guidelines',[60] the following additional equipment is also not recommended for cat friendly interactions: cat bags, gauntlets or gloves, muzzles of any kind, Elizabethan collars, anesthetic induction boxes/vessels, pillow cases, mesh cat 'nabbers', air muzzles or any other device placed over the cat's head, cat tongs or rabies poles.

and a majority reported using these approaches with cats showing repelling behaviors. While heavy restraint and scruffing are still commonly used with cats in veterinary practice,[9,70] cats show signs of fear–anxiety during such interactions, which should be avoided to safeguard feline welfare.

One study compared the responses of cats that were minimally handled with cats handled with either full body, scruff or clip restraint;[71] the investigators found that all methods of restraint resulted in increased objective indicators of fear and aversion in comparison with minimal handling, and that responses were greatest for full body and clip restraint, followed by scruff restraint (see Figure 8). These heavy restraint methods not only impair cat welfare in the short term, but the effects of repeated use are also likely to be cumulative over time and increase handling aversion and welfare impairment, potentially leading to repelling behaviors in the longer term. Furthermore, a survey of caregiver perceptions of different cat handling methods determined that a majority of respondents disagreed with use of these restraint methods for their own cat.[72]

Preparation prior to visiting the veterinary practice

Why is this so important to interactions?

Events that precede entry to the veterinary practice commonly increase feline and caregiver distress and the veterinary team's difficulties in interacting with cats.[8,9,11] Feline distress resulting from the emotions of fear–anxiety, pain and/or frustration can be associated with a lack of control getting into the carrier, carrier confinement, carrier instability and movement during the trip, and the transportation itself. Cats with prior negative carrier experiences or other distress triggers at home (eg, intercat tension, inability to perform normal behaviors, caregiver–cat relationship breakdown due to undesired feline behaviors) need additional attention to ensure positive experiences both prior to and during veterinary interactions, and to minimize 'stressor stacking' (see image and further discussion in the accompanying 'Cat Friendly Veterinary Environment Guidelines'[60]).

If caregivers are not educated about carrier training and transport (Box 6), their interactions when moving cats into the carrier and during transportation can increase feline distress prior to arriving at the practice. Over 75% of caregivers report they have not been given travel advice,[9] so this is an area that requires improvement from the veterinary team. Caregiver personality, emotions, moods and behaviors also influence feline patients.[73–75] Caregivers are often anxious about various issues – getting their cat(s) to the practice, not knowing how their cat will behave at the practice, an unexpected diagnosis or inability to resolve health issues, and unintentionally harming the relationship they have with their cat. Cats recognize human and conspecific emotions by integrating visual and auditory signals, and change their behaviors based on the perceived emotion.[76] Since caregiver and feline distress are so intertwined, education about carrier training and transport may additionally help reduce caregiver anxiety.

Behavioral modification using positive reinforcement to teach cats to voluntarily enter and calmly travel within their carriers is beneficial to feline welfare.

Caregiver role

Caregivers may feel embarrassed by their cat's response to handling or frustrated if postponement of a procedure is recommended. It should be explained why the cat is likely responding with protective behaviors, emphasizing the cat is not being 'naughty', but reacting based on fear–anxiety, pain and/or frustration, and influenced by previous negative experiences in the clinical setting. In addition to teaching the cat to be comfortable in the carrier and administering pre-visit anxiolytics, caregivers can also provide favorite treats to be made available to the cat at the practice to help cue an engaging emotional bias. It can be explained that cooperative care and specific teaching, including carrier training (Boxes 6 and 7), as well as use of pre-visit anxiolytic medication, make visits easier for both caregiver and cat, with the practice and caregiver working as a team to improve the cat's experience and behavioral response.

Behavioral modification using positive reinforcement to teach cats to voluntarily enter and calmly travel within their carriers is beneficial to feline welfare.[16,18,53] The benefits of carrier training (Figure 9) extend to increased positive emotions, as demonstrated by increased searching for food rewards during the veterinary visit and significantly shortened examination times.[16] Behavioral modification using positive reinforcement training prior to the veterinary visit is the gold standard. However, if caregivers are unable or unwilling to undertake this, the advice should be, as a minimum, to prepare the carrier and car with synthetic feline pheromones 15 mins in advance, and to keep the carrier covered and stable during transport. The Center for Pet Safety (centerforpetsafety.org) recommends that most carriers be placed on the floor behind the front seats, including all hard-sided plastic carriers; details of which carriers have passed crash testing and can be seat-belted in the back seat are also provided. These interventions to improve cats' experiences with the carrier and during travel have been shown to help reduce both the time required to reach sedation and the induction dose of propofol in cats requiring general anes-

Figure 9 Carrier training case study, providing a clear example of how prior negative experiences can influence veterinary interactions, and how the veterinary team can support caregivers to train cats, of any age, to voluntarily enter the cat carrier. Note the facial expression indicating discomfort, which was due to musculoskeletal pain not being well controlled. *Image courtesy of Ilona Rodan*

Watson was presented as a 12-year-old who was highly fearful during veterinary visits due to a painful experience as a kitten at the practice he then visited. Carrier training was recommended and successfully resulted in a calm and content cat during veterinary visits. At home, Watson readily entered the bottom half of the carrier lined with his favored bedding. As a food-motivated cat, he then entered the carrier with the top added when coaxed with food treats. At 14 years of age he starred in a carrier training video, 'Cats & carriers: friends not foes' (Box 6) filmed in the practice he had been so fearful in prior to carrier training.

Box 6

Carrier training resources

- catfriendly.com/cat-carrier
- catfriendlyclinic.org/cat-owners/getting-your-cat-to-the-vet
- Visiting your veterinarian: getting your cat to the veterinary practice (catvets.com/cat-to-vet; also available in the supplementary material)
- Taking your cat to the veterinary clinic – a guide for cat carers (icatcare.org/advice-cat-carer-guides; also available in the supplementary material)
- Cats & carriers: friends not foes (youtube.com/watch?v=9RGY5oSKVfo&t=312s)

thesia.[29] Caregivers can use positive reinforcement training at home to teach their cats to enjoy handling that mimics or approximates that conducted during health examinations by the veterinarian. See 'Cooperative care, the future of cat friendly' for further information.

Client education

Providing caregivers with a supportive plan or checklist to help them be part of the solution can minimize their anxiety as well as help the cat. This should encompass: information on carrier selection and possible anxiolytic and/or analgesic medications; training advice for calm carrier travel and mini-health examinations at home; and practical tips such as bringing one or more of the cat's favored items to the appointment, as well as tips to help the caregiver stay calm themselves (making sure they have enough time to travel to the practice, using relaxed body language around the cat, etc).

Practices can use the resources highlighted in Box 6 to facilitate client education about carrier training and transport, adding this information to websites, as well as distributing via social media and handouts. The veterinary team should also take every opportunity to verbally emphasize the cat and caregiver benefits and explain that all training must be positive in order to reinforce desired behaviors. Techniques can be demonstrated by team members with the appropriate training expertise.

Pre-visit anxiolytics and other useful pharmacotherapy

Pharmacotherapy can significantly lessen a cat's protective emotional bias and resulting potential for distress. It does not replace positive modifications to minimize distress during feline interactions, and so it must be used concurrently when indicated. Cats with previous negative veterinary experiences, those not habituated to handling and those described as having a very anxious or fearful temperament should receive an anxiolytic before the visit.

Information on anxiolytics for use prior to the veterinary visit, including doses and best timing of administration, is given in Table 1. By recording in the cat's medical record (in a pop-up or easily viewed location) caregiver education, anxiolytics or analgesics recommended pre-visit, the cat's preferences and the cat's emotional state, best practices for each cat can always be followed.

Table 1 Examples of sedative/anxiolytic drugs that can be used prior to veterinary visits

Drug	Dose (given PO)	Timing of administration	Indication	Adverse drug effects
Gabapentin[77–81]	100–200 mg/cat or 20 mg/kg Use lower doses in small patients or those with CKD, frailty and/or debilitation	2–3 h prior to the first stressor (eg, carrier, transport or arrival at the practice, based on known triggers for the individual)	To alleviate fear–anxiety and increase compliance with the examination. Reduction in repelling behaviors	Sedation Ataxia Salivation (rare) Vomiting (rare)
Trazodone[68,81,82]	50–100 mg/cat or 10 mg/kg	60–90 mins prior to the first stressor	Less evidence for use. If needed, use in combination with gabapentin. To alleviate fear–anxiety and increase compliance with the examination. Reduction in repelling behaviors	Sedation

CKD = chronic kidney disease; PO = orally

Anxiolytics

Gabapentin is an excellent feline anxiolytic and more effective than other pharmaceuticals and nutraceuticals, as demonstrated by reduced distress during transport and examination.[77–79,83] Gabapentin administration also improves the quality of medical care, increasing the ability to perform a complete examination that may otherwise be impossible in cats that display intense fear-associated behaviors;[77] such behaviors, which can lead to injury, are reduced with a single dose of oral gabapentin.[77] Researchers have identified the lowest stress scores to be 2–3 h after gabapentin administration,[77–79] with the studied and recommended dose being 20 mg/kg[78,79,83] or 100–200 mg/cat.[77] Gabapentin is 100% renally excreted,[78] and significantly higher levels of serum gabapentin are found in cats with IRIS stages 2 and 3 chronic kidney disease (CKD) as compared with cats without renal disease.[80] It is suggested to use 50% of the lower doses of gabapentin in cats with reduced renal function.[77,80] Gabapentin is safe to use in cats with systemic illness, including hyperthyroidism, due to its minimal cardiovascular effects, and can facilitate the performance of procedures such as blood pressure measurement and phlebotomy.[80,83] Caregivers should be warned that cats may be ataxic after receiving gabapentin and this effect can last for several hours after the cat is discharged. Therefore, cats should be kept indoors for at least 8 h and, for some, preventing access to high perches/stairs may be sensible to avoid falls.

A small study has evaluated pregabalin in cats at 5 mg/kg and 10 mg/kg doses and determined that signs of anxiety and the fear associated with car transportation were reduced.[84] Additionally the pharmacokinetics of pregabalin have been investigated, showing no safety concerns with doses up to 7.5 mg/kg.[85]

Trazodone is a sedative that has been recommended for use as a single agent or in combination with gabapentin. Studies provide conflicting information about efficacy and sample sizes were small, making it challenging to draw firm conclusions.[68,82] Trazodone has minimal cardiovascular effects and so is safe for use in cats with systemic illness.[81]

No research on the use of benzodiazepines as a pre-visit anxiolytic is available. Disinhibition and repulsion can occur with some benzodiazepines (eg, diazepam, alprazolam)[86,87] and oral diazepam has been associated with hepatotoxicity.[88] Acepromazine is not an anxiolytic and can also cause disinhibition and repelling behaviors.

Anxiolytics are most effective when administered prior to patient arousal and best given in the home environment. Anxiolytics can even be administered prior to general anesthesia as fasting times have been shortened to 3 h and medication within a small-volume treat does not impact anesthesia.[65] Note that a similar approach can also be used for hospitalized cats undergoing planned procedures or examination, and to reduce anxiety in hospitalized and boarding patients; lower doses may be considered where repeat usage is required. Encourage veterinary teams and caregivers to use a hands-off approach to medicating the cat to further reduce anxiety and improve the efficacy of the anxiolytic medication (see Video 3 in the supplementary material).

Anxiolytics can significantly lessen a cat's protective emotional bias and resulting potential for distress. They do not replace positive modifications to minimize distress during feline interactions, and must be used concurrently, when indicated.

Motion sickness medication

For cats who experience signs of motion sickness, such as lip-licking, drooling or vomiting, maropitant can be prescribed 4 h prior to travel.[89] There are no contraindications to its use in combination with anxiolytics. Fasting the cat for 2–3 h before travel is also advised.

Analgesia

Degenerative joint disease (DJD), which includes osteoarthritis (OA) and spondylosis, and periodontal disease are common chronic pain conditions in cats.[90–92] In addition, the possibility of a range of other sources of acute or chronic pain should always be considered if a cat is presented as being challenging to handle during a veterinary visit. Additional analgesics may be prescribed to administer prior to visits to reduce pain and to prevent protective emotions escalating during travel and examination. Appropriate ongoing chronic pain management should also be provided. See the '2022 AAHA Pain Management Guidelines for Dogs and Cats' and '2022 ISFM Consensus Guidelines on the Management of Acute Pain in Cats' for further information.[93,94]

Cooperative care, the future of cat friendly

Cooperative patient care involves utilizing a combination of classical conditioning, to create positive emotional associations with certain contexts, and operant conditioning using positive reinforcement to teach desired behavioral responses that facilitate the delivery of veterinary care. This approach can help animals feel physically and mentally comfortable with veterinary care and, most importantly, able to make their own decisions about engaging with the humans who provide it. The overarching goal is to enable cats to make appropriate cognitive and emotional associations with the veterinary experience. This results in cats who can calmly accept human proximity and voluntarily cooperate with medical interventions.

Positive reinforcement training utilizes experiences individual cats find rewarding, such as

accepting food treats and, for some, positive social interactions, to increase the probability of a particular behavioral response. These engaging triggers are also cues for the positive (engaging) emotional system of desire-seeking and will encourage a positive emotional bias that can enhance self-confidence in the individual. By offering these in response to the expression of desired behaviors and postures, the veterinary team can develop:

- **Calm, passive behaviors** For example, a cat holding their body still in a particular posture for an extended period of time, as may be required during examination. Such a posture may be aided by a person gently handling the cat, the use of positional aids such as sandbags, or provision of hiding options (eg, high-sided cat beds/carriers). In all cases, the aim is a relaxed cat who accepts such positioning.
- **Active behaviors** For example, a cat lifting their head to reveal their neck or offering their front leg to allow blood sampling, or walking onto and settling on weighing scales. Such behaviors can even be taught to occur on cue.

Cooperative care helps cats feel more comfortable, relaxed and in control in husbandry and medical situations where they may naturally feel anxious, fearful and/or frustrated. The desired behavioral and postural outputs of the more positive emotional bias are not initially automatically offered by the cat and so training involves the successive reinforcement of approximations of them. In addition, approximations of equipment required (eg, nail clippers) and/or sensory experiences associated with equipment and husbandry procedures may initially be used to gradually increase a cat's confidence and exposure through classical and operant conditioning. For example, snipping of dried spaghetti can be used to teach a cat to remain relaxed when hearing a sound that approximates that of nails being clipped. Likewise, different containers of varying size and shape brought toward the cat's body can be used to approximate the initial stages of medicating. Box 7 and Figure 10 provide examples of cooperative care training in action.

Being cat-focused and adapting to where they are on their journey of cooperative care learning, is pivotal to being cat friendly.

Figure 10 **Example of cooperative care. This cat was trained to be comfortable with weighing scales to prevent fear of the equipment and to allow weight to be monitored at home on a routine basis for early detection of obesity or weight loss.** *Image courtesy of Ilona Rodan*

Cooperative care involves both the handler (person) and patient (cat) learning new skills that are underpinned with a sound knowledge of what a cat is in terms of their behavior and how they learn. Education programs should take into account individual cat-related factors (eg, temperament, previous veterinary experiences), as well as the caregiver's knowledge and skill when it comes to implementing the necessary interactions to facilitate appropriate learning, plus their expectations of their cat and the learning process. To ensure cooperation from the cat is optimal, handler skills need to be developed and practiced by both the caregiver at home and by the veterinary professionals working with the cat in the practice. This way, the cat comes to the practice with a solid foundation of required behaviors (or approximations of such behaviors) and in a calm, relaxed emotional state that the veterinary team can build on to reduce stress during the clinical experience.

Being cat-focused and adapting to a cat's comfort levels, and where they are on their journey of cooperative care learning, is pivotal to being cat friendly. In addition, with the caregiver and veterinary team working in similar ways with the cat, a team approach is created, with the cat's physical health and mental wellbeing at the core. This leads not only to stronger caregiver–veterinarian relationships but also stronger veterinarian–caregiver–patient relationships.

It is important to recognize that cats vary greatly in their individual temperaments and previous experiences within veterinary practices. Beginning cooperative care education from kittenhood gives us the best chances of true long-term cooperation, thus minimizing negative experiences. However, not all cats are obtained during kittenhood or stay with the same caregiver and/or practice, and so it is important to be able to assess each individual cat's comfort with veterinary handling and procedures (and what factors may be leading to such experiences). Caregivers should not be tasked with trying to educate cats who are showing signs of distress or have existing health or behavior problems. In cats with problem behaviors, cooperative care education programs should only be performed with the input of a suitably qualified feline behaviorist.

Box 7

Examples of introducing cooperative care

- Series of videos from International Cat Care on the theme, 'Helping your cat accept having their ...':
  - eyes checked bit.ly/iCatCareeyes
  - paws checked and claws clipped bit.ly/iCatCarepawsandclaws
  - coat checked bit.ly/iCatCarecoat
  - mouth checked bit.ly/iCatCaremouth
  - ears checked bit.ly/iCatCareears
- Inhaler training: icatcare.org/inhaler-training

Principles for interacting with cats

Pleasant, effective interactions with feline patients result from developing a plan based on species-specific needs, understanding each individual, utilizing a calming environment (see accompanying 'Cat Friendly Veterinary Environment Guidelines'[60]), and adapting according to the condition and life stage of the cat. How well the veterinary team is prepared for each patient's visit will greatly influence how the examination proceeds.

Preparing the cat and caregiver for veterinary visits

Practices often have technicians or nurses educate clients about preparing the cat at home. Alternatively, client care coordinators or veterinary care assistants can be trained to supply the information either electronically or in person. Providing information on websites and social media, including videos or links to videos supporting this education, can be helpful (Boxes 6 and 7). Anxiolytics may be needed based on an individual's prior experiences and temperament, and potentially analgesia if the cat has a known painful condition (see 'Pre-visit anxiolytics and other useful pharmacotherapy'). The success of the caregiver's preparations for the trip to the practice influences the cat's emotional state during transportation and examination.

Veterinarian preparation

Review medical records prior to the appointment, both for medical health and to identify the best means to work with the individual patient.

✣ **Previous history** Knowledge of each patient's genetics, early history (see above) and previous experiences, together with the clinical history, allows an individualized approach. Cats who were not properly socialized to people, not habituated to human environments, or who have had a previous negative experience are likely to have decreased tolerance during veterinary visits. New people or pets in the home, loss of a person or pet, tension between resident pets, and not having a cat's essential needs met can likewise predispose the cat to a decreased tolerance of the veterinary visit. The section below 'Communication and recording in the practice' describes how best to identify relevant previous history and to work with the individual cat.

✣ **Medical history and reason for visit** Review the medical record and appointment notes for any conditions that might affect the approach taken. Illness or pain can result in emotional compromise (ie, more protective than engaging emotions) due to intensifying of emotions secondary to the medical condition(s).[6] For example, a cat who is normally friendly at the veterinary practice might demonstrate protective behavior, such as hiding, when experiencing pain and/or poor health that makes them feel more vulnerable. Be prepared to address any of these

Figure 11 (a–e) Clinical examinations being performed in the cat's chosen location. *Images courtesy of Ilona Rodan (a–c) and the Feline Healthy Ageing Clinic, University of Liverpool, UK (d,e)*

Figure 12 (a–e) Examples of towels and blankets being used to loosely wrap (rather than tightly restrain) anxious cats to facilitate the examination. *Images courtesy of Ilona Rodan (a,b), the Feline Healthy Ageing Clinic, University of Liverpool, UK (c), Sam Taylor (d) and the AAFP (e)*

issues prior to beginning examinations – for example, through the provision of analgesia or antiemetics/antinausea medication.

Develop a plan for working with cats

Ensure all team members understand cats as both a species and as individuals, their emotional and behavioral responses, and how best to interact with and handle them. Minimize wait times and stressors in the waiting area. Only experienced team members with feline-specific knowledge should work with conscious cats. Training is critical to support other veterinary professionals to ensure respect for cats, and appropriate interactions and handling. Share these Guidelines and other resources at bit.ly/JFMSCatFriendly to further team education.

Examination room preparation

Prepare the cat-only examination room (if available) with all equipment that may be needed before the appointment to avoid sensory arousal of the cat caused by exiting and re-entering the room. See the accompanying 'Cat Friendly Veterinary Environment Guidelines'[60] for a list of equipment for the cat friendly examination room, and additionally for information on working in multispecies practices. Importantly, the only non-medical equipment needed to interact with and handle cats is a variety of treats, soft blankets or towels, and a high-sided bed or the bottom half of their own cat carrier. Once the room is prepared, the cat and caregiver can enter. Many practices recognize the benefit of bringing the cat in a covered carrier directly from the vehicle to the examination room. Provide towels sprayed with synthetic feline pheromones to cover carriers if the caregiver has not done so. Perform the examination and other outpatient procedures (eg, blood pressure measurement, phlebotomy, cystocentesis) in the examination room.

Throughout the examination it is essential that the cat has the choice to hide, as this is an important coping strategy.

Considerations for home visits

Home visits are common for hospice and palliative care patients and end-of-life appointments. Additionally, some veterinarians offer only house calls or home visits for feline patients.

Performing the appointment in a cat's home environment does not remove the potential for distress, which is associated with unfamiliar people entering and performing unfamiliar procedures in their territory.[22,95] In one study, cat stress scores were shown to be higher in the home environment than the clinical environment, with increased struggling, vocalizing and agitation.[95] The same study reported that systolic blood pressure (SBP) measurements were the same in both the home and clinical environments,[95] though another study has shown lower SBP in the home environment.[22] The principles discussed in these Guidelines regarding handling techniques, hiding options, and so forth, are just as relevant in the home environment as they are in the practice.

Feline preferred locations and positions

Start the examination and do as much as possible in the cat's chosen location and position. In terms of location, this might include on the floor, on the weighing scales, inside the bottom of the carrier with the lid removed, in a cat bed, or in the caregiver's or veterinary professional's lap (Figure 11). Cats may prefer being covered with a warm blanket or towel (Figure 12)

pre-sprayed with synthetic feline pheromones, or may respond favorably to soft conversation from the caregiver or interaction with toys. Lower-level lighting in the examination room may soothe some cats and dimmer switches in these rooms can allow varying light levels to accommodate each situation. Use of treats for distraction and reinforcement of desired behavior is often helpful; have lots of options available, such as liquid/tube treats, pill pouches, canned food and dry cat treats. The ideal position for the cat during examination is very individual, and includes sitting, standing or lying down.

Feline preferred areas of touch

Preferred areas of touch for cats are the same regions that socially bonded cats groom one another to strengthen the social bond.[38,39] These regions are over the feline facial glands, which produce pheromones used to communicate between members of the species.[38,39] The facial glands are illustrated and labeled in Figure 3. Massage or pet over these areas in the direction of the fur (Figure 13) and from a non-threatening position (ie, at the cat's level, approaching from the side, where possible, to avoid direct eye contact). Ask caregivers about their cat's individual preferences with regard to touch, bearing in mind that cats may allow only caregivers to pet certain areas. Most cats dislike touch over the caudal area, the abdomen and feet, and this should be avoided as much as possible.[38] If these areas need to be examined, perform this toward the end of the assessment.

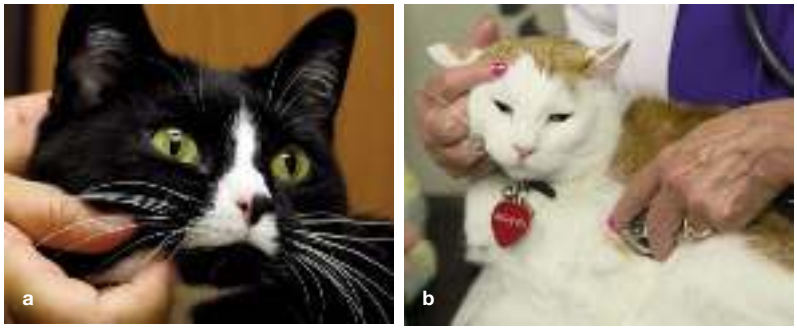


Figure 13 **(a,b) Massaging over the facial glands. These produce pheromones used in facial rubbing and are the preferred areas of touch in the head region (see Figure 3). In both these images, massage is over at least two of the facial glands.** *Images courtesy of Ilona Rodan (a) and the AAFP (b)*

Communication and recording in the practice

Add as much supporting information as possible into the most visible area of the medical record. In addition to the medical diagnosis

Box 8

Supporting questions prior to examination

- How was the journey to the practice today? Any problems with getting your cat into the carrier?
- What carrier training has your cat received?
  If none, ask the caregiver whether they previously received information on carrier training. Address challenges, if any
- What other training has your cat received?
- What is your cat's history prior to adoption?
  Ask regardless of the patient's age if it has not already been noted in the medical record. Many caregivers can provide valuable information about parentage, when taken away from parents and siblings, if orphaned, rehomed, or other factors that may affect socialization, and/or previous experiences that could impact veterinary visits
- How has your cat reacted to previous veterinary visits and examinations?
- What areas of the body is your cat comfortable with having touched? What areas are they not comfortable with?
- What changes in your cat's behavior have you noticed since the last visit?
  This helps identify unrecognized pain, illness and behavioral concerns

Box 9

Important information to record from each visit

- Medications given regularly (ease of administration)
- Pre-visit treatment (ease of administration, dose and timing of sedative/anxiolytic) and effect
- Demeanor on arrival and caregiver information about the journey (eg, carrier trained, hard to get into the carrier, cat was vocal, cat was distressed during transport, etc). Include if the cat urinated/defecated/vomited/drooled during transport
- Reactions in the practice and with handling – what worked and what did not?
  - Preference to hide or to explore room
  - Cat's preferred location for examination (eg, within the carrier)
  - Preferred limb or tail for blood pressure measurement
  - Preferred vein and position for venipuncture
  - Preferred position for cystocentesis
  - Any results likely affected by fear–anxiety (eg, heart rate, blood glucose, blood pressure)
  - Response to treats/food, and preferences and dislikes (including type and presentation – on floor/table, in hand, in a dish, etc)
  - Aids or tools that were helpful (or not), such as loose towel wraps or a high-sided cat bed
- Cat's behavior on return home after the last visit; for example, whether the cat hid or showed protective behavior;[96] and/or whether there were changes in interactions between cats or with other pets in the household

Avoid using negative and unhelpful language such as 'aggressive', 'fractious', 'naughty' or 'spicy', as these terms provide team members with no information about the cat's emotional state or behavioral responses in certain situations, nor about best handling techniques during future veterinary visits.

include: early history; stressors within the home physical or social environment; the cat's emotional state during previous veterinary visits (including, for example, whether they choose to explore or hide within the examination room); medications to be given when preparing the cat for the visit; and the cat's preferences regarding position and location for the clinical examination, areas of touch and phlebotomy sites. Always ask supporting questions prior to the examination (Box 8).

After the examination, recording what worked and what did not work (see Box 9 for examples) will help avoid protective behavioral responses and escalation at future visits. Appropriate record-keeping can also alert the wider team of the need to discuss with the caregiver scheduling of appointments at a quieter time and/or of longer duration, and that preparation prior to the appointment may be required. These aspects should be discussed in advance with the attending veterinarian. This is preferable to an appointment where the cat cannot be safely handled, procedures not completed, and the cat's negative experience in the practice reinforced.

How to approach the cat

Prior to approaching, the cat should first be observed to assess their emotional state; while knowledge of the cat's previous behavioral history is useful in planning your approach, the cat's emotional state at each interaction needs to be assessed before initiating any contact. In an examination room situation, the cat should be allowed time to choose to come out of the carrier on their own accord and acclimatize to the room (Figure 14). This is preferable to reaching into the carrier (which risks the cat feeling threatened or trapped) and pulling the cat out, or tilting the carrier to force the cat out. The same holds true for hospitalized cats – begin by opening the cage door slightly and allowing the cat to choose to come to the front of the cage. For tips and techniques on enticing a cat out of their carrier, see 'Recommendations for first interactions', and Video 4 in the supplementary material.

Explain the strategy to the caregiver or other team members and ask that they not interact with the cat unless the cat approaches them, which will give the cat more options. While the cat either chooses to remain in the carrier or is exploring, a history or update on the cat's progress can be obtained; calm conversation will put everyone, including the cat, at ease.

By observing the cat's movements and body language, including facial expressions, and response to room smells, your presence, noise and/or activity, a better understanding of the cat's current emotional state, as well as their physical state, can be obtained. Leaving the door to the carrier open, where possible, so the cat can enter and exit at will, will impart a better sense of safety (access to carrier) and choice, and ease the cat's anxiety about possible threats and frustration caused by the inability to escape. Throughout the examination it is essential that the cat has the choice to hide, as this is an important coping strategy, especially in an unfamiliar environment or when protective emotions are aroused.

General considerations when approaching a cat are highlighted in Video 5 in the supplementary material.

Trust is not transferable. Each veterinary team member needs to build rapport with the cat before handling.

Recommendations for first interactions

- Where possible, bring yourself to the same level as the cat; if they are on the floor or in a low cage, crouch or kneel down.
- Avoid leaning over the cat.
- Avoid cornering the cat within the carrier or anywhere in the room (eg, under a chair).
- Do not make direct eye contact.
- Blink slowly in the direction of the cat (many cats respond favorably to this).[36,37]
- Move slowly and deliberately.
- Reach out with a soft hand (Figure 2) toward the cat, but without getting too close; the cat can then choose to come to sniff the hand and interact further.
- Passively offer treats to entice the cat to leave the carrier by placing them on the table or floor at the entrance to the carrier – do not offer treats directly from the hand (Figure 14).
- If the cat still remains within the carrier or has returned to the carrier prior to the start of the examination, remove the top half so that examination and any diagnostics can be performed with the cat in the bottom half. A towel or blanket can be placed over the cat to still give them a sensation of being hidden.
- If the cat is in a top-opening carrier, place the carrier on the floor and use a towel to

Figure 14 Open the carrier door and allow the cat to come out on their own accord. Treats can be offered passively in front of the carrier to encourage the cat to exit. *Image courtesy of Ilona Rodan*

loosely wrap the cat and gently lift them out; do not lift the cat any more than required.

- If the cat is in a carrier where the top cannot be opened or removed, try to slowly slide the cat out of the side opening on any bedding material that is lining the bottom of the carrier, then attempt to slowly place one hand behind the cat and draw them out gradually toward your body; use towels to facilitate this. Make sure there is a well-designed carrier, lined with soft bedding, ready to use for the rest of the examination, and encourage the caregiver to replace their current carrier.
- Further contact should focus on massaging the cat's facial glands (Figures 3 and 13) for a few seconds, and then pausing to assess the cat's reaction. Continue to massage only if welcomed by the cat (eg, as indicated by the cat rubbing their face on your hand [Figure 2] or moving closer to you).
- If the cat needs to be lifted or moved within the examination room for examination or diagnostic purposes, note the following pointers:
  – Cats feel more secure with all four feet in contact with a solid surface;
  – Request that the caregiver facilitates moving the cat if you feel confident in their ability to do this safely in a cat friendly manner;
  – Transfer the cat in their carrier or the bottom half of the carrier, if possible;
  – If not using the carrier, use a loose towel to provide a sense of security; try to mimic the sensation that the limbs are in contact with a solid surface by bringing the cat, loosely protected in the towel, closer in toward your body.
- If leaving the examination room, the cat must always be in their carrier.
- Trust is not transferable and each team member needs to build rapport with the cat before handling.

What is the cat's body language revealing?

At all times, use the information the cat is giving to determine appropriate 'handling'. If the cat has approached with relaxed or positive body language and facial expressions (eg, ears up and forward, head and body upright, straight legs, tail up, positive vocalizations, relaxed position when lying down, exploring), then proceed with the examination. Cats who are exhibiting protective behaviors need a hiding option during the examination, or consideration should be given to rescheduling the appointment and dispensing anxiolytics for administration prior to the return visit (see Table 1). If it is necessary to proceed with the examination at the time, consider administering chemical restraint (see Table 2, page 1125). Analgesia should be provided for cats who are painful, with assessment of painful areas delayed until this has taken effect (eg, at the end of the examination or following sample collection). Some cats become frustrated with confinement in a cat carrier or cage, and allowing them additional time and space to explore the examination room, or other area, prior to approaching (eg, using treats to encourage positive engagement with the environment) can be helpful. Hiding options and consistency in care can also help diffuse frustration for cats in cages.

TREATS

Treats can be used in different ways – to build rapport, by tossing from a distance; to distract, by offering during handling and procedures; and to reward desirable behaviors. For building rapport (tossing) and rewarding, use small pieces. For distraction, have something that can be smeared and takes time and full investment to consume (ie, requires maximal attention on the part of the cat). While there is a belief that cats are not interested in treats in the practice, this is not always true – many cats will consume treats but we tend to offer them things that are not sufficiently high value and in ways that induce emotional conflict. Highly palatable wet foods and lickable treats are more likely to be accepted than dry kibble.

Always continue to assess and reassess a cat's body language during any interaction, as their emotional states and behavior can change. An inhibited cat who is freezing can become more aroused if the cause of the fear is not addressed and sympathetic handling is not applied. If they perceive that their inhibition response is unsuccessful, they may change to one of the other available responses such as avoidance or repelling behaviors (Box 4). Confident cats can become frustrated if they are physically restricted during examination, and such cats may be happy to initiate a short amount of contact with you but may not be happy with prolonged intense contact.[39,97] Some of these cats can be distracted using treats (see box) and will permit further examinations to be performed while they are eating.

Clinical interactions are a dynamic process and the veterinary team must be prepared to adapt, slow down when required, and give the cat breaks in order to complete the necessary work.

How to perform a cat friendly physical examination

General approach

In most cases, only one person is needed to examine a cat. Although practices may ask that basic physiological data (temperature, heart rate, respiration rate) are gathered and weighing is performed prior to the veterinarian examining the patient, this should be avoided – not only to increase efficiency, but to prevent the need for additional handling and the risk of triggering protective emotions. The veterinarian should enter first, either with or without another team member who (if present) will remain throughout the appointment.

Most veterinarians approach a physical examination with a checklist that moves from head to tail. Although this may ensure that the veterinarian meets basic standards of care, flexibility in the order of the evaluation, based on the cat's preferences, minimizes patient distress. Progressing carefully and slowly through the examination, while allowing the

Clinical interactions are a dynamic process. Be prepared to adapt, slow down when required, and give the cat breaks in order to complete the necessary work.

cat to make choices about positioning and handling, and taking short breaks when necessary, will facilitate the evaluation. If the cat resists aspects of the examination, attempt different distraction techniques, such as massaging over the facial glands or making food treats passively available to the cat (eg, on the examination table); proceed with examination in short manageable segments; or perform other parts of the evaluation and then return to the areas of hesitation. The least preferred aspect of the examination varies among cats; some may resist interaction with certain equipment (eg, stethoscope, weighing scales), while others may be wary of handling of individual body parts or deep palpation of the abdomen. It may be best to leave these particular aspects until last.

For most cats, auscultation of the heart and lungs is the best first step, as it is the least invasive; moreover, if subsequent chemical restraint is needed, the necessary assessment of the cardiovascular and respiratory systems will have been performed. However, the respiratory rate of the cat is ideally recorded prior to any physical interaction. Where possible, the heart should be auscultated on a number of occasions during the examination as the heart rate and detectability of a heart murmur will vary throughout the examination.[98]

For evaluation of musculoskeletal disease (predominantly DJD), a combination of physical examination and caregiver assessment is essential, as caregivers may have recognized changes in their cat's normal behaviors and mobility.[99,100] Several questionnaires have been validated for this purpose, and can be provided to caregivers in advance of the appointment.[101–106] Visual assessment of mobility is best conducted in the home, as many cats do not move normally in the practice. Do not coerce the cat to move during the physical examination; instead, the veterinary team should request caregiver videos of the cat walking, jumping, and climbing up and down stairs for the veterinarian to assess.

If a cat consistently resists portions of the evaluation or demonstrates protective behavior despite the provision of hiding options and other positive reinforcements, consider alternative approaches based on immediacy of need (see 'Preparation prior to visiting the veterinary practice', 'Cooperative care, the future of cat friendly' and 'Protective cats').

Figure 15 Approach the cat from an angle when examining the head, to avoid direct eye contact. *Image courtesy of Ilona Rodan*

Tips for performing an effective physical examination while minimizing stress

The following are suggestions to facilitate completion of the examination with the least stress for the cat. If required, use blankets or towels to cover or gently wrap – but not to tightly restrain – the cat (Figure 12).

- **Equipment** Ensure that all equipment is available in the room prior to starting the examination and is thoroughly cleaned between animals to remove smells. Allow the cat the choice to approach, sniff and explore the item before moving it toward them.
- **Thoracic auscultation** Position yourself behind or to the side of the patient, and start with the hand and stethoscope along the lateral thorax, auscultating the lateral pulmonary fields and that side of the heart. From the opposite side of the cat, slowly place your other hand under the sternum, gently lifting the cat slightly to facilitate moving the stethoscope over the heart at the sternum. Repeat on the other side. Avoid putting unnecessary pressure on the chest to prevent induced murmurs,[24] and be cautious with hand and stethoscope movement near the elbows of older, potentially arthritic cats. To reduce excessive purring, instead of using surgical spirit or water, distract the cat by altering lighting, providing visual access to a window, or using squeaky or chirpy toys; if necessary, reassess after any sample collection.
- **Head and neck examination** It is important to proceed slowly with the head examination, breaking it into segments that the cat will tolerate. The head structures can be assessed first from a distance while the cat is walking around the room or sitting in the bottom half of their carrier, and secondly while massaging over the facial glands.[38,39] For otoscopic evaluation, holding the ear at the base of the pinna eases cone insertion and allows gentle canal extension for better tympanic visualization. For intraocular and retinal examinations, be cautious of face-to-face contact, especially for nervous or protective cats.[107] Approach from an angle and avoid direct eye contact (Figure 15).

✣ **Abdominal palpation** Begin abdominal palpation slowly to assess for potential reactivity, combining the assessment with petting and massaging motions to make the experience more positive if the cat is receptive (Figure 16). Be aware of the potential for referred pain in cats with spinal DJD.

✣ **Painful areas** Assessment of painful areas or those areas that the cat prefers not having touched should wait until the last part of the examination or until analgesia has taken effect. Many feline patients are painful. As many as 70% of cats over 3 years of age have dental disease;[108] and DJD, including OA, can be present in cats of all ages, with a dramatic increase in prevalence and severity after 10 years of age.[90,91] See Box 10 for further information on pain assessment.

✣ **Back and limb assessment** Always palpate along the length of the spine, as DJD commonly occurs in both the thoracic and lumbar spine (Figure 17).[91,119] This can be done when assessing muscle condition score. Individualize limb assessment based on the patient's history (ie, whether the cat is more sensitive or painful on a certain limb or limbs) and pay attention to patient response to or resistance with handling. As OA is usually bilateral in cats, lameness is uncommon.[90] Pay special attention in younger cats with a history of trauma, genetic diseases such as osteochondrodysplasia, hip dysplasia or patellar luxation, as well as in cats 10 years and older, as they are all at risk for pain with limb palpation. While the AAFP and ISFM oppose elective declawing, when cats have already undergone the procedure it is important to assess for potential tendon

Figure 16 **Combine abdominal palpation with head and neck petting and massage to make the experience more positive.** *Image courtesy of the Feline Healthy Ageing Clinic, University of Liverpool, UK*

Figure 17 **Palpation of the spine for degenerative joint disease.** *Image courtesy of Ilona Rodan*

Box 10

Pain assessment

Pain is considered part of the fear–anxiety emotional system.[6,51,64] Veterinary professionals will be examining cats both in acute and chronic pain, and this has implications not only in terms of their physical health but also from an emotional and cognitive perspective. The presence of pain can alter an individual's emotional state; and a protective emotional bias can also alter the cat's perception of pain and thus the potential significance of the pain for them.

Assessment for, and recognition of, pain is an important part of any cat friendly interaction as it enables analgesia to be given prior to physical examination. The medical record, caregiver history, reason for the required examination, cat's response to first interactions and/or visual assessment of the cat may alert the veterinary professional to the presence of chronic or acute pain. This should be followed up with the use of a validated pain assessment tool and analgesia, as required. For acute pain, the Feline Grimace Scale,[109–112] Glasgow composite measure pain scale-feline[113] and UNESP-Botucatu multidimensional feline pain assessment scale short form[114] have been validated in cats (see the '2022 ISFM Consensus Guidelines on the Management of Acute Pain in Cats' for further information[94]). A number of tools have also been developed for the assessment of chronic, musculoskeletal pain, including the Feline Musculoskeletal Pain Screening Checklist,[105] Client Specific Outcome Measures,[101] the Feline Musculoskeletal Pain Index,[99,115,116] the Montreal Instrument for Cat Arthritis Testing[104,117,118] and a health-related quality of life instrument, VetMetrica.[106]

Links to pain resources

Acute pain

- Feline Grimace Scale: **felinegrimacescale.com**
- Glasgow composite measure pain scale-feline: **newmetrica.com/acute-pain-measurement/download-pain-questionnaire-for-cats**
- UNESP-Botucatu multidimensional feline pain assessment scale short form: **animalpain.org**

Chronic pain

- Feline Musculoskeletal Pain Index (pain assessment for degenerative joint disease): **painfreecats.org**

Figure 18 **(a,b) Oral examination. Note the examiners are avoiding pulling on the cat's fur to raise or lower the lips.** *Images courtesy of the AAFP (a) and Feline Healthy Ageing Clinic, University of Liverpool, UK (b)*

contraction,[120,121] P3 fragments,[122] back pain and other chronic pain associated with digital amputation. Myofascial examination provides a soothing, gentle approach to assessing for pain and origins of pain (see Video 6 in the supplementary material).[123]

✣ **Oral examination** From the outset of this part of the examination, be aware of the high potential for oral pain in the patient. A slow approach to the mouth, with gentle petting of the face, may facilitate assessment of oral structures. Gently lift or lower the lips to evaluate buccal tooth surfaces before opening the mouth to view lingual tooth surfaces and internal oral structures (Figure 18; see also Video 7 in the supplementary material).[124] Make sure not to pull on the cat's fur when lowering or raising the lips. If the cat objects to any part of the oral assessment, it may be best to return to it later in the examination or after chemical restraint/analgesia has been administered and taken effect.

✣ **Temperature** For apparently healthy cats, auricular and axillary temperature assessment is generally sufficient to ensure body temperature is in the normal range.[125,126] If rectal temperature is required, perform this assessment toward the end of the examination; placing the cat in a comfortable position with the perineum at the edge of the examination table, allows the veterinary professional to access the anus without forcing the cat into an uncomfortable position. Hyperextension of the tail is uncomfortable and should be avoided. Infrared options and ocular temperature determination may become the preferred methods in the future.[127,128]

✣ **Weight, body condition and muscle condition scores** If possible, move the scales, topped with a warm blanket, close to the cat's location and tare the scales to zero weight (Figure 19). If appropriate, entice the cat to walk onto the scales using a trail of treats.

END ON A POSITIVE NOTE

Encourage positive emotions throughout the physical examination, and always aim to end on a positive note. If the final part of the examination is a negative experience (eg, assessment of a painful area), try to leave the cat with a positive association of the visit by passively providing treats or other positive reinforcers.

Considerations for specific procedures

When considering the best (ie, most cat friendly) way to perform a specific procedure, it is important always to remember that each cat is an individual and be prepared to adapt and try a different approach or technique based on information from the cat. If the procedure is one that is going to be required on an ongoing basis, then introducing it slowly to acclimatize the cat, and training them to offer an appropriate posture or behavior to assist in the performance of the procedure, should be considered. This may take more time and effort initially but the investment will be worth it in the longer term. Use treats or other positive reinforcement to reward the cat for appropriate postures and behaviors, both while undertaking the procedure and immediately afterwards (see Video 8 in the supplementary material for examples).

When obtaining blood, urine or any other samples, consider collecting extra and storing it for a day or two, so that further tests can be performed if indicated. In the majority of cases, only one or two veterinary team members are needed to collect laboratory samples. In cats demonstrating protective emotions and behaviors, collection of samples should be performed by experienced team members only; valuable experience with sample collection can be gained on anesthetized patients or on calm cats. However, even experienced persons may have challenges with an individual or on a certain day. If there is difficulty with collecting a sample or with intravenous (IV) catheterization due to lack of experience or ability, discontinue after two attempts and ask someone else to try; if they are not successful, reconsider the approach required.

Figure 19 **Cat sitting on a warm blanket on weighing scales. The scales are zeroed after placing the blanket and before the cat is enticed onto them.** *Image courtesy of Kelly St Denis*

Review the cat's history and consider any factors that may influence how you approach the procedure. For example, cats who have a history of severe dental disease may be painful around the head and so the jugular vein may not be a good choice for a blood sample. Likewise, brachycephalic cats often do not tolerate their head being lifted for a jugular sample, obese cats may not have veins that are easy to find, and arthritic cats and Scottish Folds may not be comfortable with extension of some of their joints. Rather than extending or holding over a joint, move the humerus forward or the femur back to accomplish the desired positioning. Life stage also needs to be taken into consideration, as the approach to an adult or senior cat may be very different to that for a kitten, due to size and the presence of comorbidities (see 'Life stage handling'). Always ensure the cat has adequate analgesia prior to starting any procedure and do not be afraid to provide chemical restraint if required.

Importantly, the lifestyle of the cat also needs to be taken into consideration, with feral or street/community cats needing a very different approach to companion cats (see 'Working with feral or street/community cats: key principles').

Blood pressure measurement

Cat friendly interactions performed in a cat friendly environment should reduce the risk of situational hypertension. Always work where the cat is comfortable, be it on their own bedding or warm towel or blanket, or in their caregiver's lap. If the carrier has a removable top, and the cat prefers, allow the cat to stay in the bottom half of the carrier (partially or fully covered with a blanket, if required). Coccygeal measurements (Figure 20) are preferable for some oscillometric machines,[129] and for cats with OA in peripheral joints or with sarcopenia.[130] Radial measurements (Figure 21) are preferable in obese cats.[131] For further details on feline hypertension, see the 'ISFM Consensus Guidelines on the Diagnosis and Management of Hypertension in Cats'[132] and the AAFP's Hypertension Educational Toolkit (catvets.com/hypertension).

SPECIFIC EQUIPMENT

Cat friendly interactions remove the need for equipment that historically has been used for cat restraint or 'handling', including cat bags, gauntlets and muzzles. Instead, the necessary equipment includes those items that provide the patient with comfort, a sense of safety, a sense of choice and positive distractions. Detailed discussion on cat friendly equipment is provided in the accompanying 'Cat Friendly Veterinary Environment Guidelines'.[60]

Review the cat's history and consider any factors that may influence how you approach a specific procedure.

Additional considerations for Doppler machines

- Avoid clipping the fur; instead wet down the contact area, either by using a damp cotton ball (cotton wool) or by gently massaging ultrasound gel into the paw.
- Use quiet clippers if clipping the fur is required to detect blood flow (see accompanying 'Cat Friendly Veterinary Environment Guidelines'[60]); allow time for the cat to resettle before measuring SBP.
- Do not hyperextend or place hands over joints while measuring blood pressure, as painful joints are often undiagnosed. As many cats do not like to have their feet touched, gently hold the paw (Figure 21) or let it rest in the palm of your hand, rather than holding the foot tightly.
- Use headphones. If not available, use the lowest volume needed to hear pulsatile blood flow, and turn down or off when moving the probe.
- Keep ultrasound gel in a small bottle with a pump-action top.

Figure 20 Coccygeal blood pressure measurement being taken while the cat remains relaxed in a cat bed. *Image courtesy of the AAFP*

Figure 21 Radial blood pressure measurement being taken while the cat is relaxed in the base of their carrier. *Image courtesy of the Feline Healthy Ageing Clinic, University of Liverpool, UK*

Venipuncture

The venipuncture site should be chosen based on the individual, and a small gauge needle, appropriate for the size of the animal, selected. Insulin syringes (28–31 G needles) can be used for neonatal and pediatric patients or where small volumes of blood are required. If clipping of fur is performed, use quiet clippers (see accompanying 'Cat Friendly Veterinary Environment Guidelines'[60]). For cleaning the skin or wetting down the fur if not clipping, use dilute chlorhexidine or similar, avoiding alcohol-based products due to their strong scent. For cats undergoing planned phlebotomy that withdraw with needle touch (eg, hospitalized patients or cats coming in for regular screening tests), apply topical local anesthetic 30 mins before the procedure, when possible.[133,134] Advance the needle slowly and gently – avoid 'stabbing'.

Tips for jugular sampling

Use minimal handling, tilting the head up gently while avoiding the whiskers. Do not restrain the legs or hang the forelimbs over the edge of the examination table, as it causes the cat to lose their sense of control and can be painful. If the cat raises a forelimb, consider wrapping the cat loosely in a towel so they can freely move their legs, but team members are protected. Cats who are very active in the practice may be able to be distracted with a liquid treat and a hands-free blood sample collected (Figure 22; see also Video 8 in the supplementary material).

Tips for medial saphenous vein sampling

The medial saphenous vein is appropriate for use in cats with head or forelimb shyness, as well as for cats with cervical and/or elbow OA; it is also suitable for routine use. The cat should be placed in a semilateral position, so that the dorsal half of the body retains a comfortable, sternal posture (Figure 23). Forcing the cat into full lateral recumbency takes away all sense of control for the cat. The cat can be snuggled by the handler, loosely wrapped in a towel, and massaged over the facial glands and/or distracted with treats. Let the tail remain in a natural position as determined by the cat. The limb used for sampling should be stabilized without tightly holding over the joints, pumping the foot or using the full weight of the hand; and refrain from hyperextending the tarsal joint, which can cause unnecessary discomfort.

Figure 22 Cats having a jugular blood sample collected with (a) no physical handling and (b) only minimal handling, including no restraint of the forelimbs. Note the use of a liquid treat to distract the cat in image (a). *Images courtesy of the Feline Healthy Ageing Clinic, University of Liverpool, UK (a) and Ilona Rodan (b)*

Figure 23 Medial saphenous venipuncture with the cat in a semilateral position. *Image courtesy of Eliza Sundahl*

Always continue to assess and reassess a cat's body language during any interaction, as their emotional status and behavior can change.

Tips for cephalic sampling

Avoid hyperextending elbow joints. Place a hand behind the humerus to advance the forelimb and prevent retraction. Allow the cat to snuggle back into the body of the handler if they choose. Some cats may wish to hide their head from view into an offered loose towel or blanket. The forelimb used for sampling should be stabilized without tightly holding or pumping the foot (Figure 24).

Figure 24 Cephalic venipuncture with a 25 G butterfly catheter. The patient remains comfortable within the bottom half of the carrier. *Image courtesy of Ilona Rodan*

A standing cystocentesis procedure, with minimal handling, may be the most acceptable approach for the cat.

Figure 25 **Standing cystocentesis. The cat is held gently against the body of the assistant, who is slightly retracting the hindlimb, holding at the thigh.** *Image courtesy of Kelly St Denis*

Figure 26 **Cystocentesis in lateral recumbency. Note the hindlimbs are not being held at the joints or feet.** *Image courtesy of Ilona Rodan*

Cystocentesis

Have the cat standing, held gently against the body of the assistant, who will have one arm around the cat's head/neck area and the other slightly retracting the hindleg at the thigh (Figure 25). Use one hand to localize and hold the bladder and the other to perform the cystocentesis. Where possible, use distraction techniques. If performing cystocentesis in lateral recumbency, avoid hyperextending the hindleg; hand placement should likewise avoid feet and joints, and do not hold the tail (Figure 26). Dorsal recumbency collection may be necessary during ultrasound-guided cystocentesis, in which case the cat should be placed in a blanket-padded trough for full body support. If the patient demonstrates any distress, do not proceed with this approach, but make an effort to trial lateral recumbency or standing approaches or a plan to provide chemical restraint.

IV catheter placement

The key points of IV catheter placement are the same as for venipuncture, except that local anesthetic can often be incorporated more easily into the catheterization protocol as more time may be available to prepare. When cats are presented with significant dehydration or low blood pressure, the size of catheter should be chosen based on the size and status of the vein (regardless of body size). This will reduce unnecessary pain for the patient and the risk of damage to the vein. Determining the site of catheter placement needs to take into account the length of time it will be in place, how comfortable this position will be for the cat, and whether it interferes with their ability to eat, drink, rest comfortably, sleep and/or groom. The goal should be to secure the catheter adequately so that it stays in place, but to minimize the dressing required to keep it clean and covered. Full leg bandages are often not tolerated well by cats and can impede comfortable resting postures. Distally, toes should be left exposed in order to assess for reduced digit temperature or cyanosis (indicating an over-tight bandage), as well for the presence of any odors or discharge. In cases where tape has stuck to fur, utilize safe veterinary products that dissolve the adhesive rather than pulling the tape and fur away.

During removal of IV catheters, caution should be exercised when cutting tape, in order to avoid cutting the catheter itself, which can then become a venous foreign body.

Cat friendly administration of injections

Factors contributing to painful injections

- Quantity of the medication and the site that it is administered;
- pH and temperature of the medication;
- Needle length and gauge;
- Sharpness of the needle; dulling of the needle occurs with penetration of rubber stoppers and, therefore, the needle should be replaced just prior to injection;[135]
- Route of administration (IV, intramuscular [IM] or subcutaneous [SC]);
- Underlying patient comorbidities, as well as fear–anxiety predisposing to hyperalgesia;
- Potentially irritant drugs; certain chemotherapeutics, for example, may cause pain or tissue damage in the case of extravasation, and should only be administered through stable IV catheters.

Strategies for reducing injection site pain

- Use the medication according to the manufacturer's instructions. For example, if it is labeled for IV use, do not administer intramuscularly or subcutaneously, as the pH may cause a pain response;
- Use the smallest needle length and size suitable to administer the drug correctly the first time. This will vary based on the viscosity of the liquid being administered;
- Replace the existing dull needle with a new needle after removing medication from a vial and before administration of the drug to the patient;
- If the injection has an acidic pH or is known to sting on administration, consider anxiolytics/chemical restraint, where possible;
- Remove any air bubbles;
- IM and SC injections should be administered efficiently and at a consistent rate. Some IV drugs require slow administration. Follow manufacturer recommendations;
- Inject with the needle going in and coming out at the same angle. Avoid moving the needle around during injection;
- If the manufacturer's directions state it to be acceptable, allow the drug to come to room temperature before administration.[136]

The veterinary team should consider ways to reduce the number of injections given. For example, is it possible to mix some medications into one syringe or administer medication diluted within fluids being given subcutaneously? Alternative routes of administration that may sting less should be considered if the safety, absorption and efficacy of the drug is not impacted. Assigning regions of the body for specific injections and avoiding repeated use of the 'scruff' area is helpful for tracking any inflammatory responses to injection. Use the site that involves minimal handling of the individual cat for IM injections.

Where possible, medicate for pain or fear–anxiety before administration of injections.

Microchipping

Perform microchipping under sedation/anesthesia in conjunction with other procedures (eg, spay/neuter), whenever possible, and use a smaller-sized microchip if available. Placement of a microchip without consideration of the potential for pain, leading to an aversive experience, can potentially influence future appointments at the veterinary practice. When microchipping conscious cats or kittens, have a team member massage over the facial glands or use other distraction techniques. An occasional cat may require anxiolytics, analgesia or chemical restraint prior to microchipping.

Ultrasound examination

Many patients requiring ultrasound examination are unwell and/or older and likely to have DJD-associated musculoskeletal pain. Analgesia should be administered prior to ultrasound, and chemical restraint is also generally preferred, both to improve image acquisition and reduce patient fear–anxiety. The cat should be supported in a blanket-padded trough or other appropriate form of soft warm bed during the procedure. Food distraction may be helpful if the cat is conscious. Become comfortable with scanning patients in positions that are comfortable for them; for example, bladder checks can be performed standing, and emergency scans/fluid checks (eg, point-of-care ultrasound to check for effusion in dyspneic patients) can be performed in the cat's carrier or hospital cage (Figure 27).

Chemical restraint for ultrasound improves image acquisition and reduces patient fear–anxiety.

Figure 27 (a,b) Examples of a cat having an ultrasound examination in the bottom half of their carrier. *Images courtesy of Sam Taylor*

Radiology
Minimize human exposure to radiation (legal requirements in many regions prohibit the presence of humans in the x-ray room during exposure). Analgesia should be administered, as many patients requiring radiographs are painful. Chemical restraint or anesthesia will reduce patient distress and pain, and help in the acquisition of diagnostic quality radiographs. Use warm towels, blankets, soft beds or padded troughs on the table to limit hypothermia. Neither ties nor heavy sandbags should be used as positioning aids, even in a sedated/anesthetized cat.

Nail clipping
Perform nail clipping under anesthesia in conjunction with other procedures, where possible. In conscious patients, use a loose towel wrap, positive reinforcement and minimal handling. Consider the potential for underlying painful disease, such as dental disease or DJD, which may be impacting the cat's ability to maintain their own claws, and pretreat with analgesics if required. For indoor cats, point caregivers to appropriate resources (eg, the AAFP's Claw Friendly Educational Toolkit, catvets.com/claw-friendly-toolkit) and teach them to trim nails.

Ear cleaning
In the absence of aural discomfort or disease, feline ears do not require cleaning. Cleaning should only be performed after an otoscopic examination (under chemical restraint or general anesthesia, where possible) and cytological assessment. Take care as some ear cleaners can be irritating to the ear canal and nasopharynx. Instead, use saline to moisten and facilitate the removal of debris, and avoid placing large quantities of fluids directly into the ear to reduce the risk of irritation to the nasopharynx.

Grooming
Any grooming that is more involved than a hygiene clip or single mat removal is best performed under chemical restraint or general anesthesia. Avoid brushing if the coat is matted, as the brush will pull on the skin and cause pain. Consider the potential for underlying disease (obesity, dental disease, musculoskeletal disease), which could be reducing the cat's ability to groom.

Rectal examinations and anal gland expression
Rectal examination or enema administration in cats should not be performed without analgesia, chemical restraint or anesthesia. Impacted anal glands in cats should also not be expressed without consideration given to providing analgesia or chemical restraint.

Life stage handling

Regardless of age, cats must be handled in a respectful manner, minimizing distress as much as possible. Starting off with cat friendly interactions during kittenhood can help prevent negative responses in the future.[12–14]

Neonates and pediatrics (0–12 weeks)
While traditionally it might have been considered normal practice to scruff pediatric and neonatal feline patients, due to their size and demeanor, scruffing is no longer recommended for cats at any life stage. It is a mistaken premise that scruffing makes patients easier to work with. Scruffing causes negative responses[71] that impact on future visits, as the cat will remember the painful or stressful event.

Figure 28 Pediatric cradle hold. Neonates may be held by placing one hand over the dorsum, holding the base of the jaws with thumb and forefinger. The other hand holds the lower half of the kitten and helps control the animal's movement. *Image courtesy of Ellen Carozza*

Rather than such forceful restraint, the ideal is to incorporate the same cat friendly techniques as used in adult cats, with some simple modifications. A kitten can be loosely wrapped in the same manner as an adult cat, but on a smaller scale using a tea towel or washcloth. Alternatively, a gentle pediatric cradle hold can be used to help control movement (Figure 28). Neonates and young kittens can be quite receptive to having the facial glands massaged, and this can often prove a good distraction technique while procedures such as vaccinations are performed. Kittenhood is a critical time in terms of the animal's emotional and cognitive health, and kittens will readily form emotional associations with novel experiences. Early veterinary experiences for these individuals are, therefore, particularly important.

In rabies-endemic countries, a bite from a kitten that is under the age for rabies vaccination can potentially mean quarantine or euthanasia for that animal. Practicing cat friendly interactions is extremely important in these young patients to decrease this risk.

Scruffing causes negative responses that impact on future visits and is no longer recommended for cats at any life stage.

Mature adult and senior cats

There are additional considerations as cats advance into mature adult and senior life stages.[123] As mentioned, the prevalence of DJD increases as cat age,[90,91] as does the prevalence of concurrent diseases such as CKD[137,138] and hyperthyroidism.[139] Assessment for frailty using modified frailty scales[123] will further guide the veterinary team on appropriate cat friendly interactions with the patient.

It is important to assess any aging cat for musculoskeletal pain (Box 10) before deciding how the required procedure is going to be performed. Attempts should be made to keep joints in a neutral position and minimize flexion/extension. Cats with chronic diseases such as CKD or hyperthyroidism will likely require procedures such as blood sampling on a more frequent basis, so taking time to reduce distress and make the experience more positive for these patients will be beneficial in the longer term and, in turn, will increase client compliance. Cats with hyperthyroidism and CKD are both more at risk of hypertension;[140–142] in the experience of the Task Force members, the risk of damage and bruising during venipuncture is greater in these patients, further underlining the importance of a cat friendly approach. Patients with DJD should receive analgesia, too, which can be given by the caregiver at home.

Aging has implications for a cat's emotional state, and an increase in anxiety can be seen in older patients. It is also important to remember the potential for cognitive decline and to consider how this may impact the patient's perception of the veterinary experience.[143]

Working with feral or street/community cats: key principles

- Do not physically handle these cats when they are not sedated or anesthetized.
- The pre- and post-sedation area should be warm, quiet and dimly lit to reduce stimulation.
- Work with local charity groups to ensure cats are presented to the practice in suitable carriers, including a wire trap, restraint cage or side-loading wire carrier.
- Keep carriers covered at all times to reduce visual stimulation.
- If it is necessary to move cats between carriers, bear in mind that they will be more willing to move to a hidden location; hence, cover the cage they need to move into and uncover the one they need to move out of.
- Where possible, the cat should remain within the same carrier throughout the procedure, reducing the risk of disease spread and the mingling of scents between cats.
- Place incontinence pads under the wire trap/carrier both pre- and post-sedation to allow urine/feces or vomit to be cleaned away with minimal disturbance to the cat. Incontinence pads can be placed on top of towels and blankets to provide extra warmth and comfort, but it is best to avoid putting any bedding directly in the carrier as this can interfere with administration of IM injections, and it can be difficult to dispose of the bedding if it becomes soiled.
- Have all anesthetic drugs and medication drawn up and prepared in advance, to reduce the time the cat carrier is uncovered.
- Administer sedation intramuscularly using either a restraint cage, or 'forks' to restrain a cat that is in a wire basket or trap. Ensure that forks or the squeeze action of the restraint cage are introduced slowly and gently (never quickly or forcefully) to restrain the cat against the side of the cage to allow IM injection.
- Reverse sedatives where possible post-sedation to reduce the risk of hypothermia.
- Recover the cat from sedation/anesthesia in the carrier in which they are going to be returned. The carrier should be side-opening to allow quick and safe release.

The carriers of feral or street/community cats should be covered at all times to reduce visual stimulation.

Management of the hospitalized cat to reduce stress

Hospitalization can be a challenging time for a patient as they are in an unfamiliar environment and handling for procedures (eg, IV catheter placement, measurement of vital parameters, medicating) is likely to be required. If IV therapy and/or frequent patient monitoring are not indicated, it is ideal to manage the cat's medical condition at home.

If the cat needs to be hospitalized, efforts should be made to reduce triggers for protective emotions and to maintain manageable levels of emotional arousal. Ensuring that the cat can cope with their environment will reduce the potential for distress and this, in itself, will likely expedite recovery, reduce pain and encourage voluntary food intake.[6] Prior to admission, information should be obtained from the caregiver (verbally or preferably using a history questionnaire) on the cat's temperament, dietary preferences, litter preferences and preferred interaction with humans. Relevant information regarding temperament (eg, confident or timid), prior history and preferred interactions should be passed on to all team members, noted in the medical record and hospitalization chart, and/or added to the cage (in the form of a label or card attached to the door, or by writing directly on the cage door, if plastic/acrylic). The accompanying 'Cat Friendly Veterinary Environment Guidelines'[60] contain example new client and dietary history questionnaires, and a cat friendly hospital chart as supplementary material. They also discuss cage layout and,

Box 11

Tips for minimizing distress when interacting with hospitalized cats

- Obtain information from the caregiver on handling preferences, diet and temperament
- Feed the cat's familiar diet, if possible; or at least a diet with a similar texture
- Keep a blanket or towel from home in the cat's cage, which has a favorite caregiver's scent on it
- Minimize handling by combining procedures/treatments
- Reduce the frequency of monitoring, if not clinically indicated (eg, frequency of temperature measurements, other than during the postoperative period and in critical patients)
- Evaluate medication plans and, if possible, combine oral medications to reduce the frequency of medicating, or use parenteral formulations
- Give medications in a treat when possible
- Minimize the number of people in the ward, and try to keep consistency of team members interacting with the cat
- Minimize all noise in the ward – talking, equipment (eg, centrifuges) and music other than calming music
- Perform pain scoring using a validated assessment (Box 10)
- Carefully consider the use of bandaging and wound protection shirts, as these are generally poorly tolerated by cats. Only soft Elizabethan collars should be used, and only if absolutely necessary, with the collar removed for supervised periods to allow normal activity and eating
- Apply local anesthetic creams or gels prior to IV catheter placement and, when indicated, prior to venipuncture

in particular, the importance of hiding places. Box 11 summarizes further ways to reduce the potential for distress during hospitalization.

Always individualize what is most important for each patient, and take into consideration when finalizing the treatment plan.

Scheduling interactions

Interactions and procedures that require handling should preferably be scheduled so as to minimize interventions. Where possible, synchronize medication with vital parameter monitoring, or combine procedures (eg, check heart rate and flush an IV catheter at the time a medication is due), to reduce the number of times a cat is handled, ideally within the cage. Assuming there are no contraindications, it may be possible to combine timing of medications by, for example, putting oral medications together in a gelatin capsule. If the cat is distressed by being orally medicated, then choose another route (eg, IV), if appropriate. Where analgesic medications with a sedative or anxiolytic effect are being used, schedule interventions for when these are at peak effect (eg, place an IV catheter 30 mins after methadone is administered); similarly, consider using local anesthetic creams or gels prior to IV catheter placement and blood sampling,[144] and allow adequate time for effect (minimum 30 mins).[133,134]

Allow periods of uninterrupted sleep or rest during standard resting periods (ie, at night), as proper rest and maintenance of circadian rhythms is recognized to be vital for recovery in human patients,[145] and likely similar is true in cats. Ensure minimal disturbance from lights and noise in the ward during these times.

Handling hospitalized cats

Much of the discussion in the earlier sections on 'Principles for interacting with cats' and 'How to approach the cat', as well as the below section on 'Protective cats', is relevant to approaching and handling hospitalized cats. In general, if there is a quiet, cat-only area in which to perform procedures, give medications, check IV catheters, and so on, then use that area. Examinations, treatments or euthanasia should not be performed in front of other cats. Such procedures can be performed in the cage if no such area is available but use minimal and cat friendly handling techniques. The veterinary team should evaluate whether all monitoring and assessments are truly needed and whether the information acquired would change case management. For example, checking the temperature of hospitalized patients twice a day may not be necessary, especially if other parameters are normal and the cat is bright, alert, responsive and eating, or has undergone a routine procedure. Interactions should incorporate the use of positive emotional triggers, such as food treats, grooming or playing with toys, and, if accepted by the cat, be recorded and communicated to the team.

If a cat needs to be hospitalized, efforts should be made to reduce triggers for protective emotions and to maintain manageable levels of emotional arousal.

Some cats may show frustration associated with hospitalization and methods to minimize this emotion are described in Box 12.[57,146]

Box 12

Managing frustration in hospitalized cats

Cats may react to confinement with fear–anxiety and/or frustration (Boxes 4 and 5). Some ways to reduce frustration include:

- Adding toys to the cage, if safe and clinically acceptable
- Adding areas to hide and perch, if not already available
- Removing the cat to another area (eg, cat-only procedure room or examination room) at regular intervals to allow the patient to play and move around, where appropriate and possible[64]
- Providing other enrichment in the cage, such as puzzle feeding
- Ensuring predictable and positive human contact, involving one or two consistent technicians/nurses

Attention to nutrition

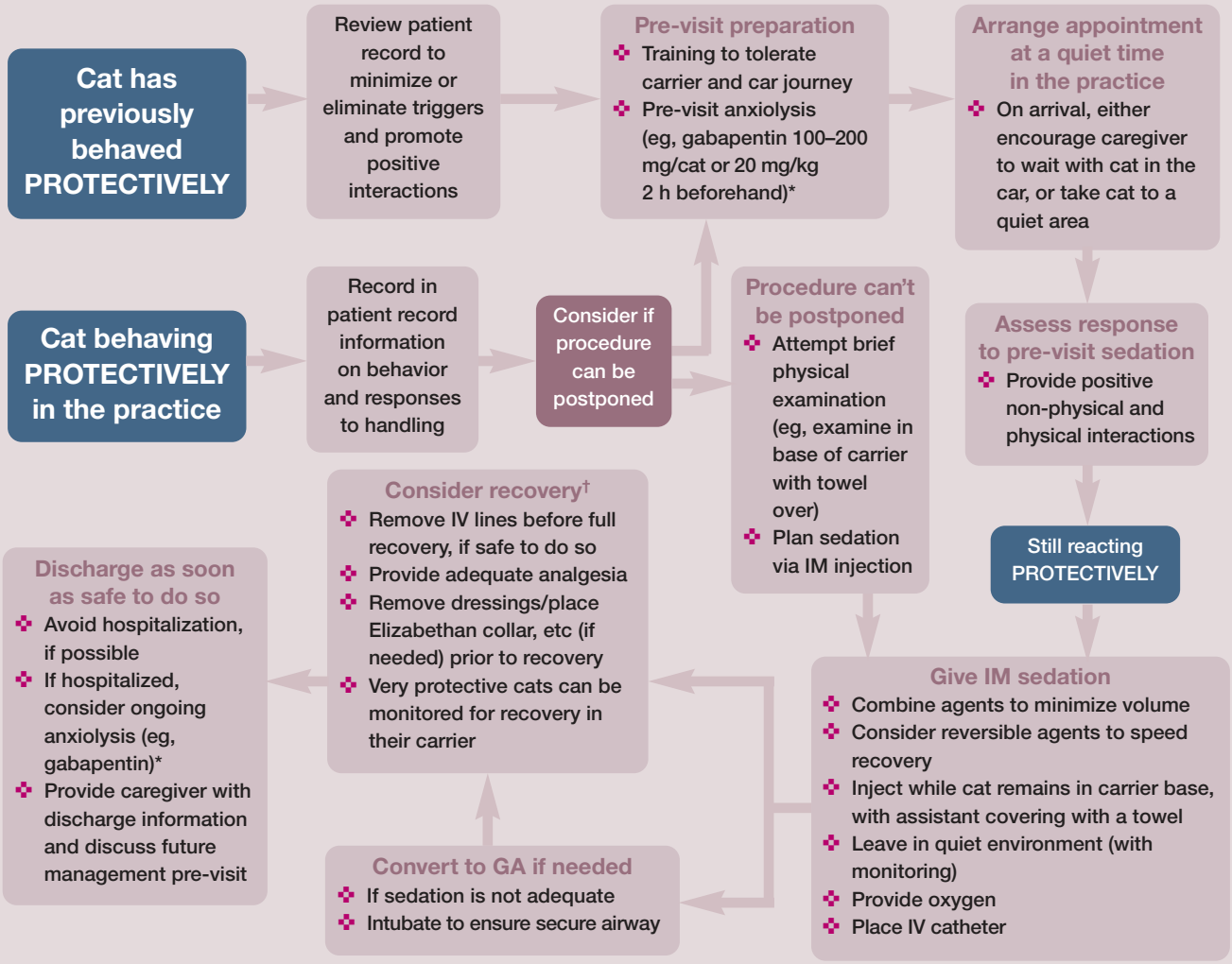
A positive association between adequate nutrition and hospital discharge has been demonstrated in dogs and cats.[147] Conversely, metabolic derangements associated with malnutrition are likely to impact negatively on the prognosis of hospitalized cats,[148] and the stress of hospitalization itself is likely to reduce food intake.[149] Information on the cat's normal diet, including preferred treats, should be obtained when taking the history. Furthermore, a nutritional assessment of the patient should be performed routinely, along with recording of voluntary intake as a proportion of the resting energy requirement (RER). Pain management, and control of nausea and ileus, will encourage intake but assisted feeding interventions (a feeding tube and/or appetite stimulants) should be considered promptly in patients consuming less than RER for 3 days or more, which includes any period of inappetence prior to admission.[148] For more information, readers are referred to a review by Witzel Rollins and Murphy on nutritional assessment in the cat,[150] and the '2022 ISFM Consensus Guidelines on Management of the Inappetent Hospitalised Cat'.[151] Note that syringe feeding is not recommended due to the risk of aspiration, food aversion and procedure-related stress.

Protective cats

Cats who appear challenging or difficult in the veterinary practice have intensified emotional states – commonly fear–anxiety, pain or frustration, but also, on occasion, emotional

ALGORITHM 2

Interactions to support protective cats in the veterinary practice



A cat friendly environment is also needed to support protective cats in the practice

*Use 50% of the lower dose of gabapentin in cats with reduced renal function

†All cats should be closely monitored during recovery from sedation or anesthesia

IM = intramuscular; IV = intravenous; GA = general anesthesia

arousal connected with intense desire-seeking (Box 3). Protective behaviors can be caused by previous life or veterinary experiences, particularly if the recommendations in these Guidelines, as well as the accompanying 'Cat Friendly Veterinary Environment Guidelines',[60] are not followed. Such cats may exhibit repelling behaviors (eg, hissing, swiping, scratching or biting) if forcibly handled or unable to retreat/hide. The earlier section on 'The emotional state' describes protective emotions that can lead to these behaviors. By providing a cat friendly environment and following all the principles outlined in these Guidelines, with pre-visit preparation, and careful and positive interactions, it may be possible for these cats to improve rather than become increasingly more difficult with each visit.

Protective behaviors may also be due to pain, making a pain assessment essential (Box 10). Use validated acute or chronic pain assessment tools,[105,109,114] where indicated, provide analgesia and assess the cat's response and change in demeanor. Historical knowledge of the cat's temperament and demeanor in the practice is also useful, as these patient factors can influence the results of pain assessment tools.

Algorithm 2 presents a decision-making tree to assist the veterinary team on how to proceed with cats who exhibit protective behaviors.

Procedural sedation

Sedating protective cats for procedures (physical examination, blood tests, etc) reduces the potential for future distress and enhances human safety. Ideally, as discussed earlier, pre-visit anxiolytics will have been prescribed, or the procedure postponed, but sometimes this is not possible. In these situations, the safest combination of sedative and analgesic drugs should be used to minimize adverse effects and injection volume. In some circumstances, pre-sedation assessment will not be possible due to the cat's demeanor and protective behavior. Choosing drugs with minimal cardiovascular adverse effects and sedating the cat before protective behaviors escalate avoids the stress and negative consequences (physiologically and emotionally) of heavy restraint and forced procedures. Note that induction chambers are not recommended due to increased cardiovascular risks to the cat from high-dose inhaled anesthetics and to team members from unscavenged gases,[65,81] as well as the considerable distress caused to the cat.

IM injections can be given into the lumbar, hindlimb or neck region, with the cat remaining in the bottom half of a cat carrier if anxiolytics have not been given pre-visit. Additionally, if not given pre-visit, oral gabapentin can be administered in a treat during the consultation or in the carrier. Chemical

Sedating the cat before the escalation of protective behaviors avoids the stress and negative consequences of heavy restraint and forced procedures.

Table 2 Commonly used sedation protocols that can be administered as a single IM injection in protective cats

Sedative agent or combination	Doses for IM injection*	Comments
Butorphanol	0.2–0.4 mg/kg	May result in adequate sedation for minimal procedures only
Opioid plus dexmedetomidine	Butorphanol 0.2–0.4 mg/kg *or* buprenorphine 0.02–0.04 mg/kg *or* methadone 0.2–0.5 mg/kg, plus dexmedetomidine 0.0025–0.005 mg/kg	Vomiting can be observed with dexmedetomidine
Opioid plus alfaxalone	Opioid, as above, plus alfaxalone 2–5 mg/kg	Large-volume injection can be an issue in protective cats
Opioid plus alfaxalone plus dexmedetomidine	Opioid, as above, plus alfaxalone 1–2 mg/kg and dexmedetomidine 0.0025–0.005 mg/kg	High end of dose ranges may cause anesthesia
Opioid plus dexmedetomidine plus midazolam	Opioid, as above, plus dexmedetomidine 0.0025–0.005 mg/kg and midazolam 0.05–0.2 mg/kg	Vomiting can be observed with dexmedetomidine
Opioid plus dexmedetomidine plus ketamine	Opioid, as above, plus dexmedetomidine 0.0025–0.005 mg/kg and ketamine 2–3 mg/kg	Ketamine is used at a low dose and should not cause adverse effects when dexmedetomidine is reversed
Alfaxalone plus dexmedetomidine	Alfaxalone 2–5 mg/kg, plus dexmedetomidine 0.0025–0.005 mg/kg	Large-volume injection may be an issue in protective cats and analgesia can be inadequate

*Consider reducing doses by 25–50% if gabapentin or trazodone have been administered pre-visit
IM = intramuscular
Adapted with permission from the 'AAFP Feline Anesthesia Guidelines'[65] and Simon and Steagall (2020)[81]

Table 3 Sedation protocols for emotionally challenged cats*

Sedative combination	Doses	Comments and route of administration
Medetomidine plus opioid plus ketamine	Medetomidine 0.02–0.04 mg/kg, plus butorphanol 0.2 mg/kg *or* methadone 0.2 mg/kg *or* buprenorphine 0.02 mg/kg, plus ketamine 3–5 mg/kg	Protocol for ASA I/II patients Give IM, with choice of opioid depending on pain anticipated/present Wait 5 mins for medetomidine/opioid to take effect before giving ketamine
Alfaxalone plus butorphanol plus midazolam	Alfaxalone 2 mg/kg, plus butorphanol 0.2 mg/kg, plus midazolam 0.2 mg/kg	Protocol for ASA III+ patients (undetermined cardiac disease, hyperthyroid) Give IM
Alfaxalone plus butorphanol	Alfaxalone 3 mg/kg, plus butorphanol 0.2 mg/kg	Protocol for ASA III+ patients Give SC

*Provide oxygen by mask during sedation. The goal of these sedation protocols is to enable placement of an IV catheter for further sedation or to induce anesthesia
Gabapentin (20 mg/kg PO) or trazodone (10 mg/kg PO) are given 2 h prior to leaving the house. In exceptional circumstances, trazodone 5–10 mg/kg PO and gabapentin 20 mg/kg PO can be given in combination 2 h prior to leaving the house
IM = intramuscular; SC = subcutaneous; PO = oral; ASA category = American Society of Anesthesiologists' physical status classification
Protocol from Sarah Heath (Behavioural Referrals Veterinary Practice, UK) and Matthew Gurney (Zero Pain Philosophy)

restraint will be less effective in the presence of high arousal; hence, as discussed, cats should be placed in a quiet area, with the carrier covered with a blanket. Sedated patients must be monitored at all times.[81] Removing IV catheters and dressings prior to recovery, if safe to do so, avoids the need for additional sedation later.

Tables 2 and 3 outline commonly used sedation protocols that can be administered intramuscularly as a single injection in protective cats, and sedation protocols for emotionally challenged cats, respectively. For detailed discussion on feline sedation, readers are referred to the 'AAFP Feline Anesthesia Guidelines'[65] and a review by Simon and Steagall on feline procedural sedation and analgesia.[81]

Creating cat friendly interactions from a human behavior change perspective

Changing human behaviors that are in conflict with cat friendly interactions, whether our own behaviors or the behaviors of others, can be challenging.

Human behavior change theories can be helpful, assisting us to:
1) Understand the external and internal influences on human behavior that facilitate and prevent desired behavior.
2) Design, implement and assess interventions to facilitate desired behavior.

The COM-B model[152] identifies three factors – capability, opportunity and motivation – that influence human behavior.

✣ **Capability** refers to both psychological capability (knowledge or psychological skills) and physical capability (physical skill). Example questions include:
– Do veterinary teams and caregivers have relevant knowledge about cat behavior and communication to understand cats' interaction preferences?
– Do they know how to put that knowledge into action when interacting with cats?

✣ **Opportunity** considers both physical opportunity (time, resources, locations and cues) and social opportunity (opportunity afforded by interpersonal influences, social cues and cultural norms that influence the way we think about things; cultural norms can be thought of as the words and concepts that make up our language). Example questions include:
– Do caregivers have the time to train their cats to voluntarily go in the carrier and remain calm during carrier travel?
– Do caregivers and veterinary team members have treats on hand to reward calm behavior or to use to increase positive (engaging) emotions during interactions?
– Is the practice supportive of these approaches being taken by individual team members?

✣ **Motivation** separates into reflective motivation (people's plans [self-conscious intentions] and evaluations [beliefs about what is good and bad] before behaving in a particular way) and automatic motivation (automatic processes involving emotional reactions, desires [wants and needs], impulses, inhibitions, drive states and reflex responses).

When trying to facilitate the change toward cat friendly behaviors within the veterinary team it is important to identify possible barriers to the desired behavior in terms of these factors. This will be individual to every practice: team training can help overcome barriers

Human behavior change is increasingly being recognized as a key component in improving animal welfare.

SUMMARY POINTS

- The '2022 AAFP/ISFM Cat Friendly Veterinary Interaction Guidelines: Approach and Handling Techniques' provide up-to-date information about best practices for veterinary professionals during feline interactions, taking into consideration both human and feline safety.
- Improved interactions with cats significantly enhance their welfare by correctly addressing both their current physical and emotional health.
- A cat friendly approach from the veterinary team allows successful examination and required interventions during the veterinary visit, improving team satisfaction and cat caregiver confidence in the veterinary team.
- The importance of understanding and responding to the current emotional state of the cat is key for successful interactions and enables every visit to be tailored to the individual.
- A cat friendly environment is also fundamental for achieving an optimal veterinary visit, and is the focus of the accompanying '2022 ISFM/AAFP Cat Friendly Veterinary Environment Guidelines'.[60]

in capability; modeling of cat friendly interactions may afford social opportunity for other team members to also start to work in this way; but a cultural change in the practice may also be required to give physical opportunity (eg, longer appointments). The automatic motivation to interact in a cat friendly manner may be something many of us recognize in ourselves, but tapping into the reflective motivation of other team members may be required to facilitate their behavioral change.

An example question for reflective motivation is:

– Do veterinary team members believe cat friendly interactions are the right way to interact with cats?

Example questions for automatic motivation include:

– Does interacting in a cat friendly way (or other way) make you feel good?

– Is interacting in a cat friendly way (or other way) reflexive in nature?

Human behavior change is increasingly being recognized as a key component in improving animal welfare. It is our behavior that needs to change – in order to facilitate a positive change in the emotions and resulting behaviors of our feline patients during their veterinary experience.

Conclusions

The 'Cat Friendly Veterinary Interaction Guidelines' replace the previous 'AAFP and ISFM Feline-Friendly Handling Guidelines',[1] incorporating supporting evidence for the continued adoption of cat friendly interactions. These Guidelines should be used in conjunction with the 'ISFM's Cat Friendly Principles for Veterinary Professionals'[153] and the accompanying 'Cat Friendly Veterinary Environment Guidelines'.[60] It may take time for all team members in the practice to implement these suggestions, but a gradual introduction, education and involvement of the team in the incorporation of these steps will result in wider adoption as the benefits are recognized. The Guidelines also prepare practices and individuals for the AAFP Cat Friendly Practice/ISFM Cat Friendly Clinic Programs, an AAFP Cat Friendly Certificate (catvets.com/certificate) and the ISFM Cat Friendly Veterinary Professional course (courses.icatcare.org).

Endorsements

The 'Cat Friendly Veterinary Interaction Guidelines' are endorsed by the following organizations and groups. The AAFP and ISFM are grateful to each one for their support of this cat friendly resource for the veterinary profession. For an updated list of endorsers, please visit catvets.com/interactions and icatcare.org/cat-friendly-guidelines.

The benefits of incorporating cat friendly interactions into veterinary practice include efficiency and effectiveness, resulting in time saving, and more positive emotions for the veterinary team, cats and caregivers. Feline and human safety, both physically and in terms of mental wellbeing, is enhanced, with the veterinary experience respecting the cat as an individual while achieving the required clinical outcome.

Supplementary material

The following files are available online at jfms.com and can also be accessed at catvets.com/interactions and bit.ly/JFMSCatFriendly.

- Video 1: How to interact with your cat – the Battersea way.
- Video 2: Inhibition and left gaze bias.
- Video 3: Teaching your cat to get used to medication.
- Video 4: Removing a cat from the carrier.
- Video 5: Approaching a cat.
- Video 6: Myofascial examination.
- Video 7: Cat friendly tips for thorough dental examinations.
- Video 8: Cat friendly interactions in practice.
- AAFP client brochure – 'Visiting your veterinarian: getting your cat to the veterinary practice'.
- AAFP client brochure – 'You and your cat deserve a Cat Friendly Practice®'.
- ISFM guide for cat carers – 'Taking your cat to the veterinary clinic'.
- ISFM guide for cat carers – 'Cat Friendly Clinic: cat friendly veterinary care'.

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Conflict of interest

Nathalie Dowgray is employed part-time as a postdoctoral researcher at the Feline Healthy Ageing Clinic funded by Royal Canin. Ilona Rodan serves on an advisory board for Royal Canin. Sam Taylor is employed by Linnaeus. All members of the Task Force have also received financial remuneration for providing educational material, speaking at conferences and/or consultancy work; however, none of these activities cause any direct conflict of interest in relation to these Guidelines.

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