



Feline Behaviour Mini Series

Session Two: Environmental and Social Influences on Feline Behaviour

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Delegate Notes for CPD Solutions Session 2

Environmental and Social Influences

PART ONE

Feline Friendly Practice

Many of these natural behaviours of cats are incompatible with being taken out of their familiar environment and transported to the unfamiliar and potentially stressful environment of the veterinary surgery. Their territorial nature and their need to mark familiar environments means travelling to a novel location full of strange odours is not a situation they are predisposed to cope with. Their innate preference to avoid unfamiliar cats and other potential threats such as dogs is often not considered fully in the veterinary surgery as we expect them to cope in close proximity to these other animals. Feline friendly practice takes these needs and others into account to ensure high levels of welfare with regard to both emotional well-being and physical health.

Anxiety for Cat Owners

Cat owners frequently experience complications attending the surgery with their pets, such as difficulty getting their cat into a box, handling problems at the surgery and changes in behaviour when their cat returns home. Cats attend veterinary surgeries significantly less frequently than dogs and it is likely that an important factor in this is the issue of owners struggling both emotionally and physically with their experience of visiting the surgery. Here are some of the figures that have been suggested:

- Murray et al 2009 found that only 58% of cats in the UK who were registered with a veterinary practice had been vaccinated in the previous year.
- Habacher et al 2010 found that 69% of registered cats had been vaccinated.
- Murray et al 2012 found that 13.6% of cats were not registered with a vet.
- Burns 2008 showed a reduction in the frequency of veterinary visits for cats in the USA between the years of 2001 and 2006 from one visit a year to only 0.7 visits per year.

We must aim to improve these figures and encourage better preventative healthcare and treatment of our feline patients by ensuring that visits to the surgery are as low stress as possible for both cats and their owners.

Education of Owners to Reduce Relinquishment Rates

Many clients are not aware that they can receive help for feline behaviour problems, where to find such help or how straightforward many of these issues can be to resolve. The veterinary practice needs to engage with these clients by providing information and support so we can make a significant impact on reducing the relinquishment rate of cats to rehoming centres.

- Salmon et al 2010 reported that in 28% of the cats relinquished to a rescue centre had at least one behavioural reason as a causal factor in why their owners could no longer keep them.

TABLE 3
Top 10 Behavioral Reasons for Behavioral and Mixed Categories of Relinquishment of 1,286 Cats to 12 U.S. Animal Shelters^a

<i>Behavioral^b</i>	<i>%</i>	<i>Mixed^c</i>	<i>%</i>
Soils house	43.2	Soils house	37.7
Problems between new pet and other pets	18.9	Destructive inside	11.4
Aggressive toward people	14.6	Aggressive toward people	10.9
Destructive inside	12.4	Problems between new pet and other pets	8.0
Aggressive toward animals	12.4	Bites	8.0
Bites	9.2	Needs too much attention	6.9
Disobedient	5.9	Unfriendly	6.9
Euthanasia for behavioral reasons	5.4	Destructive outside	5.1
Unfriendly	5.4	Euthanasia for behavioral reasons	4.6
Afraid	3.8	Too active	4.6

^aPresented as reason and percentage of relinquishments in that category in which reason was listed. ^b*n* = 185. ^c*n* = 175.

Housoiling

This research demonstrates that house soiling is by far the most common issue. Yet this is one of the issues which is often the most straight forward to resolve once owners are given a thorough understanding of meeting the environmental and social needs to their cats. We have an opportunity here to make a really big difference to these animals and to their owners by ensuring we identify problem behaviours and offer appropriate assistance.

Social Structure Changes

The table below, also from Salmon et al 2010, demonstrates another significant reason for relinquishment of cats to shelters; changes in social structure within the household. This is another area where we are in an excellent position to be advising clients on appropriate choice of cats for multi-cat households, appropriate introductions, explanations about territory and resources and so on to avoid the need for such relinquishments.

- The addition of at least one new cat in the previous year had occurred in 39.5% of cases where the cat was relinquished solely for behavioural reasons.
- 20% of the cats relinquished for behaviour reasons had lost a cat from the household in the previous year. This may be due to the role of that lost cat as a social facilitator?

TABLE 5
Summary of Pet Inventories and Changes (Percentage of Column) in Households of 1,286
Cats Relinquished to 12 U.S. Animal Shelters, Stratified by Relinquishment Category

	<i>Behavioral^a</i>	<i>Mixed^b</i>	<i>Nonbehavioral^c</i>
Other pets in household ^d			
No other dogs or cats	28.6	48.0	54.2
At least one other dog or cat	71.4	51.4	44.8
No answer	0.0	0.6	1.0
Additions of dogs or cats to household during preceding year ^d			
Neither dogs nor cats added	49.7	46.9	50.1
At least one dog added ^e	6.5	4.6	2.6
At least one cat added	39.5	36.6	42.7
At least one of each species added ^e	3.8	10.3	3.5
No answer	0.5	1.7	1.2
Removal of dogs or cats from household during preceding year			
Neither dogs nor cats left	75.7	73.1	75.1
At least one dog left	3.8	9.7	3.9
At least one cat left	20.0	12.0	17.2
At least one dog and one cat left		3.4	2.3
Insufficient information	0.5	1.7	1.6

^a $n = 185$. ^b $n = 175$. ^c $n = 926$. ^dThe $3 \times n$ contingency table was statistically significant. ^eThis row was compared with the rest of its table (excluding those cases with no answer), and the proportions differed significantly ($p < .01$).

Staff Safety and Mental Well-being

Considering the safety of staff when handling fearful cats is crucial. The use of welfare friendly techniques which lower arousal levels in cats is important for reducing the risk triggering defensive aggression. The 2007 AVMA safety bulletin states insurance claims figures for injuries:

- 50% of work related injuries were due to cats
- 42% from dogs
- Cats accounted for 53% of the bites and 82% of the scratches.

These show just how serious the issue of handling fearfully aggressive cats is. By changing the way we interact with these animals so as to minimise stress, and therefore the need for them to show defensive aggression, we can significantly reduce the risk of injury as well as protecting welfare of the patients themselves.

The beneficial effects on our own mental health and well-being should also be considered. By ensuring the welfare and calm behaviour of cats in our care, the tasks we are doing become easier to achieve and will be so much more rewarding. Staff who themselves are relaxed will find it much easier to implement low-stress handling techniques than staff who are feeling under pressure and rushed.

Ensuring good mental well-being of the staff not only benefits the patients, via our ability to interact with them in a more relaxed manner, but also improves the atmosphere in the practice for the whole team.

Factors Causing Stress in Felines

Please do refer back to the first session regarding the normal behaviour of our feline patients.

Applying this knowledge to the specific contexts that arise within the veterinary surgery is vital for identifying contexts where stress may arise. Issues for consideration:

- As territorial creatures they do not cope well in an unfamiliar environment or encountering unfamiliar cats. This can be addressed by ensuring their travel carrier is familiar and the layout of the surgery reduces their exposure to other animals.
- Cats are very much about routine and having predictable and immediate access to vital resources. This may for example be effected by starving prior to surgical procedures or loss of control to outdoor access if the cat flap is locked either pre-surgery to ensure the cat does not miss his appointment or post-surgery during the recovery process.
- Other stimuli which may cause a cat stress include the presence of dogs, unfamiliar noises or excessive noise and unfamiliar, often aversive, odours such as those from disinfectants or other animals.
- The response of staff to cats who show defensive aggression can be a significant stressor not just for the cat but also for the owner who may feel hurt or embarrassed by how their cat is perceived. Cats may be described in a negative way when they react aggressively because they can be very scary to deal with. However this does not facilitate good practice and it is vital to see the situation from the cat's perspective, identify its emotional state as one of fear or frustration. If we can see the situation from the cat's perspective it allows more appropriate responses and empathy with the patient as well as helping the owner to cope in a difficult situation.

Stress Responses of Cats

A stressed and fearful cat can be a challenge to examine and treat. We can carry out our job more effectively and to a higher standard if our patients are relaxed. The fear response can be manifested in several ways but when he is in a confined space at the surgery and unable to show a flight response, the fearful cat is far more limited in his response choice. Cats will either show defensive aggression to try and make the threat, i.e. the vet, the nurse or sometimes the owner, move away. Alternatively they may freeze which creates considerable muscle tension, compromising examination. They tend to bring their head in very tight and close to the body so that, for example, submandibular lymph nodes or the thyroid gland prove difficult to access for assessment. Tension also tightens the skin over the scruff, making sub-cutaneous injections more difficult. Lameness work-up is compromised by muscle tension and reluctance by the cat to allow extension and flexion of the joints. The freeze response can rapidly turn into defensive aggression if the cat's emotional state is not recognised and the examination not tailored appropriately.

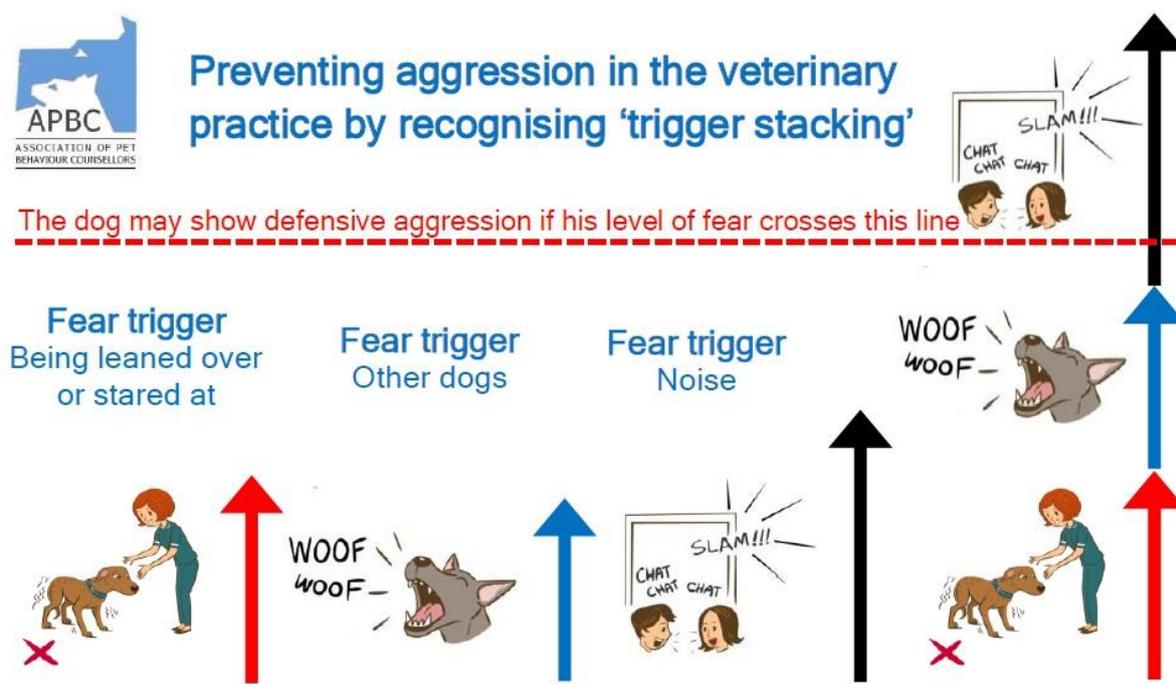
Anxiety in the hospital can interfere with maintenance behaviours such as appetite, drinking and toileting. In the longer term high psychological stress is associated with slow wound healing and compromised immune function. This should be taken into consideration in not only hospitalised patients but also in patients whose home care may involve restrictions such as crate rest or changes in diet, for example to a prescription food. Owners should be assisted with keeping stress levels low at home to ensure good compliance with treatment and follow-up visits. So there are numerous reasons that benefit us, the cats and their owners, for keeping stress to a minimum.

Trigger Stacking



Preventing aggression in the veterinary practice by recognising 'trigger stacking'

The dog may show defensive aggression if his level of fear crosses this line



The more fear triggers a patient is exposed to, the more likely they are to use defensive aggression. This can be reduced by managing as many triggers as possible.

Promoting the best in pet behaviour: www.apbc.org.uk

Images by Lili Chin Design by Stephanie Hedges RVN CCAB and Clare Wilson CCAB MRCVS

This diagram above explains the concept of trigger stacking. If we are to successfully minimise the stress experienced by our feline patients we need to bear in mind this concept of several smaller stressors compounding to push a cat over his coping threshold. This diagram illustrates stress in dogs at the surgery but the underlying message is applicable to any other context and any other species. In the case of a cat visiting the surgery the first stressor is likely to be the owner's efforts getting their cat into the carrier. He is then also at risk of experiencing additional fear during the car journey and again on entering the waiting room. By the time these individual fear triggers have accumulated and the cat enters the consulting room, he may already so aroused that he is going to be challenging to handle.

For cats coming in for procedures which require hospitalisation the risks are even greater as they are at risk of being exposed to a higher number of stressors. Potential stressors should therefore be considered all the time, as part of the daily routine, not as a special extra for a cat that is obviously nervous on arrival, but as a general atmosphere throughout the entire practice and through the whole practice team.

Transporting Cats to the Surgery

The first stage at which a cat may become fearful is when catching sight of the cat carrier. Carriers are most commonly kept shut away until they are required. As discussed in session one, familiarity and odour are highly significant for allowing cats to feel secure and safe in their core territory area. A cat carrier to which the cat does not have regular and free access to will have unfamiliar odours which could be potentially threatening. Many cats also have a learned association that the carrier predicts something unpleasant such as a trip to the surgery or the cattery. A great number of clients report difficulty getting their pets into carriers and we are in a position to help them. Training cats to voluntarily enter their box, rather than forcing them, is far more relaxing for the cat and for the owner. It also gives the cat a sense of control by allowing it to choose, which is crucial for keeping stress levels low so they are more likely to be receptive to handling at the surgery.

The individual patient needs to be considered when discussing carrier training with clients because early experience will affect their learning ability. Kittens who have come from highly varied environments and been habituated to various domestic noises and social stimuli will be better predisposed to learn about both box training and travelling to unfamiliar environments. Another aspect of this training which should be considered is the cat's ability to cope with frustration at being confined. This is of higher risk in hand reared kittens because the natural weaning process appears to be an important factor in cats developing frustration tolerance. Owners should be questioned about signs of motion sickness and affected animals may benefit from medication. Cats who show signs of anxiety during any aspects of a veterinary visit may benefit from anxiolytic medication. The drug of choice would be the benzodiazepine, alprazolam, which is sold under the trade name of Xanax. Unfortunately some of the published dose rates for alprazolam in cats are incorrect. It has been published as a per kilogram dose when in fact it should be a per cat dose. The correct dosing for cats is 0.125 to 0.25mg per cat to be given 30-60 minutes prior to a stress-inducing experience. For hospitalised patients it is important to remember to provide anti-nausea medication, anxiolytics and take into account box training for the return journey.

Important Aspects of Box Design:

Carriers are frequently designed without functionality in mind. Advising clients on appropriate carrier design should be an aspect of feline friendly practice.

- To keep stress to a minimum the cat must feel safe and secure and easy for the client to carry. Most cats prefer a solid, sturdy box compared to the soft fabric designs which offer less support.

- Cats are usually sound sensitive so looking for a carrier with quiet opening mechanisms is helpful.
- Easy access allows the cat to feel more secure by choosing a carrier that allows examination without having to remove the cat.
 - Top and front access is of benefit.
 - The top should be easily and quietly removable so the cat can remain in the lower half of the carrier during examination.
 - This is particularly important for scared cats or for cats that are potentially in pain and reluctant to move about.
- Consider the size of the openings relative to the size of the cat.
- In multi-cat household with cats in the same social group, bringing them in a carrier together is ideal. In this case choosing a box that is large enough to hold more than one cat would be sensible. Clients are likely to need help identifying when this is appropriate by the use of diagrams showing affiliative and agonistic behaviours as discussed in the first session.

Cat Carrier Training

Please watch this video that my colleague, Stephanie Hedges, and I made for the APBC.

<https://www.youtube.com/watch?v=tSp8nl9xK3g&feature=youtu.be>

The most important aspect of this training is that the cat has control and is choosing to enter the carrier. The speed at which a cat will learn about entering a carrier will be affected by many factors. For cats that are already worried, due to prior aversive experience, the training will need to be much more gradual and carefully tailored to their individual responses. These cats will also benefit from starting off the training with a new design of carrier rather than attempting to train in the carrier they are already scared of. Ensuring there is bedding with familiar scent (recently used by the cat) and/or Feliway spray is beneficial. Owners should also be encouraged to leave the carrier out all the time in a resting area the cat would usually favour so that its presence is familiar.

Once the cat has been taught to like entering the carrier the next stage is to progress to being carried and being taken out in the car. The rate of progression must be tailored individually to each cat. Some cats may look nervous as soon as the owner picks up the carrier and can initially just be carried from one room to another in the house and then rewarding them with food treats, a game or freedom. The next stage might be taking the cat out to the car and getting used to the sounds of the doors opening and closing. Owners should be taught to recognise body language that indicates signs of relaxation and signs of anxiety or fear so that they are able to ensure their cat remains relaxed during this training.

The Waiting Room

Veterinary behaviourist, Chiara Mariti et al 2016, reported high levels of feline anxiety in veterinary surgeries in Italy. This study of over a thousand cats emphasises the need for practices to pay attention to cat welfare. The research showed cats had compromised welfare before a visit to the surgery, in the waiting room, whilst they were transported from the waiting room to the consulting room, in the consulting room and even when they returned home. Practices were at risk of losing clients to alternative surgeries if they were not happy with the way the vet interacted with their cat. 1 in 10 vets were examining cats on arrival, making no time to allow the cat to get used to the unfamiliar situation or gain some trust with the unfamiliar handler. This type of inappropriate handling of cats, along with the stress associated with travelling to the clinic, were found to generalise to other contexts such as general concern about being put in the carrier or interacting with unfamiliar people. Cats who were more distressed on the consulting table showed more welfare compromise when returned home. Veterinary staff need to be aware that pushing a cat into an examination or procedures that it is not tolerating has far wider reaching consequences than just in that one moment. Cats who were reported as calm in the waiting room were more likely to take food from the vet. In order to teach cats to enjoy visits to the surgery we need them to be in an appropriate emotional state for them to be able to learn those positive associations.

Graph from Mariti et al. 2016 showing high levels of impaired welfare related to veterinary surgery visits.

4  MARITI ET AL.

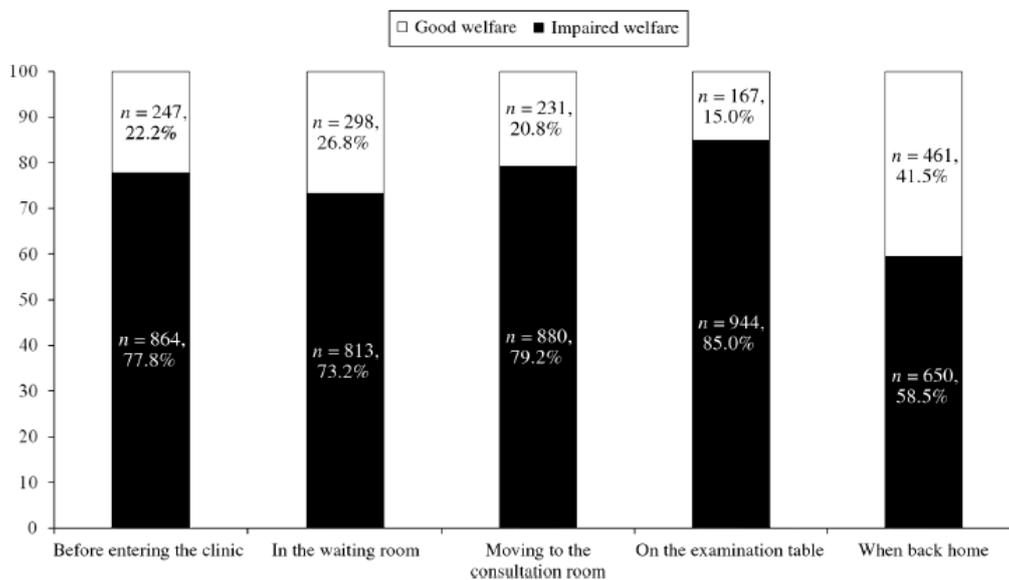


Figure 1. The number (n) and proportion (%) of cats who, in the guardians' opinion, showed signs of impaired or good welfare in the different stages of a visit to the veterinary clinic.

Feline Friendly Waiting Areas

Cats use hiding and elevation as strategies to reduce stress so we can provide them with these opportunities in the waiting area. Their natural tendency to avoid cats who are not in their social group can be addressed via the layout of the waiting area and the use of visual barriers.

Consider interactions between other species in the waiting room. Even cats who live with dogs should be protected from the sound and sight of unfamiliar dogs. Ideally a separate waiting room should be provided for cats. If this is not possible then reception staff should be adequately trained to keep an eye on tensions in the waiting area and be confident to intervene when necessary.

Strategies such as asking noisy dogs to wait out in the car park, inviting cat owners into an empty consulting room or offering owners a Feliway-sprayed towel to cover over the cat's carrier can be beneficial. Do not forget to also address the welfare of the noisy dog who is likely to be vocalising due to his own anxiety! If a separate waiting area for cats is not possible, an alternative strategy is to timetable separate times of the day when cat consultations will occur. A similar strategy can be adopted for surgical appointments for procedures that are booked in advance can be booked for a 'cat only' day. Of course canine emergencies may appear on the day which can disrupt the plan but it is still worth trialling this to see how it goes.

Cats are very sensitive to sound so the waiting area should be as peaceful as possible. If they are subject to loud telephone ringing, loud voices, doors opening and closing and so on this will increase their anxiety level. If the layout of the practice allows, consider having the telephone away from the waiting area such that the reception staff member can have the primary role of welcoming people, booking them in, taking payments and appropriately supervising interactions between patients to ensure a calm atmosphere. When staff call a patient through to the consulting room, calm quiet voices should be used and doors opened and closed carefully to avoid sudden bangs.

Cleaning products used for disinfecting the surgery are frequently aversive to cats. Ensuring the waiting room is aired with open windows and doors after mopping the floors can help to reduce this. Ensuring the cats have a separate waiting area from dogs will help to protect them from the scary odours of the other patients. Feliway diffusers can be used to create a safe atmosphere for cats.

The size of the waiting room should reflect the throughput of clients, with the appointment system being arranged such that there are a minimum number of waiting animals. The longer cats are kept waiting in a potentially stressful environment, the more likely they are to be difficult to handle in the consulting room. Time pressure on staff due to a backlog of clients in the waiting area is not conducive to good patient welfare or good staff welfare and also adversely affects the welcoming atmosphere for clients.

Top tips for a feline friendly waiting room

- Calm and peaceful with low level lighting
- Pheromone diffusers

- Visual barriers to avoid visual contact with unfamiliar cats
 - Use Feliway-sprayed towels or blankets if no physical barriers
- Allow carriers to be safely elevated on chairs, benches or specially designed cat shelving.
- Separate canine and feline waiting areas
 - If a separate room is not possible consider a partition
- Consulting room easily accessible from the cat waiting area
- Children's play area to keep children busy and quiet!

Clinical Examination and the Consulting Room

The most challenging part is continuing to maintain relaxation in the light of performing a clinical examination and possibly some procedures such as injections, blood sampling and so on. One consulting room should be set aside to use only for cats so that they do not experience the fear inducing scents from dogs. All necessary equipment and medication should be readily available in the consulting room to avoid the noise and disturbance of opening and closing doors. Removing items such as syringes from paper or plastic packaging, taking vaccines out of the fridge and so on is all helpful to do in advance. The surface of the consulting table should also be prepared in advance. Stainless steel tables are cold, have a reflective surface and are slippery all of which would be aversive to a cat. Rubber matting feels warmer and have better grip but may retain scents from previous patients or aversive disinfectants. Feliway sprayed towels or blankets can be laid over the table for each new patient. Feliway spray comes in a carrier of alcohol and that needs 15-30 minutes to evaporate before the cat is exposed to it. Therefore at the start of a consulting period several towels should be prepared and left easily accessible and ready to use. Not only does this provide a pleasant surface for the cat to be examined on but it might also double up as a means of gentle restraint if required.

The appointment duration is a consideration for all species, not just cats. Ten minute appointments give little time for being thorough in the veterinary work that needs to be done or for animals to acclimatise to the unfamiliar and potentially scary surroundings. First vaccination appointments should routinely be given double appointment slots for these crucial early visits. Research in dogs has shown that if the vet allows the dog to acclimatise to the room first, talks to the client and makes friends with the dog before any clinical examination or treatment there is no effect on the overall length of the consultation. Cats benefit from being allowed time to acclimatise to the consulting room and giving them time to explore can make a big difference to their subsequent willingness to be examined and treated.

Allow Choice and Hiding

Careful planning of the consulting room layout can allow cats to meet their need of hiding without us having to remove them from the place they have chosen as their safe spot. Ensure that any inaccessible hiding places are blocked up. Cats should not be hurried out of their carriers. Feeling in control is crucial for a cat to feel safe.

The carrier can be placed on the floor or the table, whichever their individual cat seems most comfortable with, open the door and wait patiently. Cats are frequently told off for jumping onto tables and work surfaces at home so they may feel more concerned when placed on the consulting table despite elevation usually being used as a coping strategy. If the cat is happy to exit the carrier, allow her to explore the consulting room and feel comfortable in the strange environment. Examine the cat where she chooses to be as this is where she will feel safest and be most amenable to being handled. Providing chairs in the consulting room can be helpful for cats that like to sit on knees as this is another possible place to examine them.

Recognising Fear and Anxiety

If we are presented with a fearful cat, we must first recognise her emotional state. The response we are most likely to see in the veterinary surgery is inhibition of behaviour where the cat freezes or attempts to hide. Recognition that these inhibited animals are scared must be respected from a welfare point of view and in relation to the risk of triggering them into defensive aggression if we push them over threshold. Keeping quiet, moving slowly and giving cats time to get used to their surroundings will help reduce fear. When starting the physical examination, reach to cats from the side or behind. Avoid reaching over the top of the cat and particularly over the head as this is much more likely to trigger a defensive reaction. Make use of their natural pheromones and affiliative behaviours in cats that are ok to be touched. Rubbing them around their chin and cheeks can help to relax them. Avoid touching them over their backs, the base of their tail or handling their feet if they are feeling nervous. When examination cats in pain the use of short acting analgesia such as buprenorphine is invaluable.

A fearful cat who is already so aroused that they are showing defensive aggression whilst still inside their carrier can be a challenge. Firstly consider how important it is for that cat to be examined physically, bearing in mind the owner's reasons for presenting the cat and the risk of long term effect on an aversive experience for the cat. At times delaying the appointment, instigating box training, towel restraint training and the use of anxiolytics prior to an appointment may be warranted. However in cases where the cat does need to be handled, the technique of placing a towel between the two halves of the carrier is very useful. Ideally the owner should be encouraged to bring in a towel or blanket from home that is familiar to the cat. Alternatively Feliway spray would be beneficial. Separate the lower and upper halves of the box and slide the towel in from behind the cat. Cats feel safer when they are hiding. If they cannot see you and their head is covered they will often feel safe enough for you to perform the tests or examinations you need to do. Keeping the head hidden may well allow considerable examination of the rest of the body. For owners who need to attend the surgery regularly, they should be encouraged to invest the time in teaching their cats to cope with gentle towel restraint. In particularly fearful cats you may want to consider full sedation or general anaesthesia by injection depending on the investigations or treatment that are needed. In making this decision consider the work that is needed at that point in time but also the adverse effects of long term learning if a cat does have a very aversive experience with enforced handling and restraint.

This could have consequences not only for future veterinary visits but also for the owners getting their cat into the carrier or car in other contexts, for handling in other contexts or for the cat's trust of unfamiliar people in general.

Hospitalisation

It is also our responsibility to ensure that the client's feel confident and relaxed about leaving their cat in our care. Owners are often anxious about leaving their pet at the surgery. Communication is key in this – giving clients expectations about when to hear from you, when to expect a phone call or when they should ring you for an update, explaining about what you will do to help their pet cope in the strange environment and so on. Asking owners to bring in familiar scented bedding is very beneficial to hospitalised animals. If the hospitalisation had not been planned in advance and they did not have appropriate bedding in their carrier, then ask owners to pop back in later. If the cat is particularly attached to the owner leaving a scented item such as a jumper may benefit the cat. With cats from multicat households who are socially bonded to another cat, trying to maintain that group scent profile is also important by using bedding that is used by all the relevant cats. Keeping the carrier in the cage with the cat allows hiding and perching as well as keeping some familiarity.

Cats and dogs must be kept in separate wards. In surgeries where space is limited and separate wards are not possible avoiding visual contact is vital and if there is a noisy dog then resolving that issue must take priority, not only for the welfare of the dog but also for all those being affected by it. Cats also need to avoid visual contact with unfamiliar cats so the layout of hospital cages should reflect that. If cages are opposite each other then provision of hiding opportunities and prevention of staring is vital. This can be done by strategic use of cardboard boxes, cat carriers or using towels and blankets draped over the fronts of cages. Handling of patients in view of others must also be avoided. The hospital atmosphere should be calm and peaceful and pheromones should be used to enhance feelings of safety.

Consideration of how cats perceive their territory means careful planning is needed of how resources are provided within the cage. This can be a challenge given the small size of most cat hospital cages so maximising the use of three dimensional space helps. The core territory is used for eating, resting and playing so this area needs to be separate from the litter tray area. Cats are often inhibited in toileting in the hospital environment and a careful layout can positively affect this. A simplistic approach is to think of a triangular layout where the litter tray is at one corner, the resting area at another and the food and water at another. Ideally food and water should be separated if the cages are large enough to allow for this. Elimination is a private activity so the litter tray should be placed either at the back of the cage near the front with a towel or blanket draped in front of it to form a visual barrier. Perching and hiding are crucial as stress coping strategies for cats.

Stella et al 2014

This study looked at 76 caged cats under different cage conditions to see what effects the conditions had on their behavioural repertoire. Half the cats were managed with minimal disturbance and a predictable routine whilst the other half had unpredictable disturbance and lack of routine. Within these two groups, half the cages were enriched with perching and hiding opportunities and the other half were not. Under all these conditions the cats experienced stress and sickness behaviours, for example inappetence, inhibition of toileting behaviour and inhibition of general maintenance behaviours such as grooming and affiliative behaviours, were observed in nearly all the cats during the first day. Cats who were in the environment with unpredictable disturbances were most affected. By the second day the cats in the minimal disturbance group had shown a significant improvement in their behaviours with their appetites recovering well and also they were more likely to toilet. A high proportion of the cats used their hiding and perching enrichment which demonstrates how important this is for us to provide in the hospital situation. Cats in the unpredictable management group showed a longer duration of hiding, suggesting that they were finding it more difficult to cope. Overall this research seems to have demonstrated that the external environment and that predictable management routine with minimal disturbance is just as important as the enrichment of the cages themselves. It is therefore very important to bear this in mind when working with patients in our care to ensure we put as much effort into careful cage layout and enrichment as ensuring that the ward is a calm, predictable environment.

Top Tips for Hospital Cages

- Avoid visual contact between patients
- Ensure perching and hiding opportunities
 - Cages with in-built shelves allow separation of resources
 - Alternatives can be easily created with strong cardboard boxes or specially designed products such as the Cats' Protection Feline Fort.
- Private litter tray
 - Place this behind the perching box
 - At the front of the cage behind a towel
 - If placed inside the perching box remember to also provide an additional hiding place
- Quiet and calm atmosphere with pheromones
- Compartmentalised cages
 - Not as ideal as increased three dimensional space but still a good way to separate resources.
 - Reduce the area of shiny reflective surfaces in metal cages, for example by leaving the cat carrier in or using cardboard boxes.
 - Open and close cage doors quietly.
- Separate resting area from food/water and from litter area.

Encouraging Eating in the Hospital

Lack of appetite is a common issue for in-patients and the first consideration must always be whether the animal has had sufficient analgesia. There is a confirmed link between stress and inhibition of appetite and although this is a complex process it is thought there may be involvement via modulation by corticotrophin-releasing hormone (CRH). Therefore the underlying foundation for increasing appetite in hospitalised patients must be reduction of stress levels. Odour, temperature and the familiarity of the food offered are also important. Asking owners to bring in the cat's usual diet is an essential. Some cats may benefit from social interaction to help them become interested in eating and this may be influenced by learning from owners as many owners do reinforce attention seeking behaviours by feeding their cats. This can result in a learned association between food and attention.

Returning Home

For cats who are anxious about travelling consider the need for anti-nausea or anxiolytic medication for their return journey. Ensuring the cat carrier has familiar and relaxing scents. Owners can be asked to bring some bedding from home with familiar home smells on it. In terms of re-introducing cats to a multi-cat household we need to be aware of visual and odour oddities. Initially cats should be popped into a room by themselves to help them regain the familiar scent of home and lose all the potentially aversive unfamiliar smells from the surgery. The use of Feliway diffusers or the new product Feliway Friends diffuser may be of benefit. In some cases it is helpful to actively transfer scent from the home cats to the cat that has been away. This can be done using clothes that are rubbed around the facial and flank areas of the cats who are at home and then transferring this scent by rubbing onto the cat who has returned home. Clients may need help with advice about teaching cats to take medication and how to avoid aversive learning experiences with regular tableting.

Crate Rest

There are occasions when a cat does need to be restricted to ensure success of a surgical procedure. However it is crucial to consider the effect on the individual patient and whether we can actually achieve what we are aiming to with this decision. Cats who are used to freedom and outdoor access can struggle to adapt to confinement. They may appear to cope in the context of the hospital but when in their familiar surroundings where they have different expectations are at greater risk of frustration. Some individuals may actually rest better if they are given more freedom than if they are confined and frustrated. Also consider the adverse effects of stress on the healing process and the immune system and potential adverse effects on social relationships within the home. Confining one cat may cause disruption to social bonds and cause additional stress.

Arranging resources within the crate involves the same principles that are applied to the hospital setting. If jumping must be avoided then three dimensional space can still be included by using ramps. Litter trays can be given privacy and separation from the resting and feeding areas by placing them inside cardboard boxes. Allow hiding and perching within the realms of what is physically appropriate for the recovering cat.

The surrounding environment must also be discussed with owners when deciding where to place the crate. It should be in a quiet and calm area of the house where the cat can feel safe and secure with a predictable routine.

Home Visits

Home visits may well be an option that works best for some cats. Cats who are usually sociable with unfamiliar people but cannot cope with transport may benefit. Cats may have already have serious learned aversive associations with the surgery which can make it impossible to handle them safely in that context without the use of sedation or anaesthetic. In behaviour consultations cats should always be observed in their own environment to ensure accurate diagnosis and appropriate design of a behaviour modification programme.

It may not be appropriate to do a home visit for veterinary examinations or procedures for cats who are already nervous of visitors. In this situation, forcing them to be handled by unfamiliar people within their home would risk increasing their fear of unfamiliar people in an environment that is meant to be safe. It may also not be practical to do home visits for cats who are likely to require a visit to the surgery for further investigations that cannot be carried out at home.

Prevention of Behaviour Problems

Feline friendly practice ought to include preventative behavioural advice to help owners build a lasting and successful relationship with their cats. The majority of cat behaviour problems arise due to the constraints of domestic life when cats are not truly domesticated, for example the unnatural groupings in multi-cat households and high density cat populations in urban areas. They also arise due to misinterpretation by owners about how to meet cats' behavioural needs, for example territorial behaviour, hunting behaviour and normal feline social interaction. When kittens attend the surgery for their primary vaccinations or if people present a newly acquired adult cat, we have the opportunity to educate them and reduce the likelihood of such problems developing. Gazzano et al 2015 studied the effects of giving advice to kitten owners and did find beneficial effects. They looked at 91 kittens which were split into 2 groups with one group being given advice from veterinary behaviourist and the other was a control group with no behavioural advice given. Owners were interviewed when the cats were about a year old. Cats in the control group more likely to complain of behaviour problems or to have sought advice for problems. There was also some evidence of higher quality relationship between client and owner. The table below summaries the information that was given to these kitten owners.

Table 1
Behavioral advice provided to kitten owners of the experimental group

Cat behavior	<ul style="list-style-type: none">• Behavioral development of the kitten, focusing on the importance of early socialization: owners should guarantee the kittens a regular, positive contact with the stimuli they will meet in future life.• Importance of graduality in the cat habituation process, avoiding the risk of sensitization.• Habituation to social stimuli. For instance, when introducing the kitten with other animals, olfactory contact should precede visual contact; visual contact should be guaranteed from a distance, leaving the kitten the possibility to escape and remaining in a physically elevated position; physical contact should follow pacific visual contact.• Habituation to nonsocial stimuli, letting the kitten to freely explore the stimulus or environment, to retreat and approach, and creating a positive association with it.• The double nature of cats as prey (tendency to feel fear in front of many stimuli) and predators (crepuscular activity, tendency to hunt moving things such as toys, hands, feet, etc).• Environmental enrichment should be provided for all cat's life long.
Advice on training and management	<ul style="list-style-type: none">• Training should be performed using positive reinforcement and avoiding any kind of punishment (shouting, hitting, et cetera).• Physical contact and handling should be performed daily and without constraining the kitten, to avoid the development of negative responses to contact. Handling should be gently and slowly performed, without forcing the cat, and instead rewarding positive behaviors. Owners should simulate veterinary checkups, touching any part of the kitten body including paws, mouth, ears, and tail. In addition, kittens should get used to be brushed, to have claws trimmed, and to take a bath.• Management of litter box (placed in a quite, private position; fine grain sand is preferable); food and water bowls (placed far from the litter box and, in case of a multicat household, placing multiple bowls, distant one from the others); space (3-dimensional space, resting places, hiding facilities, et cetera).• Availability of a scratching post, that should be firm and placed in a prominent position. The cat can be encouraged to use the scratching post by gently putting the forelimb on it and by spraying interdigital pheromones on it.• Importance of feeding the cat several times a day and providing water and fresh grass.• Proper play: which kind of toys should be provided to the cat (fishing toys and tiny object to catch, pounce, and stalk), alternating them to maintain the cat interest high, and how to play with the kitten (moving the objects and avoiding the use of hands and feet).• In case of undesirable behaviors toward owners' body parts or furniture, redirecting the behaviors on proper targets (e.g., toys or scratching post).• Habituation to the litter tray, to the carrier (allowing the cat to have a regular and pleasant contact with it) and to the car.

Another really important aspect of this is ensuring that kitten's early visits to the surgery are full of positive experience. Make sure you play with them and feed them treats and ensure that they enjoy coming back to see you again next time.

PART TWO

Housoiling

Unless there are underlying medical issues the vast majority of housoiling cases actually involve, in the cat's eyes, normal behaviour but it is inappropriate in the domestic setting.

Understanding territory layout is crucial as a foundation for treating housoiling problems. The core territory is the area where cats would eat, sleep, play, rest and rear kittens. They would not expect to encounter cats outside of their social group in this area. Understanding the concept of core territory is essential for owners to enable them to distribute resources if they have more than one social group living in their home and for altering the cat's perception of areas it is using for inappropriate marking or toileting. Cats will generally toilet away from their feeding and resting areas. Feeling secure within the core territory involves not being able to see cats who are not in their social group and they will mark their territory in order to maintain this security. They will use claw marks at the edge of the core territory, urine sprays in the shared areas and use facial and flank marking within the core area. Cats avoid conflict with cats that are not in their social group by trying to avoid close contact with them and these marking signals are crucial for the success of this system.

Marking or Elimination.

It is crucial to determine whether a housoiling problems involves elimination or marking behaviour for knowing how to address the problem. Volume of urine can be relevant in that smaller volumes tend to be used for marking whereas elimination would be a large amount of urine. However this is not always be the case and should not be used as the sole diagnostic factor. This is also the case with the position of urine. Urine marking through spraying tends to occur on vertical surfaces but may

also occur on horizontal surfaces. The more important factor in terms of diagnosis are the locations of the soiling. Marking will occur in locations which are significant to the cat whereas elimination tends to occur in more private, hidden away places.

Identifying the Cat

In some cases it will be obvious which cat is involved, for example if the owner has witnessed the incidents or there is only one cat in the household. In multi-cat households or if there is a possibility of another cat in the neighbourhood entering the property tests may need to be carried out to determine what is happening. It may of course also be more than one cat. In urination problems fluorescein can be used to identify the culprit. Liquid fluorescein is the easiest way to administer it but if this is not available then empty gelatine capsules can be filled with 5 ends of flouret strips. This gives a dose of about 5mg per cat. This should be given once daily for a few days or longer if incidents are less frequent. Owners should examine their home for fluorescent using a UV lamp on a regular basis. Urine fluoresces slightly in UV light anyway so it is important that owners can tell the difference between the bright glow of the urine with fluorescein in compared to just normal urine. If you need to test more than one cat in the household you need a 5 day washout period in between to be sure there is no overlap. For faeces incidents you can grate coloured wax crayon into the food and that will come out unchanged in the faeces. You can also try sweetcorn.

First Aid Advice

Often owners are at their wits end when they are referred for house soiling issues and problems have been on-going for a long period of time. They may feel embarrassed and there may be tension within the family home and social effects such as them not feeling comfortable inviting visitors into their home. Some basic advice can help them to cope whilst they await a referral consultation and small amounts of success can really aid long term compliance and resolution of the problems.

Owners must understand that punishment is counterproductive. Underlying stress is affecting the cat's inappropriate behaviour and punishment will only serve to increase that stress and may exacerbate the problem. Cats are likely to misinterpret being told off for toileting in the wrong place and not understand that it was the location that was the problem. This can make the cat more likely to toilet out of sight of the owner or may increase marking behaviour if the cat feels its security has been further compromised. Given the limited communication repertoire of cats as well, there is a serious risk that punishment will cause permanent damage to the owner-cat relationship.

Understanding these concepts is essential for client compliance and can have an immediate effect on lowering stress and improving welfare.

Appropriate cleaning reduces the risk of the habitual component of cats tending to urinate where they have previously urinated. First the area should be cleaned with a 1 in 10 solution of biological (enzymatic) washing powder, then rinsed and then sprayed with surgical spirit. The spirit should be left to evaporate.

In terms of cleaning the litter tray cats will show individual preferences but as a general rule they are more likely to use a litter tray that still has a slight smell of urine about it. Some owners make the mistake of being too fastidious in their cleaning and perhaps using scented cleaning products which may be aversive to their cat. It is best to scoop out any urine soaked litter and leave the slight smell behind to encourage the cat to continue to use the tray. When given the choice cats would have separate latrines for urine and faeces so ideally each cat should have a choice of 2 litter trays. Faeces should be scooped out as soon as possible or they may then choose an alternative, inappropriate location next time they need to go. In multi-cat households ample litter trays must be provided – usually one per cat plus a spare one. Simple advice like this can help owners to cope until they have a full assessment of why their cat is behaving inappropriately.

Management to Avoid Accidents

Each time a cat marks or toilets in an inappropriate location they will be accidentally self-reinforced and if their behaviour is going to be successfully altered then this must be prevented. Incorrect advice may cause additional stress and actually exacerbate the problems. If the problem is inappropriate elimination, placing a litter tray in the problem area can be an excellent short term solution.

Alternatively making the problem locations less private and less appealing can be beneficial but this must only be done in conjunction with ensuring there are sufficient appropriate and accessible alternatives. Cats can be physically excluded from a particular room if that is causing a problem but there is a risk that this may increase stress and simply move the problem to a new location. Various aversive substrates can be tried such as clingfilm or other waterproof surfaces, tin foil, prickly leaves and so on.

If the problem is marking then providing an alternative means of marking can be helpful, such as placing an appropriate tall scratch post. For persistent urine sprayers who are regularly topping up a single location propping a litter tray on its end to collect the urine can at least protect soft furnishings.

Longer Term Solutions

The aim of the behavioural consultation is to identify underlying motivations why the cat is urinating or defaecating in inappropriate locations and then identify and address stressors. A home visit is the only ideal way to thoroughly identify the issues and how to address them. Three dimensional space is really important so assessing where the cat has access to is vital. Cats need to have safe places but they also need to be able to visualise their surroundings from vantage points. In multi-cat households social groups must be identified and core areas for each group created. Issues within the neighbourhood such as cats staring in through the window and cat flap security should be identified. There may have been recent changes in the household that are relevant, either environmental or social. Feliway must be used appropriately. The location of the diffuser and the situations where it can be useful depend on many individual factors. For example if there is a general lack of resources or there is one cat constantly intimidating another in the household, Feliway is not going to solve those underlying issues. It should only be used in an area that is genuinely safe for that cat to enhance the feeling of core territory.

Choice, predictability and control are especially important for keeping stress levels low. If a scared cat is able to use its coping strategy of hiding when she needs to then that will reduce her stress. Constant availability to elevation or hiding places is vital so for example the tops of wardrobes should be kept clear, the cupboard door propped open and so on. Location of litter trays should ensure privacy.

Multi Cat Households

Separation in the short term may be required depending on the nature of the issues. If there is overt aggression between cats they should be separated but it is also very important not to accidentally disrupt social groups. Therefore a thorough understanding of the social structure in a multi-cat household is essential. Each social group needs its own core area. Litter trays must be in separate locations not all bunched together or they are just effectively one giant litter tray. Cats should be fed in separate locations, not just from separate bowls. Provision of food ad lib allows cats to have immediate access. In multi-cat households obesity can often be an issue due to competition causing overeating and once resources are widely distributed and freely available, the cats start to eat a more normal quantity. In some cases it might be appropriate to do scent swapping between cats to try and re-create a group scent profile but this is not always appropriate and must be determined on a case-by-case basis.

Neighbourhood

Cats must be helped to feel safe in their core territory and around the exit and entry points so that they can travel around safely. Opaque window film can be extremely useful for preventing visual access from neighbourhood cats staring in the window. Microchip cat flaps are a very effective way of preventing unwanted cats accessing the home. Strategic placing of large plant pots and garden furniture around the cat flap improves feelings of safety by allowing cats to hide whilst gaining information about their surroundings. Consider the three dimensional space within the garden both with a view to the resident cat having safe vantage points whilst avoiding the risk of unfamiliar cats intimidating them. Trellising can be placed along the top of fence to prevent perching and staring from neighbourhood cats. Shed rooves may be planted with climbing plants to allow hiding. Perching opportunities should face away from the home so that the core area inside the house feels safe. It can also help to ensure there are appropriate areas where the cat can scratch to mark their garden and provision of an outdoor litter tray can also be beneficial. Cat proof fencing may be advisable in certain cases but care must be taken with the design.

Litter Issues

Most housesoiling cases are due to environmental or social stressors but sometimes we might see litter tray issues. Research has shown that cats prefer a depth of at least 3cm of litter and the tray must be large enough to comfortably turn around, dig and cover. Many of the standard trays that are sold in pet shops are too small. Some cats may show preferences for one particularly substrate and so it may be wise to do a preference test. In older cats arthritis might make it difficult for them to get

in and out of the tray so not only should meloxicam be prescribed, a tray with a lower lip may be required.