Feline Elimination Behavior: Thinking Outside the Litter Box
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Feline inappropriate elimination is still a top behavior problem among our feline patients and it continues to be the #1 reason families relinquish their cats.¹

Taking the inappropriate elimination history is the first step in directing treatment.
- Determine the onset of the inappropriate elimination and whether the timing coincides with an event in the owners' lives (even if this event seems insignificant to the owner)
- Identify the locations of the elimination and whether there is a substrate preference
- If the elimination has been going on for some time, ask the owners why they are presenting the cat now (are they getting new carpet, selling the house, etc)

In a multi-cat household it may be difficult to determine who the culprit of the elimination is
- Have they seen this cat actually eliminating outside the box?
- Have they seen this cat trying to cover up the inappropriate elimination?
- Just because they have witnessed this cat performing either of these behaviors does not rule out that this is the ONLY cat participating in the inappropriate elimination

How do we determine who is(are) the culprit(s)?
- You can segregate the identified cat in their own area with all of their resources for several days and see if the elimination outside the box ceases or only occurs in the room where this cat is isolated to.
  - Segregation of this cat may solve some underlying social issues going on and thus cause other culprits to stop eliminating outside the box during this time as well
- Fluorescein stain strips can be placed in a gelatin capsule and given to the suspected culprit (6 strips per capsule). Urine will fluoresce bright apple green under a black light for 24 hours after ingestion.
  - This will only work if the behavior occurs on a daily basis.
  - Owners may be hesitant to do this as the fluorescein may permanently stain light colored carpet and walls

Assess the litter box
- How many boxes are there
- Where are they located
- What type/style of box is it
- Are they lined or unlined boxes
- Are they covered or uncovered
- What type of litter is used and how much in each box
- How often is the box scooped
• How often is the entire box dumped out and cleaned and new litter replaced
• Have there been any changes to the litter boxes or their arrangement (did the behavior get better, worsen or not change)

Assess the social history
• What is the human composition of the household
• Is it a quiet house or a busy house
• Are there frequent visitors
• How many and what type of other animals are in the house (do not assume that you know all the animals currently living in the house)
• Is this cat seen resting next to another cat (bodies touching) or grooming another cat (or being groomed by another cat)
• Do you see hissing, growling, caterwauling or chasing between this cat and another cat (one in the household or living freely outside the home)
• If visitors come over to your home, will they know that you even own this cat (in other words does this cat hide when visitors are over)

Diagnostic tree for urination outside the litter box

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Urination outside the box

  Marking
    Territorial
    Status
    Anxiety
      Sexual
      Social

  Inappropriate elimination
    Medical
      Urinary system
      Pain
      Endocrine
    Behavioral
      Aversions
      Preferences
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Is it marking or inappropriate urination?

<table>
<thead>
<tr>
<th>Marking</th>
<th>Eliminating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical surface</td>
<td>Horizontal surface</td>
</tr>
<tr>
<td>Small volumes of urine</td>
<td>WNL or large volumes of urine</td>
</tr>
<tr>
<td>Social significance of targets</td>
<td>Possible substrate preference</td>
</tr>
<tr>
<td>Will still use the litter box for urination</td>
<td>+/- may still use the litter box at alternate times</td>
</tr>
</tbody>
</table>

Is it medical, behavioral or both?
- What may start as medical may then remain as behavioral once the underlying medical etiology has been addressed
- Physical examination, including orthopedic exam
- Minimum database: CBC, Chemistry panel, total T4, free T4 by ED, Urinalysis
- +/- culture if indicated
- +/- Abdominal radiographs and ultrasound
- +/- spine and lower extremity radiographs

Medical differentials
- Anything that influences the frequency, urgency or quantity
  - Infectious
  - Renal disease
  - Hyperthyroidism
  - Diabetes
- Anything that influences the ability to access the litter box
  - Osteoarthritis
  - Obesity
- Feline Interstitial Cystitis

Feline Interstitial Cystitis
- The true cause remains unknown
- More likely in males, obese and pedigreed²
- Sickness behaviors are more likely to be seen in those cats where subtle environmental changes occur. Something that may seem insignificant to the owner (shift in work schedule by 1 hour) can cause significant effects for the cat³

Is it a preference or aversion?
- Does there appear to be a substrate preference to all the eliminations outside the box
- Offer a litter box cafeteria to assess for a substrate preference
- Offer a rug box if this appears to be a preferred substrate
There appear to be consistent preferences

- Kittens may develop a substrate preference early on based on what was available at the time they were transitioning from neonate (where mom stimulated urination and defecation by licking their perineal area) to juvenile
- Most cats prefer unscented clay clumping litter
- Most cats prefer uncovered boxes (but most owners prefer covered)
- Most cats prefer unlined boxes
- Traditional litter boxes are not big enough for the average house cat
  - Rubber maid totes or under the bed sweater boxes make great litter boxes
- A litter box should be scooped at a minimum of 1-2 times daily, completely dumped out with the box cleaned with soap and water and new litter placed in every 1-2 weeks and the litter box itself replaced once yearly

How many boxes do we need?

- $N + 1$ ??? This number is truly arbitrary
- It depends on how many cats you have, where they hang out, and how many rooms and stories your house has

Urine marking

- This is a perfectly NORMAL (but unwanted) behavior
- Urine marking is used as a means of communication
  - Territory
  - Sexual or social status
- May be performed as a means to relieve anxiety
- Neutering and spaying reduces urine marking by 90% in males and 95% in females
- If it is ONLY marking, there is unlikely to be any role of lower urinary tract disease in the etiology and therefore no need for any medical treatment

Treating the social dynamics:

Is the cat truly a social being?

- Matrilineal organization to groups of cats living together
- Males will leave their natal group at approximately 2-3 years of age to find their own territory and females to mate with
- A multi-cat household usually comprises multiple cats that are not related and that the OWNER chose to live together
- Enough territory is needed so that if cats do not wish to interact they do not have to
Does the owner see any of the following:
- Overt agonistic interactions
- Allogrooming
- Resting in close proximity to one another
- Blocking access to resources (subtle or overt)
- Hair loss
- Drastic differences among body condition scores between the cats
- Excessive self grooming or lack of self-grooming can both indicate stress
- Cats consistently hiding or seeking high places to be away from other cats (or even people)

Creating harmony in a multi-cat household
- Increase the amount of useable territory
- Create separate territories for cats if needed
- Increase the amount and availability of resources like food, toys, scratching posts, and water
- General enrichment for each cat

Ancillary products which may be helpful to decrease stress and anxiety
- Pheromones (Feliway original and Multi-cat by Ceva)
- Royal Canin Calm diet Feline dry
- Hill's Rx Diet c/d Multicare Urinary Stress formula dry and canned
- Anxitane (by Virbac)
- Zylkene (by Vetoquinol)

Medications
- Selective Serotonin Reuptake Inhibitors$^{7,8}$
  - Floxetine
  - Paroxetine
- Tricyclic Antidepressants
  - Clomipramine
  - Amitriptyline- no longer recommended$^9$
- Does transdermal application of psychotropics work? NO!!$^{10}$

The Association of Feline Practitioners and International Society of Feline Medicine have collaborated and developed guidelines for diagnosing and solving house-soiling behavior in cats.
References:

9. Veterinary Psychopharmacology, Sharon Crowell-Davis