

IDENTIFICATION, DIAGNOSIS AND MANAGEMENT OF PAIN IN PETS

Author : Helen Rooney

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Helen Rooney BSc (Hons) CVN, CertEd, DipAVN (Medical), RVN, describes some practical methods for veterinary nurses to adopt in detecting, recognising and treating pain in cats and dogs

Summary

PAIN is now regarded as one of the vital signs, emphasising the importance for veterinary nurses in considering pain in all their hospitalised patients. Our knowledge of the nociceptive mechanisms involved in pain has advanced significantly and we now need to develop reliable methods to recognise and manage it. This article aims to assist veterinary nurses with the science of pain management in practice.

Key words

pain, pain score, analgesia, pain recognition

THE attitude of the veterinary profession towards pain in animals has altered significantly during the past 20 years (Reid et al, 2013) and we now have a greater knowledge than ever before regarding nociception, not to mention a vast array of drugs to manage pain. The negative physical consequences and suffering that result from untreated pain are now widely accepted (Hellyer et al, 2007; Fox, 2013; Reid et al, 2013).

The veterinary nurse is central to the successful management of pain in veterinary patients, and is

best placed to recognise signs of pain. This is highlighted by an unpublished survey in 1993 (Shaffran), which revealed “because my technician tells me” was one of the top-10 reasons for veterinary surgeons knowing their patient was in pain. Veterinary nurses must act as an advocate for analgesia on behalf of their patients and should therefore be involved in monitoring the efficacy of prescribed analgesics.

Limitations of pain recognition

Pain is a response to a noxious stimulus, the manifestation of which is a product of complex interactions in the higher centres of the brain that integrate sensory and emotional information. While our understanding of the physical mechanisms of pain in companion animals has advanced significantly, the same cannot be said for our ability to reliably and consistently assess their pain.

Situational, psychological and species-specific influences – in addition to concurrent disease – produce a pain response that is unique and unpredictable, with no universal pain markers applicable to all our patients.

In the absence of a single, objective, pathognomonic indicator for pain, nurses must combine subjective and objective data, obtained through patient observation and interaction to determine the presence and extent of pain (White, 2013). This can be challenging as behaviours caused by pain are also associated with fear, stress, anxiety, dysphoria, apprehension and ill-health and discriminating between the possible causes is not always possible (Fox, 2013).

Pain recognition

The presence of certain behaviours in dogs and cats is strongly suggestive of pain ([Tables 1 and 2](#)), although nurses must appreciate failure to identify these behaviours does not mean pain is absent. Critical patients ([Figure 1](#)) may not overtly demonstrate pain behaviours due to a lack of committable energy reserve (Shaffran, 2008) and the “ease” with which different species “advertise” pain is, to some extent, associated with their evolutionary process (selection pressures, pack dynamics; Reid et al, 2013).

Familiarity with both species-specific and breed-specific behavioural expression enables the veterinary nurse to interpret behaviours and assign more significance to certain behaviours over others. In addition, loss of normal behaviours can be attributable to pain.

Veterinary nurses need to know as much about the patient’s personality and normal behaviour as possible. An admission questionnaire should be completed with the owner, aimed at the following areas (where appropriate for the species):

- personality;

- sleep pattern;
- frequency and extent of vocalisation;
- eating and drinking pattern;
- most adopted relaxed posture;
- activity/mobility;
- human interaction/attention-seeking

behaviours;

- temperament;
- idiosyncratic behaviour – for example, yelps

when paws are touched; and

- grooming.

Veterinary nurses must then commit sufficient time to actively looking for signs of pain, as subtle signs can be challenging to recognise and are easily missed if the process is rushed. Observations of the patient are best performed in the following stages ([Figure 2](#)), utilising both non-interactive and interactive forms of assessment.

Practical application of a pain scoring system

A formal pain scoring system should be used to standardise the assessment process and will provide a consistent and more reliable measure of pain, although they remain largely subjective. Several pain scoring systems have been developed to facilitate acute pain assessment in dogs and cats, taking into account the species-specific expression of pain, and these are available for download ([Table 3](#)).

Composite pain scoring systems are more complex and designed to address the multidimensional nature of pain, assessing evoked and spontaneous behaviours through observation and interaction (Reid et al, 2013). Pain scoring systems that have been constructed using psychometric methodology demonstrate the desirable properties of validity, reliability and responsiveness to change (Reid et al, 2013).

Each practice should research the available pain scoring systems and select a validated pain score

that meets its individual requirements and is considered clear, efficient and user-friendly by the nurses, as they will likely be the main users. Failure to adopt an appropriate system that takes into account time constraints and staffing may lead to failure of the nursing staff to embrace the concept. All staff should receive training in-house in the use of the scoring system and be confident in its application.

Continued professional development in this field should be actively encouraged for all staff through internal and external lectures and courses to improve their understanding of pain. The scoring system should then become an integral part of routine in-patient care for all patients, regardless of their reason for hospitalisation, as many non-surgical conditions are known to cause pain ([Figure 3](#)).

A baseline pain score should be obtained on admission and then repeated at four-to-six-hour intervals for the general population (Shaffran, 2008; Barratt, 2013), increasing in frequency to every 30 minutes in surgical patients in the immediate postoperative period (Shaffran, 2008) and every two hours thereafter (Hellyer et al, 2007). Critical patients should also be assessed more frequently. Patients that are sleeping must be sufficiently pain free for this to have occurred and generally should not be woken, but instead have their assessment rescheduled (Barratt, 2013).

Following introduction of the pain score, an audit should be carried out to evaluate the application of the pain scoring system. Completed paperwork should be reviewed and feedback obtained from all staff as to the efficacy, benefits and drawbacks of the pain score for patients and themselves, and the administration of analgesics over the same period should be examined. The score and/or its application method can then be adapted as necessary before being implemented again and a further audit performed, and the process refined once more.

While pain scores are considered a vital part of pain management, veterinary nurses must appreciate the pain score awarded does not provide the definitive, conclusive answer to the question “is this patient in pain?” For the time being, intuition is still a valuable component of pain recognition. In addition, demonstration of certain pain behaviours would warrant immediate analgesia without the need for a formal pain score assessment.

Pain management

Successful pain management starts at admission through obtaining information on normal behaviour. It is also useful to gain insight from the owner into any past surgical procedures and the patient’s pain tolerance and reaction to pain, as previous experiences will influence the perception and impact of later painful situations (Grant, 2006).

The significant benefits of pre-emptive and multimodal analgesia in pain management are now widely accepted (Fox, 2013) and should be implemented in all patients where possible.

There are a wide variety of analgesics available, with different routes of delivery as well as drugs

outside this class capable of acting on distinct elements of the nociceptive pathway – for example, alpha-2 agonists and ketamine.

In addition, new products are becoming available with greater frequency. Licensed additions for dogs with novel delivery mechanisms include an oromucosal meloxicam spray and a transdermal fentanyl solution.

The simultaneous use of a combination of agents with synergistic effects, via different delivery routes, provides superior pain relief, while also reducing total doses of the individual agents and, consequently, reducing side effects (Fox, 2013). There is, therefore, no patient for which analgesia cannot be successfully achieved, providing an individualised, tailored approach is adopted.

While the choice of analgesics is determined by the veterinary surgeon, the veterinary nurse should evaluate the efficacy of analgesia and the patient's response using a simple analgesia response log ([Table 4](#)).

The use of an analgesia response log encourages nurses to further document evidence of their pain management skills and provides a more robust and evidence-based system, enhancing the trust and confidence in the nursing team from the veterinary surgeons. This may lead to nurses having more input over pain management in their patients, with the freedom to administer agreed-on doses of analgesics or titrate analgesic doses up or down, within a specified range, as dictated by the patient. The impact of veterinary nurses in such a role is supported with published evidence reporting pain management increases in proportion to the number of veterinary technicians in a practice (Dohoo and Dohoo, 1998).

A further benefit to such documentation is improved communication between the veterinary team regarding pain management. Veterinary nurses must ensure veterinary surgeons are kept well informed of the analgesic level required/provided for their patients, as severe, unexpected, prolonged or refractory pain may signify complications.

The complex nature of pain perception means the “emotional” distress associated with pain can be intensified by the presence of other psychological components, such as fear, anxiety and stress. Management of these compounding factors should not be underestimated in pain management.

Attention to good, basic nursing principles is required, such as ensuring patients have a clean, warm and comfortable environment, dressings are well applied and not too tight, painful procedures are minimised and performed swiftly and with technical competence away from the kennel environment, skin care and grooming are performed, the patient's bladder is not uncomfortably full and fresh food and water are available.

Of particular importance is environmental stress – especially in feline patients. Stressors should be removed if possible or their effects minimised with the provision of hiding boxes, the use of

pheromone therapy, soft lighting, familiar items from home and soothing background music.

Finally, the presence of a reassuring veterinary nurse with a calm, soothing voice and a gentle hand can ease a distressed patient.

Conclusion

While there is still much work to be done in relation to pain management in veterinary patients, it is clear the veterinary nursing team has an integral role in all areas, from the identification and recognition of pain to monitoring the efficacy and response to analgesia and helping develop a successful practice approach.

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Figure 1. Critical patients require nurses to be especially vigilant as they are often unable to manifest the conventional signs of pain.

IMAGE: Used with permission from Claire Bloor.

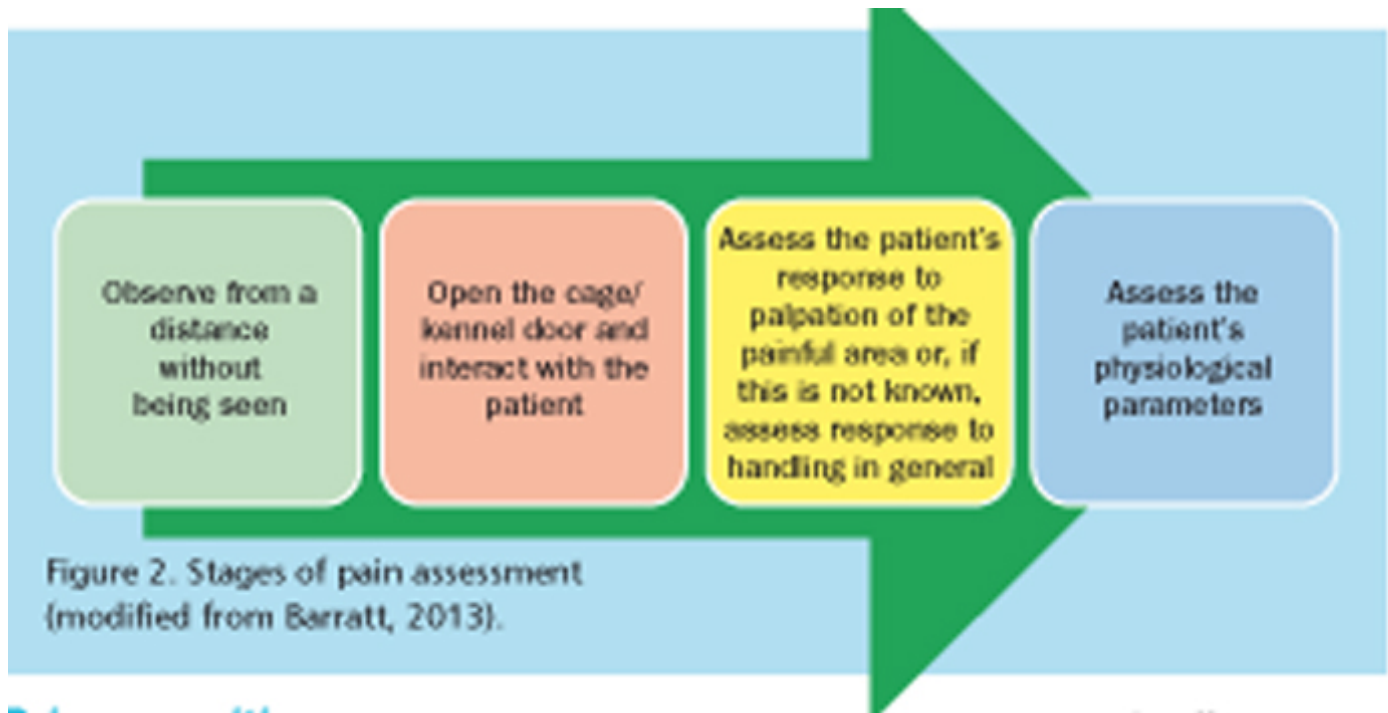


Figure 2. Stages of pain assessment (modified from Barratt, 2013).



Figure 3. Despite having no obvious pain focus, this patient must also receive regular pain assessments, as we do not know the full extent of nonsurgical conditions capable of causing pain.

Physiologic

Increased respiratory rate
Elevated heart rate
Mydriasis
Hypertension
Elevated serum cortisol and epinephrine
Pyrexia

Behavioural, postural and other

Loss of normal behaviours
Depression
Change in personality
Grimacing facial expression
Trembling/shaking
Hunched posture
Guarding a painful area or splinting of the abdomen
Adopting the praying posture
Sitting or lying in an abnormal position
Not resting in a normal position
Thrashing
Restlessness
Immobility
Stiffness when ambulating
Partial or no weight-bearing on a limb
Limping
Weak or no tail wag
Low tail carriage
Hanging the head
Reduced response to interaction with staff
Diminished responses to stimulation
Urinating/defaecating where lying
Unusual displays of aggression
Reluctance to move
Reduced or no appetite
Vocalising
Piloerection
Repeatedly looking at or licking/biting the painful area
Excessive response when painful area is gently palpated

In addition, the following is not usually seen in painful dogs:

Yawning
Stretching
"Wet dog shake"

TABLE 1. Possible indicators of pain in the dog (Mathews, 2000; Hellyer et al, 2007; Fox, 2013).

Physiologic

Increased respiratory rate
Elevated heart rate
Mydriasis
Hypertension or hypotension
Elevated serum cortisol and epinephrine
Pyrexia

Behavioural, postural and other

Loss of normal behaviours
Reduced or overgrooming
Depression
Change in personality
Abnormal facial expression – squinted eyes
Ears pulled back
Trembling/shaking
Hiding, sitting at the back of the cage or escape behaviour
Hunched or tucked-up posture
Guarding a painful area or splinting of the abdomen
Lying in lateral recumbency with pelvic limbs contracted or extended
Thrashing
Restlessness
Lethargy and reduced activity
Stiffness when ambulating
Partial or no weight-bearing on a limb
Limping
Excessive tail flicking
Hanging the head
Reduced response to interaction with staff and environment
Diminished responses to stimulation
Urinating/defaecating where lying
Unusual displays of aggression
Reduced or no appetite
Vocalizing – purring, growling or groaning
Repeatedly looking at or licking/biting the painful area
Excessive response when painful area is gently palpated

TABLE 2. Possible indicators of pain in the cat (Hellyer et al, 2007; Robertson, 2008; Barratt, 2003; Fox, 2013).

Canine pain scores
<p>Glasgow Composite Measure Pain Scale (CMPS – SF) www.gla.ac.uk/schools/vet/research/painandwelfare/</p>
<p>Colorado State University Canine Acute Pain Scale www.csuanimalcancercenter.org/assets/files/csu_acute_pain_scale_canine.pdf</p>
Feline pain scores
<p>The UNESP-Botucatu Multidimensional Composite Pain Scale (this also contains some good video footage to help identify certain feline pain indicators) www.animalpain.com.br/en-us/escala-multidimensional.php</p>
<p>Colorado State University Feline Acute Pain Scale www.csuanimalcancercenter.org/assets/files/csu_acute_pain_scale_feline.pdf</p>
<p>The Vetergesic Composite Pain Scale for Cats www.vetclick.com/news/new-cat-pain-score-chart-from-alstoe-helps-vets-with-dosing-decisions-p2100.php</p>

TABLE 3. Websites to download acute pain scoring systems

Agent	Dosage (mg/kg)	Dose (ml)	Time given	Route	Assessment time	Observations	Interpretation of analgesic effect	Pain score	Initials
Buprenorphine	0.02mg/kg	0.3ml	10.15	IM	11.15	Sleeping, normal respiratory pattern, relaxed	Good, patient comfortable		HR

TABLE 4. Example of analgesia response log (Shaffran, 2008)