Despite significant advances in pain management for companion animals, pain is still undertreated. One of the main reasons for this is the difficulty in recognizing and “measuring” pain in non-lingual species. To treat pain we must first look for it, recognize it, and quantify it in some way so we can assess the efficacy of our interventions. Pain is a complex multidimensional experience with both sensory and psychological components. The sensory-discriminative component is “how it feels” (type, source, and intensity of pain) and the affective-emotional component is “how does it make the animal feel?”

In humans who can self-report, pain is what the patient says it is but in neonates, cognitively impaired people, and animals pain is what the observer says it is. As animal caregivers, we make proxy assessments on the patient’s behalf and this puts an extra burden on us to get it right.

**Acute Pain Assessment**

Many attempts have been made to correlate objective measurements such as heart rate and blood pressure with pain. In cats, no study found a consistently reliable objective measure, which is not surprising since these parameters can be affected by many factors other than pain.\(^1\),\(^2\) Cats and dogs suffer from white coat syndrome just as humans do; for example fear and the stress of a journey to a veterinary hospital will alter heart rate in most animals. Mechanical nociceptive threshold testing has proved a useful technique for evaluating both primary (wound) and secondary (remote areas unrelated to the wound) hyperalgesia in dogs and cats suggesting that an assessment of wound tenderness should be incorporated into an overall assessment of post-operative pain.\(^3\) A painful animal may remain very still and quiet because they are painful and without interaction these animal will be overlooked.

Currently there is no gold standard for assessing pain in dogs and cats but several tools do exist. Any system that is used must be valid, reliable, and sensitive. Without strictly defined criteria and use of well-trained and experienced observers, many scoring systems are highly variable. Basic pain scales include simple descriptive scales (SDS), numerical rating scales (NRS), and visual analogue scales (VAS). Holton and others compared the use of an SDS, NRS, and VAS for assessing pain in dogs following surgery and reported significant variability between observers, which could be as high as 36 percent, with all three scales.\(^4\)

It is now accepted that quantitative measurements of behavior are the most reliable methods for assessing pain in animals and that if the methodology used to develop and validate these systems is rigorous they can be objective with minimal observer bias. Multidimensional systems are particularly important when self-reporting is not possible. However they must incorporate components that have been proven as sensitive and specific indicators of pain in the species being studied. Knowledge of the normal behavior for the individual being evaluated is important and deviations from normal behavior may suggest pain, anxiety or fear, or some combination of stressors. Normal behaviors should be maintained post-operatively if an animal is comfortable. Grooming is a normal behavior but licking excessively at a wound or incision can be an indicator of pain, so the two should be differentiated. The occurrence of new behaviors such as a previously friendly animal becoming aggressive, or the loss of a normal behavior, for example a playful and friendly animal becoming reclusive, should raise our suspicion that pain may not have been adequately addressed.

**Acute Pain Assessment Tools for Dogs**

The Glasgow Composite Measures Pain Scale is a validated tool for use in dogs\(^5\) and the short-form version is user-friendly.\(^6\) The short form can be downloaded in several different languages at [http://www.newmetrica.com/cmps/](http://www.newmetrica.com/cmps/).

The categories for assessment include vocalization, attention to the wound or painful area, posture and movement, response to palpation, and overall demeanor.

**Acute Pain Assessment Tools for Cats**

We are also learning “what pain looks like” in our feline patients and two clinically useful tools are available. Brondani and colleagues have developed a multidimensional composite scale for use in cats following ovariohysterectomy.\(^7\) This tool, along with many videos of assessing pain in cats, is available at
A simple one-page tool that is readily applicable in practice is the Glasgow Composite Measure Pain Scale for cats. This scale has a maximum score of 16 and intervention is advised at ≥ 4. The assessment domains in cats include vocalization, posture, attention to the wound, response to people, response to palpation of the wound, and overall demeanor.

In general most cats dislike any restrictive dressings or bandages and may roll around, pay excessive attention to, or try to remove these. These behaviors could indicate pain or dislike of the bandage so it is important to differentiate between these two by performing a careful assessment.

Another area of research is the interpretation of facial expressions as indicators of pain. “Pain face” or grimace scales have been developed for rodents, horses, and rabbits and preliminary work has been done with cats.

Using Pain Assessment Tools in Practice
Each clinic should choose a scoring system that fits their specific needs, and this may require some trial and error. Whichever one is chosen should be user-friendly, quick to complete, and easily performed by all team members and it should be an integral part of the animal’s evaluation. After temperature, pulse, and respiration are checked, pain, which has been coined the fourth vital sign, should also be assessed. A scale should include both non-interactive and interactive components and rely heavily on changes in behavior.

The health status of the animal, extent of surgery/injuries, and anticipated duration of analgesic drugs determine the frequency of pain assessments. The severity of surgery or trauma, the patient’s response to analgesic therapy, and expected duration of analgesic drug(s) administered will help to determine the frequency of evaluations. For example, if an animal is resting comfortably following administration of an opioid, it may not need to be re-assessed for two to four hours. Animals should be allowed to sleep following analgesic therapy. Vital signs can often be checked without unduly disturbing a sleeping animal. In general, animals are not woken up to check their pain status; however, this does not mean they should not receive their scheduled analgesics. Undisturbed observations, coupled with periodic interactive observations (e.g. palpation of the wound), are likely to provide more information than only occasionally observing the animal through the cage door. Routinely using a pain assessment tool enhances the care of patients in the perioperative period.

Chronic Pain Assessment—Cats
Pain that persists over weeks, months, and sometimes years is associated with diseases such as degenerative joint disease, stomatitis and other oral pathology, interstitial cystitis, and some forms of cancer. However, pain may be present in the absence of ongoing clinical disease, for example persisting beyond the expected healing time of an acute disease process; examples of this include neuropathic pain following limb or tail amputation. Chronic pain has a negative impact on a cat’s quality of life (QoL). In recent years, treatment options for some cancers in companion animals have become a viable alternative to euthanasia, and managing chronic pain and the impact of aggressive treatment protocols has become a challenging and important welfare issue. The behavioral changes associated with chronic pain often develop gradually and may be subtle and easily overlooked both by owners and veterinarians. Usually these changes are most obvious to someone familiar with the animal, usually the owner, but they may need prompted to think about how their pet’s behavior has changed over the months and years. Many owners mistake pain for “just getting old.”

Assessment tools for long-term pain and its impact are essential but how these tools should be constructed optimally for cats is not yet fully understood. Many of the tools for measuring chronic pain in humans measure the impact of pain on the patient’s overall QoL and encompass both physical (how it feels) and psychological aspects (how it makes you feel). There is a growing understanding of behaviors that may be related to painful musculoskeletal disease in cats. An owner-directed instrument for the assessment of chronic musculoskeletal pain in cats has been developed and tested and what owners consider important for their cat’s quality of life has also been investigated. Assessments may need to be individualized based on the cat’s lifestyle (e.g., indoor versus outdoor); however, behaviors can be assessed in the following broad categories:

- General mobility
- Performing activities (playing, jumping, using a litter box)
- Eating, drinking
- Grooming
- Social activities involving people and other pets

• Temperament

Each of these should be assessed and recorded. Re-evaluation over time will help determine the impact of pain; whether or not the disease process is stable, worsening, or improving; and the efficacy of treatment. It may be helpful to have owners keep a diary of their cat’s activity and behaviors so they can look back and see how things have changed. Additionally photographs and videos can be dated and catalogued. It is very helpful if owners record videos of their cat in their home environment (easily done with a smart phone) where they are relaxed and in a familiar environment. In many cases it is difficult to perform an orthopedic examination on a cat in the hospital or clinic environment as they may be unwilling to explore and move freely due to the unfamiliar environment. In addition seeing home videos may give the practitioner insight into how to improve the cat’s home environment to enhance enrichment and ease of access to important resources (e.g., litter boxes, favorite elevated resting places).

Chronic Pain Assessment—Dogs

As dogs live longer the practitioner is faced with treating a large population of dogs with osteoarthritis (OA) and also pain related to cancer and related treatments. Treatment options for chronic pain are complex, and response to treatment varies greatly from patient to patient so it is important to accurately assess pain and QoL on a regular basis.

Behavioral changes associated with chronic pain in dogs may develop gradually and be subtle, therefore the owner must be involved in the assessment. There are tools available to evaluate chronic pain. The categories that should be assessed include

• Vitality: energy, activity
• Mobility: tolerance to exercise, stiffness, lameness
• Mood and demeanor: alertness, anxiety, playfulness
• Levels of distress:
• vocalization, response to other pets and humans

Questionnaires have been developed to assess health-related (HR) QoL in dogs with chronic pain. At the present time, the most widely used instruments are

• GUVQuest
• Canine Brief Pain Inventory
• Helsinki Chronic Pain Index
• Texas VAS Instrument
• Liverpool Osteoarthritis in Dogs

GUVQuest is an owner-based questionnaire developed using psychometric principles for assessing the impact of chronic pain on the HRQoL of dogs, and validated in dogs with joint disease and cancer. The Canine Brief Pain Inventory (CBPI) has been used to evaluate improvements in pain scores in dogs with OA and in dogs with osteosarcoma. The Helsinki Chronic Pain Index (HCPI) is also owner-based and has been used for assessing chronic pain in dogs with OA. The Liverpool Osteoarthritis in Dogs (LOAD) clinical metrology instrument has been validated in dogs with chronic elbow OA. From these studies some key information has emerged:

• Owner information is very valuable when assessing chronic pain.
• Owners may need prompting and questioning before they report changes in their dog’s behavior as they may associate these changes with old age rather than with chronic pain.
• Changes in behaviors may be subtle, and take place gradually. Veterinarians need to ensure that when questioning the owner they prompt owners to reflect over a period of time (weeks and months).
• The veterinarian may find it useful to identify behaviors from the owner that can be used as marker behaviors to help determine response to treatment—for example, how far the dog is willing to walk or how willing it is to engage in play.

Lord Kelvin stated that “if you cannot measure it you cannot improve it” and this approach should be taken when treating pain in our patients. There are now several acute and chronic pain assessment tools to choose from and they should be used routinely to monitor the success of our treatment plans.
References