How do we know they hurt?
Assessing acute pain in dogs and cats

Sheilah Robertson, Senior Medical Director,
Lap of Love Veterinary Hospice
The 3 A’s of pain management

Assess  Alleviate  Anticipate

….what the patient says it is  .... what we say it is
It’s not that cats and dogs are nonverbal, but rather that we don’t speak their language.

We act as a “proxy”
When you can measure what you are speaking about, and express it in numbers, you know something about it

Lord Kelvin

If you can not measure it, you can not improve it
Is pain being assessed?

17% of veterinary practices routinely use a pain assessment tool

> 80% of nurses and technicians agree that they are useful

Hunt et al 2015 Vet Rec

Why is it important?

Pain has a negative effect on:
- Gastrointestinal function
- Appetite
- Blood pressure
- Heart rate and rhythm
- Weight
- Immune status
- Healing
Validated assessments are essential in cases of seizure and protective custody in cases of cruelty and neglect.

Fox MW 2019
Arch Vet Sci Med
Professional opinion will then be based more on an objective determination than subjective impression.

Why is it important?

- Enhances patient care
- Compassion fatigue and stress
- Improves work satisfaction
What is this thing called pain?

SENSORY DISCRIMINATIVE

MOTIVATIONAL AFFECTIVE

PSYCHOLOGIC COGNITIVE EVALUATIVE

WHERE? WHEN? UNPLEASANT WHAT AFFECTS INTENSITY FEELINGS PAIN PERCEPTION
Unidimensional scales

Visual Analog Scales

Numerical Rating Scales

Categorical Rating Scales
Unidimensional scales

29 to 36% Inter-observer Variability
Holton et al 1998 JAVMA

One size does not fit all
Melanocortin 1 receptor (MC1R) gene

- Altered pain sensitivity
- Increased sensitivity to opioids
- Decreased efficacy of local anesthetics
- Higher anesthetic requirements

RESEARCH PAPER  Perez et al  VAA 2017

Relationship between the melanocortin-1 receptor (MC1R) variant R306ter and physiological responses to mechanical or thermal stimuli in Labrador Retrievers
Assessment

- Normal behaviors
- Loss of normal behaviors
- Development of new behaviors
Normal Behavior
Validation of the English version of the UNESP-Botucatu multidimensional composite pain scale for assessing postoperative pain in cats

10 assessment domains

- Blood pressure
- Appetite

Maximum score = 30
Intervention ≥ 7

Brondani et al 2013 BMC Vet Res
Appetite after admission

Zeiler et al 2014 JFMS

Objective Measures

Evaluation of the effects of the hospital visit stress on physiologic parameters in the cat

Heart rate, respiratory rate, blood pressure

Quimby et al 2011 JFMS
Short-form CPS-UNESP-Botucatu

Unpublished work
- Four blocks of questions
- Dynamic and interactive approach
- 12 points (rescue analgesia ≥ 4)
- No physiological variables

Video and real-time assessment
Different types of pain
Eight languages

Definitive Glasgow acute pain scale for cats:
Validation & intervention level

7 Questions
Facial expression
Maximum score is 20
Suggested intervention ≥ 5

Reid et al 2017 Vet Rec www.newmetrica.com
Assessment Domains

01 | Vocalization
02 | Posture
03 | Attention To Wound
04 | Facial Expression
05 | Interaction With People
06 | Response To Palpation
07 | Overall Demeanor

Vocalization

Is the cat:

<table>
<thead>
<tr>
<th>Silent/purring/meowing</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crying/growling/groaning</td>
<td>1</td>
</tr>
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Question 1
Posture

Is the cat:

<table>
<thead>
<tr>
<th>Posture</th>
<th>Score</th>
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<tbody>
<tr>
<td>Relaxed</td>
<td>0</td>
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<td>Licking lips</td>
<td>1</td>
</tr>
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Question 2
Posture

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</tbody>
</table>

Question 2
## Attention to the wound

**Is the cat:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignoring wound or painful area</td>
<td>0</td>
</tr>
<tr>
<td>Paying attention to the wound</td>
<td>1</td>
</tr>
</tbody>
</table>

**Question 3**

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1872
Facial expression: An under-utilized tool for the assessment of welfare in mammals

- Affective states, emotions
- Unlearned, hardwired
- Temporally relevant
- Measurable
- Not suppressed
- Sensitive
Evaluation of facial expression in acute pain in cats

Ear position and tension in the muzzle

Holden et al 2014 JSAP

Question 4

<table>
<thead>
<tr>
<th>EARS</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUZZLE</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Before and After
Adding facial expression to assessment

Misclassification

Original pain scale
- 27%

Definitive scale
- 18%

Feline Grimace Scale
Grimace Scales

“Scoring the face?”

Interventional level for rescue analgesia?

Practical, non-equipment, cost-effective tool for pain recognition to improve treatment standards
FELINE GRIMACE SCALE

Action units
Scores 0-2 for each action unit (four raters)
Training manual

Validity and Reliability of the Feline Grimace Scale

<table>
<thead>
<tr>
<th>ACTION UNITS</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ears</td>
<td>Up</td>
<td>Apart</td>
<td>Flat</td>
</tr>
<tr>
<td>Eyes</td>
<td>Open</td>
<td>Partially open</td>
<td>Squinted</td>
</tr>
<tr>
<td>Muzzle</td>
<td>Relaxed</td>
<td>Mildly tense</td>
<td>Tense</td>
</tr>
<tr>
<td>Whiskers</td>
<td>Loose</td>
<td>Curved</td>
<td>Straight</td>
</tr>
<tr>
<td>Head position</td>
<td>Above</td>
<td>Level</td>
<td>Below</td>
</tr>
</tbody>
</table>
Results

Discriminated painful from non-painful cats

Correlated well with the rCMFS-Glasgow

Inter-observer reliability 0.89 (95 % CI = 0.85-0.92)
Intra-observer reliability 0.91 (95 % CI = 0.81-0.95)
Interaction with people

Approach the cage, call the cat by name and stroke along its back from head to tail.

<table>
<thead>
<tr>
<th>Does it</th>
<th>Respond to stroking?</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is it</td>
<td>Unresponsive?</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Aggressive?</td>
<td>2</td>
</tr>
</tbody>
</table>

Real Life! Don’t try with this cat!
Palpation

If the cat has a wound or painful area, gently apply pressure around the site.

<table>
<thead>
<tr>
<th>Action</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do nothing</td>
<td>0</td>
</tr>
<tr>
<td>Swish tail or flatten ears</td>
<td>1</td>
</tr>
<tr>
<td>Cry/hiss</td>
<td>2</td>
</tr>
<tr>
<td>Growl</td>
<td>3</td>
</tr>
<tr>
<td>Bite/lash out</td>
<td>4</td>
</tr>
</tbody>
</table>

**Question 6**
General Impression

Is the cat:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy and content</td>
<td>0</td>
</tr>
<tr>
<td>Disinterested / quiet</td>
<td>1</td>
</tr>
<tr>
<td>Anxious / fearful</td>
<td>2</td>
</tr>
<tr>
<td>Dull</td>
<td>3</td>
</tr>
<tr>
<td>Depressed / grumpy</td>
<td>4</td>
</tr>
</tbody>
</table>

Question 7
### Which questions show most agreement?

<table>
<thead>
<tr>
<th>BROAD AGREEMENT</th>
<th>DICHOTOMY</th>
<th>BROAD DISAGREEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Attention to wound</td>
<td>1 Vocalization</td>
<td>7 General impression</td>
</tr>
<tr>
<td>4 Muzzle</td>
<td>2 Posture</td>
<td></td>
</tr>
<tr>
<td>5 Response to stroking</td>
<td>6 Response to palpation</td>
<td></td>
</tr>
</tbody>
</table>

### Is it ever straightforward with cats?

1. **Individual temperament and personality**
2. **Fear and stress**
3. **Anesthetic drugs**
**Demeanor score**

![Graph showing demeanor scores over days](image)

**Fear and stress**

<table>
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Image courtesy of Ilona Rodan
Anesthetic drugs

Effects of ketamine and alfaxalone on application of a feline pain assessment scale

Buisman et al 2015 JFMS

Comparisons

Before

After
Clinical application

- Not all cats have a score of 0 before surgery
- Fear, anxiety and stress can look like pain
- Trust yourself and not just the number
- Look for changes

Resources

www.newmetrica.com