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# Development of the short-form Glasgow Composite Measure Pain Scale (CMPS-SF) and derivation of an analgesic intervention score

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## Abstract

*The Glasgow Composite Measure Pain Scale (CMPS) for dogs suffering acute pain, developed using psychometric methodology, measures pain to a level of precision suitable for clinical trials. However, for routine clinical use, where the emphasis is on speed, ease of use, and guidance for analgesia provision, a short form (CMPS-SF) was developed. The CMPS-SF comprises six behavioural categories with associated descriptive expressions (items): vocalisation (4), attention to wound (5), mobility (5), response to touch (6), demeanour (5) and posture/activity (5). Items are placed in increasing order of pain intensity and numbered accordingly. The observer chooses that item within each category which best describes the dog's behaviour and ranked scores are summed; the maximum pain score is 24, or 20 if mobility is impossible to assess. Veterinary surgeons in Glasgow, University College Dublin and North Carolina Veterinary Schools completed the CMPS-SF for 122 dogs undergoing post-operative care and thereafter were asked "Do you think this animal requires analgesia? Yes/No". The population difference in median pain score, for dogs considered to require analgesia (seven) compared with those that did not (three), was highly statistically significant ($P < 0.001$). Consideration of a clinical decision-point for analgesia gave an intervention level of 6/24, and 5/20 when section B (mobility assessment) could not be carried out. Difficulties in recognising pain contribute to the sub-optimal use of analgesics in veterinary practice. The CMPS-SF provides a practical means of assessing acute post-operative pain and provides guidance with regard to analgesic requirement, so improving pain management and welfare. The CMPS-SF can be downloaded from the Glasgow Pain and Welfare website at http://www.gla.ac.uk/vet/painandwelfare.*

**Keywords:** *animal pain, animal welfare, dog, measurement, psychometric*

## Introduction

The Glasgow Composite Measure Pain Scale (CMPS) is a behaviour-based composite scale to assess acute pain in dogs (Holton *et al* 2001). It takes the form of a structured questionnaire completed by an observer following a standard protocol which includes assessment of spontaneous and evoked behaviours, interactions with the animal, and clinical observations. The questionnaire consists of seven behavioural categories: posture, activity, vocalisation, attention to wound or painful area, demeanour, mobility, and response to touch. In each category are grouped a number of words or expressions (items) from which the observer chooses that one in each category which best describes the dog's behaviour. A list of specific definitions for each item helps to ensure consistent use between observers.

Although other composite scales exist for use in animals (Morton & Griffiths 1985; Sanford *et al* 1986; Dodman *et al* 1992; Conzemius *et al* 1997; Hellyer & Gaynor 1998; Firth & Haldane 1999), the CMPS is unique in the field of veterinary medicine by virtue of the fact that it was designed using psychometric principles, which are well established in human medicine for the measurement of complex and intangible constructs such as intelligence, pain and quality of life. The psychometric approach to scale design encompasses an established process of item selection, questionnaire construction and testing for validity, reliability and sensitivity which, in addition to subsequent validation carried out by Morton *et al* (2005), supports the validity of the CMPS to measure pain in a clinical situation. Furthermore, the application of a scaling model to derive weights for the items in the scale allows for measurement to interval level, which is particularly important in quantitative studies of analgesia, for example in clinical research and clinical trials (Morton *et al* 2005). Each item in the scale has a weight assigned to it and the sum of the weights for each single item chosen in each category represents the pain score for the animal.

In clinical veterinary practice, the usefulness of a pain-assessment instrument is markedly enhanced if the score can be linked to an intervention level which is informative as to whether or not an animal requires analgesic treatment.

Additionally, to facilitate its use in a busy practice environment, such an instrument should be short, simple to use and quick to complete. In the psychometric process of scale design, it is common practice to pre-test the prototype instrument to ensure that it is suitable for use by its intended respondents. In the case of the CMPS, more than 500 practicing veterinary surgeons were asked to comment on the items in the scale and suggest additional words which might be appropriate, having scored pain using the CMPS in videotaped dogs with a variety of conditions presumed to be painful.

In this paper we describe the development of a short form of the CMPS and the derivation of an intervention score as a guideline for analgesic treatment, to provide veterinary practitioners using the short form with a clinical decision-making tool, as an adjunct to their clinical judgement.

## Methods

### Development of a short form of the CMPS

The following strategy was adopted to develop the CMPS-SF: to review the categories and items in the original scale (see Appendix), reducing these where possible; to balance the number of items in each category by combining those categories containing few items or by splitting combinations of items where appropriate; to rank the items within each category numerically according to their associated pain severity as defined by Morton *et al* (2005), thereby converting the scale from interval to ordinal in terms of measurement properties; and, to reconfigure the structure of the questionnaire to improve its utility. Additionally, suggestions made during pre-testing were incorporated into the CMPS-SF. All modifications were carried out in accordance with the authors' clinical judgement (AN and JR) and/or feedback from more than 500 veterinary surgeons involved in pre-testing the CMPS and from the work led by Morton (Morton *et al* 2005).

The categories 'posture' and 'activity', containing three and two items respectively, were combined. In the combined category, the item 'neither of these' was removed because it no longer applied, and the word 'unsettled' was added. In the 'vocalisation' category, 'not vocalising/none of these' was changed to 'quiet'. In the 'attention to wound' category, the item 'licking or looking or rubbing its wound' was divided to form three individual items that were placed in increasing order of pain severity as follows: looking – licking – rubbing. In the 'demeanour' category, 'aggressive' was removed because it was considered to be associated more with temperament than with pain, and 'disinterested' was considered similar to 'indifferent' and was removed. 'Quiet or indifferent' was split into two items on the basis that they were thought to be associated with different levels of pain. 'Non-responsive to surroundings' and 'non-responsive to stimulation' were added to 'indifferent' and 'depressed', respectively, to aid interpretation. Finally, 'happy and content' and 'happy and bouncy' were combined to form one item.

In the 'mobility' category, 'none of these' was replaced by 'normal', and 'refuses to move' was added to the list of items. Instructions were added, directing the observer not to carry out the mobility assessment if the animal had spinal, pelvic or multiple limb fractures or if assistance was required to aid locomotion. As a consequence, the term 'assessment not carried out' was removed. In 'response to touch', 'none of these' was changed to 'do nothing', and 'look round' was added. In all categories the items were listed in increasing order of associated pain severity and rank numbers applied accordingly, starting with zero. The original order of the categories in the CMPS was changed to the following to simplify the examination procedure: (i) vocalisation, (ii) attention to wound, (iii) mobility, (iv) response to touch, (v) demeanour, (vi) combined posture and activity. Finally, instructions as to how to use the short-form questionnaire (CMPS-SF) were incorporated into the final design (see Box 1).

### Characterisation of the performance of the CMPS-SF and derivation of an analgesic intervention level score

One hundred and twenty-two dogs that had undergone surgery in Glasgow (43), University College Dublin (43), or North Carolina (36) Veterinary School hospitals were recruited to the study, while undergoing post-operative care. No restrictions were placed on the breed, age or sex of the dogs or on the type of surgical procedure undergone, but all dogs included were sufficiently recovered from the effects of anaesthetic drugs to ensure compliance with the standard examination protocol. Analgesia was provided on an individual basis according to standard hospital practice. Veterinary surgeons carrying out routine post-operative examinations, or responding to the ward nurse's concern that an animal was in pain, were asked to complete the CMPS-SF and thereafter were asked the question "Do you think this animal requires analgesia? Yes/No". Nineteen dogs were not assessed for mobility, and for a further three dogs the analgesic status was not recorded.

The objectives of the study were as follows: (a) to determine whether there were significant differences in pain score across hospitals; (b) to determine whether there were significant differences in the distribution of pain scores for dogs that were considered to require analgesia compared to those considered not to require analgesia; and (c) to identify an optimal intervention level to define the pain score above which a dog would be considered to be in sufficient pain to warrant analgesic therapy.

### Statistical methods

All statistical analyses were carried out using MINITAB version 14 (Minitab Inc, Microsoft Corporation).

#### *Hypothesis testing*

Box plots and descriptive statistics were initially used to gain an impression of how the pain score varied in the different hospitals for dogs considered to require analgesia compared with those considered not to require analgesia. The formal analysis involved Kruskal Wallis, Wilcoxon, Mann-Whitney tests and 95% confidence intervals for medians. Data were not assumed to be normally distributed but equal variances could be assumed.

**Box 1 Short form (CMPS-SF) of the Glasgow Composite Measure Pain Scale.**

## SHORT FORM OF THE GLASGOW COMPOSITE PAIN SCALE

**Dog's name** _____

**Hospital Number** _____ **Date** / / **Time**

**Surgery** Yes/No (delete as appropriate)

**Procedure or Condition**_____

_____

*In the sections below please circle the appropriate score in each list and sum these to give the total score.*

### A. Look at dog in Kennel

*Is the dog?*

| (i) | | (ii) | |
|---|---|---|---|
| Quiet | 0 | Ignoring any wound or painful area | 0 |
| Crying or whimpering | 1 | Looking at wound or painful area | 1 |
| Groaning | 2 | Licking wound or painful area | 2 |
| Screaming | 3 | Rubbing wound or painful area | 3 |
| | | Chewing wound or painful area | 4 |

In the case of spinal, pelvic or multiple limb fractures, or where assistance is required to aid locomotion do not carry out section **B** and proceed to **C**
*Please tick if this is the case* ☐ then proceed to C.

### B. Put lead on dog and lead out of the kennel.

*When the dog rises/walks is it?*

| (iii) | |
|---|---|
| Normal | 0 |
| Lame | 1 |
| Slow or reluctant | 2 |
| Stiff | 3 |
| It refuses to move | 4 |

### C. If it has a wound or painful area including abdomen, apply gentle pressure 2 inches round the site.

*Does it?*

| *(iv)* | |
|---|---|
| Do nothing | 0 |
| Look round | 1 |
| Flinch | 2 |
| Growl or guard area | 3 |
| Snap | 4 |
| Cry | 5 |

### D. Overall

*Is the dog?*

| *(v)* | |
|---|---|
| Happy and content or happy and bouncy | 0 |
| Quiet | 1 |
| Indifferent or non-responsive to surroundings | 2 |
| Nervous or anxious or fearful | 3 |
| Depressed or non-responsive to stimulation | 4 |

*Is the dog?*

| *(vi)* | |
|---|---|
| Comfortable | 0 |
| Unsettled | 1 |
| Restless | 2 |
| Hunched or tense | 3 |
| Rigid | 4 |



**Total Score (i+ii+iii+iv+v+vi) = _____**

**Table 1 Summary statistics of CMPS-SF pain scores recorded in Dublin, Glasgow and North Carolina Veterinary Hospitals from 103 dogs that had undergone surgery.**

| Hospital | Number of dogs | Mean +/– SD | Median | Range | Q1 | Q3 |
|---|---|---|---|---|---|---|
| **Dublin** | 35 | 4.94 +/– 3.05 | 5 | 0 – 13 | 2 | 6 |
| **Glasgow** | 37 | 4.62 +/– 2.98 | 4 | 0 – 10 | 2 | 7 |
| **North Carolina** | 31 | 4.71 +/– 3.23 | 4 | 0 – 11 | 2 | 7 |

SD, standard deviation; Q1 represents the 25th percentile; Q3 represents the 75th percentile.

**Table 2 Summary statistics of CMPS-SF pain scores recorded in Dublin, Glasgow and North Carolina Veterinary Hospitals from 100 dogs that had undergone surgery; 64 were considered not to require analgesia, and 36 were considered to require analgesia.**

| Hospital | Analgesia | Number of dogs | Mean +/– SD | Median | Range | Q1 | Q3 |
|---|---|---|---|---|---|---|---|
| **Dublin** | No | 26 | 4.04 +/– 2.27 | 4 | 0 – 8 | 2 | 6 |
| | Yes | 9 | 7.56 +/– 3.61 | 7 | 2 – 13 | 5.5 | 11 |
| **Glasgow** | No | 20 | 2.40 +/– 1.69 | 2.5 | 0 – 6 | 1 | 3.75 |
| | Yes | 17 | 7.24 +/– 1.79 | 7 | 4 – 10 | 6 | 9 |
| **North Carolina** | No | 18 | 3.11 +/– 2.30 | 3 | 0 – 9 | 1 | 5 |
| | Yes | 10 | 7.90 +/– 2.56 | 8 | 4 – 10 | 6.5 | 10.25 |

SD, standard deviation; Q1 represents the 25th percentile; Q3 represents the 75th percentile.

*Discrimination*

Box plots and descriptive statistics were initially used to gain an impression of how pain score differed for analgesic status. Linear discriminant analysis (a statistical classification procedure) was used to identify the optimal pain score cut-off to maximise the number of dogs correctly assigned to their clinician-allocated group (in need of analgesia, not in need of analgesia).

## Results

### Development of a short form of the CMPS

Combining 'posture' and 'activity' reduced the number of categories from seven in the CMPS to six in the CMPS-SF. With respect to item reduction, four items in the CMPS were removed and two were combined, reducing the number of items by five. However, three new items were added to the CMPS-SF and the splitting of item combinations added a further three items. Accordingly, the CMPS-SF contains one item more than the CMPS. Four of the six categories contain five items, one contains four and the other six (see Box 1).

The observer chooses the single item within each category which best fits the dog's condition and the pain score is the sum of the rank scores of each item chosen. The maximum score for the six categories is 24, or 20 if mobility is impossible to assess.

### Characterisation of the performance of the CMPS-SF

Section B of the questionnaire was omitted for 19 dogs whose physical condition was such that the mobility assessment could not be carried out (eight in Dublin, six in Glasgow and five in North Carolina) and data from these dogs was excluded from the initial analysis. The number of dogs included in the initial analysis was 103.

Summary statistics of the pain scores generated by the CMPS-SF indicated that the distribution of pain scores for all dogs was very similar in each hospital (Table 1; Figure 1). In Dublin the median score was 5 whereas in Glasgow and North Carolina the median score was 4. There was no significant difference between the median pain scores in the three hospitals ($P > 0.9$).

The Yes/No response regarding analgesia requirement was not recorded for three dogs in North Carolina, and so the number of dogs used in analyses involving analgesic status was reduced to 100. Across all three hospitals, the median pain score for dogs that were considered to require analgesia was 7 (range 2–13), whereas for dogs that were considered not to need analgesia the median score was 3 (range 0–9). The population difference in median pain score was highly statistically significant ($P < 0.001$) and a 95% confidence interval for the difference in median score (analgesia – no analgesia) was (3 to 5). This pattern was remarkably similar for each of the individual hospitals (Table 2; Figure 2). The median pain scores for dogs that were considered to require analgesia were 7, 7 and 8, and for dogs that were considered not to need analgesia, the median pain scores were 4, 2.5 and 3 in Dublin, Glasgow and North Carolina, respectively. The population difference in median pain score was highly statistically significant ($P < 0.001$) for all three hospitals and 95% confidence intervals for the difference in median score (analgesia – no analgesia) were (1 to 6) for Dublin, (4 to 6) for Glasgow, and (3 to 7) for North Carolina.

Thus, the simplified scoring scheme for the CMPS-SF showed a statistically significant difference in the mean pain score for dogs considered to require analgesia and those considered not to require analgesia, and the magnitude of the differences was consistent over the three hospitals.

**Table 3 Linear discrimination (with cross validation) based on CMPS-SF pain scores recorded in Dublin, Glasgow and North Carolina Veterinary Hospitals from 100 dogs which had undergone surgery; 64 were considered not to require analgesia, and 36 were considered to require analgesia. The table presents the classification results. n = 100; n correct = 84; proportion correct = 0.840.**

| Summary of classification with cross-validation | | |
|---|---|---|
| | True analgesic group | |
| Put into group | No | Yes |
| No | 54 | 6 |
| Yes | 10 | 30 |
| Total n | 64 | 36 |
| n correct | 54 | 30 |
| Proportion | 0.844 | 0.833 |

### Derivation of the intervention level for analgesia

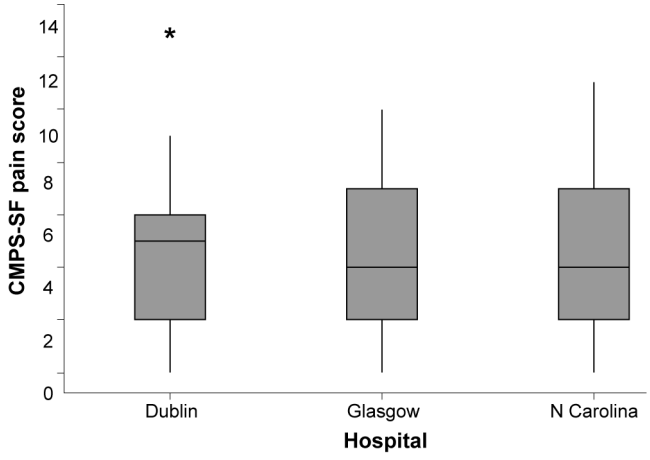
Using linear discriminant analysis (with cross validation) and total score as the predictor, 84% of the dogs were correctly classified for their analgesic status (Table 3). Consideration of a clinical decision-point for analgesia for those dogs for whom mobility could be assessed gave the analgesic intervention level as 6/24 and higher (with misclassification rates of 0.16 and 0.16 for the No and Yes analgesia groups, respectively). A similar analysis, using all variables except mobility (if section B could not be carried out as a result of the animal's physical condition), so that the total score was out of 20 rather than 24, gave an analgesic intervention level of 5/20 and higher.

## Discussion

The alleviation of pain is an essential aspect of good clinical practice and an obligation of veterinary practitioners, a prerequisite of this being the ability to recognise and assess pain in animals. The development of the CMPS by Holton *et al* (2001) was prompted by the need for a valid, reliable and statistically useful measure of pain in animals, and the further application of a scaling model to convert the prototype into an interval level scale (Morton *et al* 2005) gave scope for varied and detailed statistical analyses of pain score results and opportunities for more effective monitoring of acute pain and analgesic efficacy in the clinical research setting. However, such advantages come at the expense of simplicity and are costly in terms of the time required to complete the questionnaire, which might limit the instrument's usefulness in a clinical practice situation. In that setting, pain assessments on the same animal are frequently made by a number of busy veterinary surgeons and nurses, of variable experience, for whom the main criterion is not the pain score *per se*, but rather how that score might be informative as to whether or not the animal requires analgesic treatment. There are, therefore, good reasons for simplifying the scale where possible, ensuring that it can be completed in as short a time as possible, and defining an intervention level for analgesic administration.

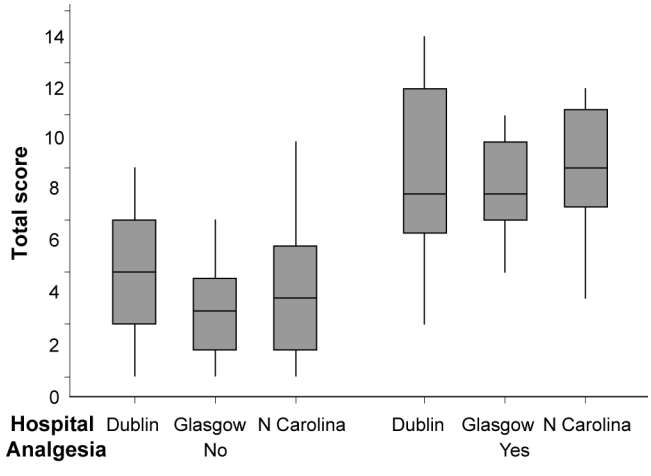
Short forms of pain measurement instruments used in man have been developed, and a common strategy is to restrict the number of items in the questionnaire to those most commonly used by respondents in a variety of painful conditions (which implies that the original questionnaire contains some redundancy). This was the approach adopted by Melzack (1987) in the development of the short form of the McGill Pain Questionnaire, on which the original CMPS

**Figure 1**




Box and whisker plot of pain scores obtained by the use of the CMPS-SF in 103 dogs that had undergone surgery in Glasgow (37), Dublin (35) and North Carolina (31) Veterinary School hospitals. Each box is the interquartile range; the horizontal line within each box is the median. Whiskers represent the range excluding outliers. The asterisk represents an outlier. The distribution of pain scores was very similar in each hospital, and there was no significant difference between the median pain scores in the three hospitals.

**Figure 2**




Box and whisker plot of pain scores obtained by the use of the CMPS-SF in 36 dogs that were considered to require analgesia (Yes) and 64 dogs that were not (No) in Glasgow, Dublin and North Carolina Veterinary School hospitals. Each box is the interquartile range; the horizontal line within each box is the median. The results showed a statistically significant difference in the mean pain score for dogs considered to require analgesia and those considered not to require analgesia, and the magnitude of the differences was consistent over the three hospitals.

was modelled. However, during the development of the CMPS, items deemed to be redundant were excluded, and so the approach of Melzack (1987) was considered unlikely to be effective. Instead, the shortening of the CMPS consisted primarily of measures taken to reduce the time taken to complete the questionnaire, so increasing its usefulness. Although five items were removed, six were added, making a net increase of one item in the CMPS-SF compared with the CMPS. According to Landgraf and Abetz (1996), a useful clinical instrument must not only be valid, reliable and responsive, but also be 'practical and easy to administer, score and interpret'. Even if an instrument is valid and reliable, it may not be useful if it requires lengthy training, if it is time-consuming to administer, or if scoring is complex (Streiner 1993). Accordingly, it was decided to use a ranking system for the items in each category since this would simplify the scoring process and shorten the time taken to complete the questionnaire. Substitution of a rank number for the calculated weight converts the scale from interval to ordinal in nature, with a consequent decrease in level of precision. Interval level measurement provides more precise measurement, which is necessary for research purposes, hence its use in the CMPS. However, an ordinal scale was considered to have sufficient precision for the clinical purpose for which this instrument was being designed. The use of a ranking system can introduce some indirect weighting to the scale when there is an unequal number of items in each category. In the CMPS the category 'demeanour' contains seven items which would have ranked scores zero to six, assuming that 'happy and bouncy' would represent no pain, and the maximum score would be six. By comparison, 'comfort' contains only two items so the maximum score in this category would be one, yet demeanour is not known to be more important than comfort when measuring pain (Holton 2000). It was to minimise this bias that the number of items in each category was balanced as much as possible by combining those categories containing few items or by splitting combinations of word descriptors where appropriate, within each category. During the development of the CMPS the individual words in each combination (quiet/indifferent; licking/looking/rubbing) had been allocated the same weight, but the authors felt justified in splitting these and allocating ranked scores on the basis of clinical experience. These processes resulted in the CMPS-SF being better balanced in terms of number of items per category than the CMPS; CMPS-SF — six categories, four of which contain five items, one contains four items, and one contains six items; CMPS — seven categories, one category with seven items, two with five, one with four, two with three and one with two.

Videotaped data collected by Fox *et al* (2000) of canine behaviour following ovariohysterectomy demonstrated that pain modifies both spontaneous and interactive behaviour and thus accurate pain assessment must take account of both. Consequently, it was decided to retain the examination protocol devised for the CMPS. However, it was felt that the original mobility category was ambiguous in that 'assessment not carried out' did not make clear whether the animal elected not to move or if it was incapable of movement, or if movement was contraindicated for medical reasons. To resolve this confusion, 'refuses to move' was substituted for 'assessment not carried out' and the observer was instructed to omit the mobility assessment in those cases where moving the animal was contraindicated. Accordingly the total score for such animals is reduced by four, and although this would be likely to cause problems with statistical analysis in a group of dogs containing both mobile and immobile dogs, it was considered a satisfactory solution for the clinical purpose for which the CMPS-SF was designed.

Pre-testing and consideration of the layout of the categories in the CMPS indicated that its design was not optimal in terms of efficiency of use. Accordingly the order of items in each category was reversed and the categories were rearranged so that the CMPS-SF consisted of four distinct sections, A, B, C and D. 'Vocalisation' and 'attention to wound' are concerned with the animal's spontaneous behaviour and comprise section A, while in sections B and C, 'mobility' and 'response to touch' are interactive. It was considered that 'demeanour' and the combined 'posture' and 'activity' categories would best represent the observer's overall impression of the dog's well-being and so should be scored last (section D).

In non-verbal patients the difficulties of pain assessment are magnified, because the lack of effective communication means that assessment relies on the recognition and interpretation of behavioural signs by an independent observer; inter-observer variability has been shown to be unacceptable for the visual analogue scale when used to assess pain in the dog (Holton *et al* 1998). The problem of inter-observer variability has been addressed during the development of tools to monitor other functions such as the level of consciousness, notably in the widely recognised Glasgow Coma Scale (GCS) (Teasdale & Jennett 1974). This is a scale that focusses on three different aspects of behavioural response. The universality of the scale depends on identifying responses that can be clearly defined, and this was the approach adopted for the CMPS. Clear and specific definitions of each item used in the scale were provided for the user of the questionnaire. However, reference to the list of definitions added considerably to the time taken to complete the questionnaire; therefore, because all of the words had dictionary definitions and were in general use, it was decided to omit the definitions from the CMPS-SF. This and the other steps taken to streamline the questionnaire reduced the time taken to complete it from over 10 min for the CMPS to approximately 2 min for the CMPS-SF. However, removing the definitions may have affected the reliability with which different observers used the instrument. Additionally, two factors may have introduced bias to the intervention study: the fact that the same person generated the pain score and assessed whether or not the dog required analgesia; and the fact that some dogs were included in the study because the ward nurse believed them to be in pain. This may have affected the clinicians' judgement as to whether or not an animal required analgesia. However, this

work was carried out on a mixed population of dogs, undergoing a variety of surgical procedures, scored by a large number of observers, and the fact that the CMPS-SF was used consistently across the three hospitals and that the intervention level score was similar for each hospital supports the usefulness of the CMPS-SF. This assessment tool should be considered a working prototype, and future studies should test its validity and reliability against an objective measure of pain. Although no objective measure of pain exists, detailed behavioural analysis using videography could be used to test the validity of the CMPS-SF. In addition to validity and reliability, key properties of useful pain assessment instruments are sensitivity and responsiveness to the change brought about by analgesic treatment. Further longitudinal studies are required to explore sensitivity and responsiveness to change, while assessment of the inter-observer reliability would be a natural next step in validating the CMPS-SF.

### Animal welfare implications

The alleviation of pain is an integral part of the veterinary surgeon's duty of care towards his/her patients, in order to ensure good welfare. Despite the fact that the importance of providing effective pain management for small animals, particularly during the peri-operative period, is being increasingly accepted by the veterinary profession, recent surveys of peri-operative analgesic provision in small animals suggest that the use of analgesic drugs in small animal veterinary practice is sub-optimal (Lascelles *et al* 1995; Dohoo & Dohoo 1996; Capner *et al* 1999; Hugonnard *et al* 2004; Williams *et al* 2005). Difficulties in recognising pain were cited as one of the major causes for withholding analgesics in some of these studies (Dohoo & Dohoo 1996; Capner *et al* 1999; Hugonnard *et al* 2004; Williams *et al* 2005), with respondents stating that they did not feel confident in their abilities to recognise and assess pain in animals. The CMPS-SF provides the veterinary surgeon in general practice with a tool which may facilitate the assessment of acute pain and also provide initial guidance with regard to analgesic requirement, so improving pain management and welfare. The authors consider that this instrument should not constitute the sole method for determining when an animal needs analgesic therapy; it should, rather, be part of the overall assessment of a patient's need for pain control, used in conjunction with clinical judgment. No animal should be denied analgesic therapy on the basis of this instrument alone.

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## Appendix

### The Glasgow Composite Measure Pain Scale

The questionnaire is made up of a number of sections each of which have several possible answers. Please tick the answer that you feel is appropriate to the dog you are assessing. Approach the kennel, ensure you are not wearing a laboratory coat or theatre 'greens' as the dog may associate these with stress and/or pain. While you approach the kennel look at the dog's behaviour and reactions. From outside the dog's kennel look at the dog's behaviour and answer the following questions.

Look at the dog's posture, does it seem...
- Rigid
- Hunched or Tense
- Neither of these

Does the dog seem to be...
- Restless
- Comfortable

If the dog is vocalising is it...
- Crying or Whimpering
- Groaning
- Screaming
- Not vocalising/none of these

If the dog is paying attention to its wound is it...
- Chewing
- Licking or Looking or Rubbing
- Ignoring its wound

Now approach the kennel door and call the dog's name. Then open the door and encourage the dog to come to you. From the dog's reaction to you and behaviours when you were watching him/her assess his/her character.

Does the dog seem to be...
- Aggressive
- Depressed
- Disinterested
- Nervous or Anxious or Fearful
- Quiet or Indifferent
- Happy and Content
- Happy and Bouncy

Now look at the dog's response to stimuli. If the mobility assessment is possible then open the kennel and put a lead on the dog. If the animal is sitting down encourage it to stand and then come out of the kennel. Walk slowly up and down the area outside the kennel. If the dog was standing up in the kennel and has undergone a procedure which may be painful in the perianal area, ask the animal to sit down.

During this procedure did the dog seem to be...
- Stiff
- Slow or Reluctant to rise or sit
- Lame
- None of these
- Assessment not carried out

The next procedure is to assess the dog's response to touch. If the animal has a wound, apply gentle pressure to the wound using two fingers in an area approx. 2 inches around it. If the position of the wound is such that it is impossible to touch, then apply the pressure to the closest point to the wound. If there is no wound then apply the same pressure to the stifle and surrounding area.

When touched did the dog...
- Cry
- Flinch
- Snap
- Growl or Guard wound
- None of these