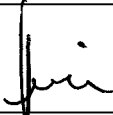





SOP #: 605.01

Title: **SOP -** Assessment of Post-Procedural Pain Using a Scoring System

Approvals:

Attending Veterinarian  Date: 10/11/12

Assistant Director LAR  Date: 10/11/12

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1. Purpose

- 1.1 The Animal Welfare Act (Title 9 C.F.R), U.S. Public Health Service Policy for Humane Care and Use of Animals (PHS 1986) and the policies of the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC International) require that veterinarians and animal users identify and eliminate sources of pain and distress.
- 1.2 Consistent evaluation of post procedural pain is often not rigorous, especially when large groups of animals are involved. Animals in pain behave in different ways depending upon the species. A reliable method of pain assessment allows an appropriate analgesic regimen to be used and effectively evaluated.
- 1.3 Developing a Numerical Rating Systems/Visual Analogue Scales (No Pain to Worst Pain): will attempt to quantify Clinical Impressions. The pain scoring system is intended to serve as guidelines in assessing the pain of the animals at Florida International University.

2. Responsibility

- 2.1 Veterinary Care Staff, Principal Investigators

3. Definitions

- 3.1 Bruxism = is characterized by the grinding or clenching of the teeth.
- 3.2 Incision Seeping = defines the presence of an abnormal amount and/or character of fluid.

3.3 Pain = is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, and described in terms of such damage". (The International Association for the Study of Pain)

3.4 Porphyrin Staining = release of the porphyrin pigment from the harderian gland in rodents, located at the back of the eye. Porphyrin staining may appear as brownish-red crusting around the eyes and nose. Transfer of the porphyrin stain during the grooming process may also result in red-brown staining over the back of the shoulders. In rats, porphyrin staining may also be an indication of pain or distress.

#### 4. Guidelines

##### 4.1 Assessed Parameters:

4.1.1 Activity: Overall activity level will generally decrease with pain. Some animals may show restlessness (pacing in cage) or agitation.

4.1.2 Appearance: Animal may be hunched, have a rough hair coat, have discharge around eyes and nose (i.e. porphyrin staining in rats may indicate stress from pain) or be recumbent.

4.1.3 Temperament: Animal may become more aggressive (biting, scratching); it may shy away from being handled or it may become apathetic.

4.1.4 Vocalizations: An animal in pain may make auditory noises (teeth grinding) while undisturbed in cage or when being handled.

4.1.5 Feeding Behavior: Water and food intake is often decreased when an animal is in pain. A reduction in body weight, hydration, urine or feces may be measured.

4.1.6 Physiological Changes: Respiration rate and pattern, blood pressure, pulse, heart rate, skin color and body temperature can all be changed considerably from normal when an animal is in pain.

4.1.7 Appearance of Surgery Site: Erythema, or swelling of tissue around incision and discharge may indicate pain in an animal; animal may show excessive licking and/or chewing at incision site if it is painful.

##### 4.2 Assessment Frequency:

4.2.1 After painful procedures, as needed.

##### 4.3 Pain Score System: Examples

4.3.1 Rodents - Following abdominal surgery: When assessing the pain in rodents, remember that rodents are nocturnal animals. The scoring system could be more accurate when the animals are assessed when active.

#### 4.3.2 Body Weight: – based on pre-study values

- 0 = <5 % decrease
- 1 = 6 - 10 % decrease
- 2 = 11 - 20 % decrease
- 3 = 21 - 25 % decrease
- 4 = > - 25 % decrease

#### 4.3.3 Porphyrin Staining

- 0 = none
- 1 = mild
- 2 = moderate
- 3 = severe

#### 4.3.4 Appearance

- 0 = normal
- 1 = huddled, mild piloerection, moves when stimulated
- 2 = huddled, moderate pilo-erection, reluctant to move
- 3 = huddled, ungroomed, severe piloerection, no movement or moribund

#### 4.3.5 Incision Swelling and Heat

- 0=none
- 1=mild
- 2=obvious

#### 4.3.6 Incision Seeping

- 0 = none
- 1 = mild
- 2 = obvious

#### 4.3.7 Palpation

- 0= none
- 1= mild (discomfort)
- 2= moderate (struggles)
- 3= severe pain (tries to bite, tries to escape)

#### 4.3.8 Body Temperature

- 0=normal
- 1=mild elevation
- 2= elevated

#### 4.3.9 Interpretation

4.3.9.1 Interpretation of the pain score and the use of an analgesic protocol will be done after consulting the Principal Investigator and the Attending Veterinarian.

#### 4.3.10 Example:

4.3.10.1 Score 0-3: No intervention

4.3.10.2 Score 4-9: Administer buprenorphine – 1 dose, and re-evaluate the pain score.

4.3.10.3 Score 10-19: Administer buprenorphine – 1 dose and re-evaluate pain score in 1 hour. If pain is not controlled, administer NSAIDs such as Meloxicam (1-2 mg/kg q 24 hours) and reevaluate in 1 hour. If still not controlled the animal might need to be euthanized. If pain is controlled after the above treatments, re-evaluate at 6 hours and administer second dose of buprenorphine at 8 hours following first dose. Re-evaluate pain score at 12 hours after second dose. If pain is controlled, continue with 2 or more doses of buprenorphine over 24 hours. Discontinue at 48 hours after first dose and re-evaluate pain score.

4.3.10.4 In general, the higher the score the higher the dose (or frequency) of analgesics. A higher score or a score that does not change after analgesic therapy may indicate that a different analgesia may be necessary, or that the animal should be euthanized.

#### 4.3.11 Limitations of the Scoring System

4.3.11.1 Highly subjective selection of assessment criteria.

4.3.11.2 Lack of agreement between observers.

4.3.11.3 Poor reproducibility with same observer.

4.3.11.4 Poor predictive value.

4.3.11.5 Difficult to score rodents

## 5. References

5.1 The Guide for Care and Use of Laboratory Animals 8<sup>th</sup> Edition (NRC 2011).

5.2 Paul Flecknell -Medical School, Comparative Biology Centre, Framlington Place, Newcastle, U.K: *Reassessing our use of analgesics* -. (Abstract presented at The 32nd Scand-LAS Annual Symposium and Educational Days, Gardermoen, Norway 18th - 21st April 2002)

5.3 Elisa French, BS, LATg; Sue VandeWoude, DVM; Julia Granowski, AA, LAT; Don Maul, DVM, MS; (Laboratory Animal Resources, Colorado State University, Ft. Collins, CO 80523) *Assessment of Pain in Laboratory Animals* (Presented at 2000 National AALAS meeting, San Diego CA, 11/5-9/00 Contemporary Topics 39:85, 2000)

5.4 Recognition and Alleviation of Pain and Distress in Laboratory Animals-Committee on Pain and Distress in Laboratory Animals, Institute of Laboratory Animal Resources, Commission on Life Sciences, National research Council (national academy Press, Washington, D.C. 1992)