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## Pain & Distress - Assessment and Categorization

### POLICY:

Oregon State University is committed to protecting the welfare of animals associated with the institution's Animal Care and Use Program. It is our policy to enhance animal well-being, and eliminate or otherwise minimize any pain and/or distress to mild and momentary levels with available methods. All exceptions to this policy require scientific justification, review and approval by the IACUC.

Related regulations, guidelines, & reference resource links can be found below. Please note these may be revised periodically.

- [Animal Welfare Act Regulations \(9 CFR 2.C.2.36.b.5\)](#)
- [USDA-APHIS Animal Care Policy Manual](#), Policy #11: Painful and Distressful Procedures
- [PHS Policy on Humane Care and Use of Animals](#)
- [AVMA Guidelines for the Euthanasia of Animals, 2013](#)
- [Guide to the Care and Use of Laboratory Animals, 2011](#)
- [Guide to the Care and Use of Agricultural Animals in Research & Teaching, 2010](#)
- AAALAC-approved [taxon-specific resources for wildlife and non-traditional species](#) (where no conflicts exist with the resources listed above)

The intent of the following **Guideline** is to assist Principal Investigators (PIs) in Animal Care & Use Protocol (ACUP) preparation, response to Pain & Distress during activities, and retrospective reporting.

### PI responsibilities:

1. Perform a good-faith literature search to identify available methods of eliminating or reducing pain and distress in light of scientific objectives
2. Consult with the Attending Veterinarian (AV), or designee, on species-specific recognition and alleviation of pain & distress; study endpoints; humane endpoints
3. Assign animals prospectively to the highest pain and/or distress (P/D) category that they are likely to experience during ACUP activities
4. Train participants on ACUP-specific animal procedures, animal monitoring, and indicators of species-specific pain and distress
5. Train participants on steps to take when animal pain and/or distress is recognized, whether it's expected or not
6. Promptly notify the Attending Veterinarian (or designee) and the IACUC office when:
  - pain and/or distress is recognized and not expected or described in the approved ACUP
  - more animals experience pain and/or distress than those described in the approved ACUP

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7. Assign animals retrospectively to the highest pain and/or distress category experienced during ACUP activities for annual reports to the IACUC and oversight agencies

Determination of pain, distress, or discomfort in animals can be subjective. To minimize variability, objective clinical and behavioral scoring systems should be used by trained participants whenever possible. When this is not possible, PIs must consider that any procedures that would cause pain or distress in humans may cause pain or distress in other animals.

ACUP procedures designed to identify, assess, and mitigate P/D must be carried out preemptively as directed, and promptly when otherwise identified. When an animal experiences P/D that is not already described and justified within the approved ACUP, the Attending Veterinarian (or designee) must be consulted promptly. Veterinary consult measures, including euthanasia, must be implemented. Changes to the ACUP must be submitted to the IACUC when applicable.

ACUP-related documents provide additional guidance, such as the Laboratory Animal Resources Center ([LARC](#)) guideline on Experimental and Humane Endpoints, and the IACUC Policy & Guidelines for [Death as an Endpoint](#).

### **Pain and Distress Definitions**

While the ability of animals to experience pain is not completely understood, all animals should be considered capable of experiencing pain unless the contrary has been established.

#### *Distress:*

A state in which an animal is unable to escape from, or adapt to stressors. Normal function is disrupted, and animal well-being is compromised.

#### *Pain:*

A noxious or aversive stimulus that would reasonably be expected to cause more than slight or momentary P/D in a human under the same conditions.

### **Category Definitions & Examples**

The categories below list USDA-APHIS-Animal Care pain & distress categories used for institutional reporting. The *italicized definitions* are copied directly from USDA definitions.

#### **Category C:**

*Animals used in teaching, research, experiments, or tests which involve no pain, distress, or use of pain-relieving drugs.*

ACUP activities categorized as C include those in which animals experience no more than mild or momentary P/D, and appear to be otherwise comfortable.

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**Note:** According to guidance used in the NIH intramural program, zebrafish up to 7 days post-fertilization (dpf) are not considered to be capable of experiencing pain or distress; thus, zebrafish used up to this stage can be categorized as C, regardless of proposed use. The animal use category for zebrafish larvae  $\geq 8$  dpf should be based on the assumption that larvae may feel pain and/or distress.

Examples:

Observations; most AVMA-approved euthanasia methods; most peripheral injections, fluid collections, and catheter placements; most procedures associated with livestock husbandry; most live-trapping and marking; food restrictions allowing for acclimation and minimal weight loss; engineered phenotypes that are not expected to cause congenital pain/distress; mild and transient clinical signs during tumor and infection studies; etc.

If animals require sedation, anesthesia, and/or analgesia in order to maintain comfort or reduce potential distress, then those animals should be categorized in “D”.

**Category D:**

*Animals used in teaching, research, experiments, or tests which involve accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.*

*A painful procedure is defined as “any procedure that would reasonably be expected to cause more than slight or momentary pain or distress in a human being to which that procedure is applied, that is, pain in excess of that caused by injections or other minor procedures”.*

Animals that undergo ACUP activities which cause more than momentary or slight P/D and are either (1) treated pre-emptively to prevent, or (2) treated promptly to relieve that pain and/or distress.

These animals are monitored and would receive appropriate and timely administration of anesthetics, analgesics, medications, treatments, refinements, and euthanasia to eliminate P/D or cap it at mild and transient levels.

Examples:

Appropriately treated major and minor surgical procedures; use of pharmacologic agents to prevent pain, distress, and/or injury to self; laparoscopy; biopsy; endpoints that avoid persistent negative effect on health and well-being; etc.

Category D animals **not** afforded appropriate and timely treatment(s) to prevent and/or relieve pain & distress as described in the ACUP requires:

1. Prompt communication with the Attending Veterinarian

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2. Submission of an Incident Report to IACUC, if not described in the ACUP
3. Retrospectively listing those animals in Category E on the Annual Reports

**Category E:**

*Animals used in teaching, research, experiments, or tests which involve accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would adversely affect the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests.*

Category E includes animals that experience pain & distress related to ACUP activities that are not relieved with timely and appropriate treatments such as anesthetics, analgesics, medications, refinements, monitoring, or euthanasia.

Category E also includes animals that are maintained in a morbid state without treatment or relief for a period of time in order to reach a later endpoint.

Descriptions of Category E activities must include enough detail for a layperson to both (1) recognize the cause of pain or distress, and (2) understand the associated scientific justification for allowing that condition.

Descriptions of Category E activities that are mandated by federal regulations (some types of testing may apply) must provide a full explanation as stated above, and include a specific reference to the agency and mandate that applies.

Examples:

Toxicological or infectious testing/research that results in persistent, moderate-to-severe clinical alterations; experience of noxious stimulation that an animal cannot avoid or escape; exposure to extreme environmental conditions; induced paralysis of a conscious animal; engineered phenotype that causes unalleviated pain/distress; prey in predator/prey studies; death as an experimental endpoint; clinical disease allowed to progress to moribundity; LD50 studies; etc.