# University of Maine Application of United States Department of Agriculture (USDA) Pain Category Classification Levels and Examples

Adapted from the USDA Policy (Animal Welfare Act Section 2143):

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.” The Institutional Animal Care and Use Committee (IACUC) is responsible for ensuring that investigators have avoided or minimized discomfort, distress, and pain to the animals; appropriately considered alternatives to any procedures that may cause more than slight or momentary pain or distress; and consulted with the attending veterinarian in the planning of the procedures.

|  | **USDA Category B** | **USDA Category C** | **USDA Category D** | **USDA Category E** |
| --- | --- | --- | --- | --- |
| **Explanation** | *Husbandry and maintenance:*  Animals being bred, conditioned, or held for use in teaching, experiments, research, or surgery, but not yet used for such purposes | *No pain or distress:*  Animals upon which teaching, research, experiments, or tests will be conducted involving no pain, distress, **or** use of pain-relieving drugs.  NOTE: The IACUC can allow pharmaceutical or other approved means of tranquilization or sedation for the purposes of handling. | *Potentially significant pain or distress that is adequately relieved:* Animals upon which experiments, teaching, research, surgery, or tests will be conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs will be used | *Unrelieved pain or distress:*  Animals upon which teaching, experiments, research, surgery, or tests will be conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs will adversely affect the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests |
| **Examples** | 1. Animals (including breeders, offspring that cannot be used because of improper genotype1 and/or gender) being maintained without any research manipulation, prior to euthanasia or use in a protocol. 2. Animals maintained for use in teaching or demonstration activities that only entail display 3. Routine husbandry procedures for above animals, including brief physical restraint and preventive medical procedures (e.g., vaccination, insemination, conditioning for handling purposes)   1*If tail snips are collected to genotype the animals, Category B is not appropriate.* | 1. Holding, weighing, measuring, or transporting animals (under non-stressful conditions) 2. Injections (nonirritating), blood collection or catheterization of superficial vessels 3. Cutaneous or subcutaneous marking or tagging (shaving, tattoo, elastomer, subcutaneous PIT tag [Passive Integrated Transponder] injection). Sampling of superficial tissues: ear punching of rodents, hair or feather removal, fin clips, scale removal 4. Routine physical examinations 5. Observation of animal behavior or performance in response to benign stimulus or conditions 6. Studies, which do not result in clinical signs of pain and/or distress 7. [Animal Veterinary Medical Association (AVMA)](https://www.avma.org/resources-tools/avma-policies/avma-guidelines-euthanasia-animals) approved humane euthanasia procedures 8. Routine agricultural husbandry procedures (excluding surgical) 9. Live trapping or netting (where injury or mortality is unlikely) 10. Training or behavioral conditioning of animals as part of study design 11. Noxious electrical or environmental stimuli (e.g., sound, light, smell) that are avoidable or immediately escapable (e.g., electrical exclosures or pest deterrents) | 1. Potentially stressful transportation of animals that requires tranquillization 2. Survival/terminal surgical procedures (in lab, wild or agricultural species) 3. Retro-orbital blood collection under anesthesia 4. Tail biopsy in mice 21 or more days old 5. Toe-clipping in amphibians 6. Exposure of blood vessels for catheter implantation 7. Exsanguination and/or perfusion under anesthesia 8. Genetically engineered phenotype that causes pain or distress that will be alleviated. 9. Use of Freund’s Complete Adjuvant 10. Ocular and Skin Irritancy testing where pain and distress are relieved 11. Radiotransmitter implantation 12. Field sampling requiring brief pain or distress (electrofishing, hook and line, net guns, mist nets, short-set gillnets) 13. Any post procedural outcome resulting in evident pain, discomfort or distress such as that associated with:     * decreased appetite/ activity level     * adverse reactions to touch     * open skin lesions     * abscesses     * lameness     * conjunctivitis     * corneal edema, or     * photophobia   but are relieved with analgesics   1. Food or water deprivation beyond that necessary for normal presurgical preparation 2. Noxious electrical or environmental stimuli (e.g., sound, light, smell) that are escapable but not always avoidable or immediately escapable). 3. Paralysis or immobility in a conscious animal | 1. Ocular or skin irritancy testing 2. Burns or trauma 3. Radiation sickness 4. Toxicological or microbiological testing, cancer research or infectious disease research that requires continuation until clinical symptoms are evident or death occurs. Experiment induction of disease (i.e., Diabetes, Epilepsy, Parkinson’s, etc.) including metabolic and nutritional diseases or disease resulting from exposure to toxicants 5. Mutants with chronic pain or debilitation which is not relieved with analgesics or by appropriate intervention. 6. Food or water deprivation that exceeds ordinary pre-surgical preparation or is stressful to the animal 7. Application of noxious stimuli (e.g., electrical shock, loud sound, bright light) that cannot be avoided or escaped. 8. Restraint using paralyzing or immobilizing drugs without anesthesia or prolonged restraint for long periods of time (days to weeks) 9. Exposure to extreme environmental conditions likely cause pain or distress 10. Psychotic-like behavior suggesting a painful or distressful status whether or not resulting from a procedure 11. Behavior or testing resulting in injury to cage mates or self 12. Studies in which animals are allowed to die without intervention (e.g. LD50, mortality as an end-point), 13. Studies that depend upon or could produce chronic pain or stress that is not relievable (i.e., addictive drug withdrawals without treatment, pain research) 14. Any procedures for which needed analgesics, tranquilizers, sedatives or anesthetics must be withheld for justifiable study purposes. 15. Trapping, netting or other capture procedures where unattended death of some or all individuals is probable under expected conditions (e.g., long-set gill nets, trot lines, winter small mammal trapping) 16. Euthanasia by procedures not approved by the [Animal Veterinary Medical Association (AVMA)](https://www.avma.org/resources-tools/avma-policies/avma-guidelines-euthanasia-animals) |

The USDA continues to recommend a database search as the most effective and efficient method for demonstrating compliance with the requirement to consider alternatives to painful/distressful procedures (Categories D or E). However, in some circumstances (as in highly specialized fields of study), conferences, colloquia, subject expert consultants, or other sources may provide relevant and up-to-date information regarding alternatives in lieu of, or in addition to, a database search. Sufficient documentation, such as the consultant’s name and qualifications and the date and content of the consult, should be provided to the IACUC to demonstrate the expert’s knowledge of the availability of alternatives in the specific field of study. For example, an immunologist cited as a subject expert may or may not possess expertise concerning alternatives to *in vivo* antibody production.

When a database search is the primary means of meeting this requirement, the narrative should include: 1) the name(s) of the databases searched (due to the variation in subject coverage and sources used, one database is seldom adequate); 2) the date the search was performed; 3) the time period covered by the search; and 4) the search strategy (including scientifically relevant terminology) used.

The Animal Welfare information Center (AWIC) is an information service of the National Agricultural Library specifically established to provide information about alternatives. AWIC offers expertise in formulation of the search strategy and selection of terminology and databases, access to unique databases, on- and off-site training of institute personnel in conducting effective alternatives searches, and is able to perform no-cost or low-cost electronic database searches. AWIC can be contacted at (301) 504-6212, via email at [awic@nal.usda.gov](mailto:awic@nal.usda.gov), or via the [AWIC website](https://www.nal.usda.gov/awic).