Shepherd University
Animal Use and Care Policy

Introduction

Shepherd University expects a commitment not only to the pursuit of academic excellence, but also honesty, truth, integrity, and the highest standards in all endeavors. In accordance with these expectations the University expects that any associated activities are conducted with the highest ethical standards. The University policy on activities involving the use and care of laboratory animals and wildlife in teaching and research is designed to fully comply with the federal regulations governing such work.

This document is intended to educate and assist Shepherd University faculty, students, and staff in preparing and submitting protocols involving live vertebrate animals for review by the Institutional Animal Care and Use Committee (IACUC) and to provide guidelines for the subsequent conduct of those protocols. The IACUC Guidelines, which serve as the official governance document for the care and use of live vertebrates at Shepherd, reflect the Animal Welfare Act (Public Law 89-544, 1966; as amended P.L. 91-579, P.L. 99-198); the PHS Policy on Humane Care and Use of Laboratory Animal (NIH Guide for Grants and Contracts, Vol. 14, No. 8, June 25, 1985, revised September 1986); the NIH Guide for the Care and Use of Laboratory Animals (1996); and the Guidelines, and the USDA Implementing Regulations of the Animal Welfare Act (9CFR, Part 1, 2, 3; January 1, 1992; l and 9CFR, Parts 1, 2; July 22, 1993). While certain rodents and invertebrates are not covered by the Animal Welfare Act, the Public Health Service Policy included as part of the Health Research Extension Act of 1985 details specific regulations regarding the care and use of ***all live vertebrate animals*** (mice, rats, birds, reptiles, amphibians, fish, etc.) used in research, testing, and education. Under this policy these animals are provided the same protections given to primates, cats, dogs, and marine mammals under the Animal Welfare Act. Shepherd University is committed to the humane use of animals in research and teaching. In support of this commitment Shepherd will apply for and maintain Category 2 Institutional status as described by the PHS Policy on Humane Care and Use of Laboratory Animals.

1.0 History of Protection of Animals in Research

Modern organizations and laws dedicated to the protection of animals in research can be traced to Great Britain in 1876 when the Cruelty to Animals Act of 1849 was amended to limit the use of animals in research. In the United States a number of antivivisection groups founded in the late 1800s tried to outlaw vivisection but were eventually successful in ensuring that legislation outlawing repeating painful animal experiments in teaching and demonstrations was passed.

Passage of the Pure Food and Drug Act in 1906 resulted in an increase in animal testing by manufactures to demonstrate the safety of the ingredients in certain products and in 1938 the Federal Food, Drug, and Cosmetic Act was passed that contained requirements for animal testing of products. The testing requirements were modified over time to require testing in multiple species, longer testing intervals, and to monitor the effects of drugs on reproduction and fetal development. Following some widely publicized incidents where dogs, some of which were family pets, were used in research studies the Laboratory Animal Welfare Act, applying to dogs, cats, primates, guinea pigs, hamsters, and rabbits, was passed in 1966 and mandated regulation of laboratory animals and required animal dealers to be licensed. The Act was amended to cover additional animal species in 1970 and renamed the Animal Welfare Act (AWA) and in 1971 the

U.S. Department of Agriculture (USDA), the agency charged with overseeing the AWA, excluded small research animals (i.e., rats and mice) on the premise that there was inadequate staffing to regulate these animals used at research institutions that would have appropriate policies in place. The AWA was amended again in 1985 to address the physical and psychological well-being of primates and dogs in research and to require that when possible animal pain and distress were minimized through the use of analgesics, anesthetics, and humane euthanasia and in a 1990 amendment horses and other farm animals were brought under the protection of the AWA.

While the USDA removed laboratory animals from their oversight, the Health Research Extension Act of 1985 (Public Law 99-158) mandated that the National Institutes of Health (NIH) would be responsible for establishing guidelines for the proper care of animals in biomedical and behavioral research. This Act requires that animal care committees be established to ensure the proper care and treatment of animals used in research. These policies provide the foundation and governing regulations for animal use and care in research settings. The Office of Laboratory Animal Welfare (OLAW) has been tasked with the administration and coordination of NIH policies regarding animal use and care.

In response to an increase in damage and destruction to research facilities the Animal Enterprise Protection Act of 1992 (Public Law 102-346) was passed. This law prohibits "animal enterprise terrorism" and attempts to prevent the disruption of the following:

- Commercial or academic enterprises using animals to produce food or fiber or for agriculture, research, or testing
- Zoos, aquariums, circuses, rodeos, and other legal sporting events
- Fairs and similar events designed to advance agricultural arts and sciences

Institutions conducting PHS-sponsored research where vertebrate animals are used or are otherwise under the authority of the AWA are required to establish and maintain an animal use and care program that has clearly articulated lines of authority and responsibility. While each institution has the freedom to establish its own program, each program must include the following:

- an Institutional Animal Care and Use Committee that has the appropriate membership and function;
- self-monitoring procedures;
- adequate veterinary care;
- appropriate training;
- a program detailing the environmental, housing, and management of animals;
- facilities that are appropriate for maintaining and housing the different species of animals;
- an occupational health and training program.

In keeping with PHS regulations details about the program must be filed in an Institutional Animal Welfare Assurance prior to awarding of any research funds while the USDA requires that the facilities be registered.

2.0 Statement of Principles

The use of animals imposes moral, scientific, and legal obligations for humane care, use, and treatment based on the needs of the animals and the special requirements of educational and research programs. Shepherd University is committed to safeguarding the care, maintenance, and use of all vertebrate animals in research, research training, and other activities that may engage the faculty, students, and staff. Shepherd University's

commitment includes both compliance with specific requirements established and regulated by the Federal Government and sponsoring agencies as well as the intent of the investigators to protect and humanely treat the animals used. In order to uphold the highest standards of freedom of inquiry and communication, members of the University community accept the following responsibilities this freedom offers: for competence, for objectivity, for consideration of the best interests of the University and society, and for the welfare of every animal used in research. In keeping with these standards, Shepherd University will adhere to the policies set forth by the appropriate regulatory authorities charged with the use and care of animals in research listed below.

2.0.1 The United States Department of Agriculture has been federally mandated to enforce the regulations established by the Secretary of Agriculture under the Animal Welfare Act. These regulations which set standards for the humane care (handling, housing, space, feeding and watering, transportation, sanitation and ventilation, and veterinary care) are enforced by the Regulatory Enforcement and Animal Care Branch of the Animal and Plant Health Inspection Service (APHIS) of the USDA. Compliance with these regulations includes biannual reports and unannounced inspections by APHIS personnel.

2.0.2 The Office of Laboratory Animal Welfare is charged with coordination and general administration of NIH animal use and care policies. Frequently Public Health Service (PHS) units will not make awards for a project where live animals are used unless the submitting institution is listed as having an Assurance on file with OLAW and the responsible institutional official has documented approval of the Institutional Animal Care and Use Committee. When sponsored research is conducted by faculty, students, or staff, OLAW has the right to provide reasonable notice and then access all records directly related to the project for a period of no less than three years after completion of the research project.

2.1 The ethical use and treatment of animals will be adhered to by all members of the Shepherd community. Investigators (faculty, students, or staff) completing animal research are committed to upholding the Code of Ethics for animal use and care outlined below.

2.1.1. There is a reasonable expectation that using live animals in research or testing will contribute to the good of society, advancement of scientific knowledge, or enhanced health (human or animal). This is especially important when it is imperative that the benefits of the research are weighed against the potential pain and suffering of the animals used in the research.

2.1.2. All investigators have the moral and ethical obligation to explore alternatives to the use of animals in research. In cases when alternative methods (e.g., other biological and/or mathematical or computer systems) can be used and still produce sound scientific conclusions, the investigator should opt for using the alternative methods. The use of animals should be arrived at through considerable judgement and sound, deliberate analysis.

2.1.3. All investigators bear the responsibility for identifying and selecting the species that is best suited to each project. In addition, the minimum number of animals required for sound scientific and statistical analysis should be used in any experiment.

2.1.4. All investigators must consider the source of the animals being used and ensure that these animals are acquired through lawful means. Investigators must be certain that any animals

purchased are obtained from a reputable and reliable vendor. When field studies are conducted the investigators must be cognizant of and abide by all federal, state, and local laws.

2.1.5. Investigators have moral and ethical obligations to select the least painful techniques that will ensure completion of the research objectives. When a procedure is known to cause discomfort, distress, or pain, the investigator must estimate the likelihood of occurrence as well as the magnitude and duration of the discomfort, distress, or pain and adequately plan for the minimization and treatment of discomfort, distress, and pain.

2.1.6. When using potentially painful procedures, the investigator must take the steps needed to assess and monitor the discomfort, distress, or pain that the animal is experiencing. The investigator must be cognizant of the normal signs of distress for the animal used in the research. In some cases the use of physiological parameters (e.g., cardiovascular parameters, blood concentrations of catecholamies or corticosteroids, leukocyte counts) can be used to monitor the level of discomfort, distress, or pain an animal is experiencing.

2.1.7. When a procedure is known to cause the animal more than slight pain or distress the appropriate anesthetics, analgesics and/or tranquilizers consistent with the normal standards of veterinary care must be used to minimize the intensity and duration of the pain or distress (but see Section 2.1.9). All investigators are required to alleviate/reduce the discomfort and/or pain both during a procedure and until such a time following the end of the procedure that the pain has either been reduced to an acceptable tolerance level or has been alleviated. At NO TIME will an experiment known to cause pain be conducted on an awake animal under the influence of a curarizing or paralytic agent without the use of an appropriate anesthetic.

2.1.8. For those research projects where painful stimuli are used, the experiment will be designed to provide the animal with a means of escape from the pain.

2.1.9. When the administration of analgesics and/or anesthetics would compromise the scientific validity of the experiment these experiments must be fully justifiable in terms of scientific design, value and the rationale for excluding the analgesics and/or anesthetics (and based on referenceable scientific fact, experimental data and NOT intuition. In these types of experiments it is crucial to closely monitor the animal's discomfort, distress and pain and the earliest possible endpoint must be sought. Following the experiment any animal that is observed to be in a state of severe pain that cannot be alleviated or reduced to acceptable levels must be euthanized immediately.

2.1.10. Investigators will not subject animals to multiple survival surgeries that are unrelated and unessential to the objectives of the approved research.

2.1.11. When physical restraint procedures are used on awake animals because alternative procedures are found to be inadequate, the animals should be trained or conditioned to the restraining device through positive reinforcement prior to the experiment. The duration of the restraint should be the minimum duration necessary for completion of the experiment and occur in a restraining device that provides the animal with the greatest opportunity to assume a normal posture and is consistent with providing minimal restraint and maximum security.

2.1.12. All investigators are responsible for ensuring that adequate care is provided to all animals prior to, during, and following all experiments. Such care must meet minimal acceptable standards and be provided as long as necessary and include care during hours outside of normal working hours.

2.1.13. The method chosen to euthanize experimental animals must be consistent with the recommendations of the American Veterinary Medical Association Guidelines on Euthanasia. Those animals that will not be euthanized at the completion of the research protocol must be disposed of in humane and acceptable manners by the investigator.

2.2. A range of vertebrate species and research settings exists. At Shepherd it is possible that laboratory research using vertebrates can occur while field studies may include all vertebrate species. In designing research protocols, faculty are encouraged to refer to the appropriate guidelines for the species and setting. A list of resources for preparing the animal use proposals can be found in Appendix A.

3.0 IACUC Membership

The structure of the Institutional Animal Care and Use Committee must comply with Federal regulations as described in both the Health Research Extension Act of 1985 (Public Law 99-158) and the Animal Welfare Act. In accordance with these regulations the IACUC will have no less than five members with varying backgrounds so that a complete and adequate review of commonly conducted research activities can be completed. Each member of the IACUC is expected to bring his or her expertise, interest, and representation to the board but is not required to advocate for their constituency. While it is permissible for a committee member to fill more than one of the roles on the committee as long as the committee is comprised of a minimum of five members this practice is not recommended. The membership shall be sufficiently diverse and have qualifications through experience and expertise to promote respect for the moral and ethical treatment and use of animals in research when rendering decisions. Members shall not be entirely from one profession or gender. The IACUC will be made up of five or more members and must include the following:

3.0.1. A veterinarian with training or experience with laboratory animals.

3.0.2. A non-scientist.

3.0.3. A person with no affiliation to Shepherd University.

3.0.4 A scientist working with or having experience with laboratory animals.

3.1. The President will appoint the IACUC unless the President specifically delegates this authority to another member of the University in writing.

3.2. No academic department may have more than three members on the IACUC.

3.3. In order to ensure a full review, at its discretion the IACUC may invite individuals with expertise in special areas to assist in reviews of complex issues that exceed the qualifications of the members. In these cases those invited to provide expertise will not have voting rights or privileges.

3.4. The Shepherd University IACUC shall be made up of five (5) members appointed by the President or designee so that the committee membership meets the statutory requirements. Members will initially serve variable terms; thereafter, all terms shall be for three years..

3.5. The President or designee will select the IACUC Chair from one of the five members appointed to the Committee.

3.6. If a member resigns from the Committee prior to the expiration of his or her term, the President or designee will appoint another individual to serve the remainder of the term.

4.0 Institutional Official

The Institutional Official (IO) is the senior administrator vested with the administrative and operational authority necessary to ensure compliance with IACUC policies and, when appropriate, compliance with PHS and USDA policies related to animal use and care. If the President elects not to serve as IO the President shall appoint the IO and the IO will report directly to the President on matters associated with animal use and care. When Shepherd University establishes a federal Assurance, the IO will be the only representative of Shepherd University authorized to prepare, sign, and submit the required animal welfare assurance statements to OLAW. The IO will also be the only representative of Shepherd University authorized to complete and submit any updates or respond to OLAW. While there are no restrictions on the ability of the IO to serve as a member of the IACUC it is recommended that the IO ***not*** be a member of the IACUC to avoid creating any conflicts of interest or the perception of impropriety. In addition, it is critical that the IO be able to receive recommendations from the IACUC in order to properly complete the duties of this position. The IO may ***not*** overrule an IACUC decision regarding a research proposal. The duties and responsibilities of the IO include the following:

4.0.1. authorizing and allocating resources needed to maintain the animal care and use program;

4.0.2. defining and assigning responsibilities and reporting channels as related to animal care and use;

4.0.3. ensuring that animal facilities are properly equipped and maintained;

4.0.4. ensuring that proper training is in place and completed.

5.0 Institutional Responsibilities

The Institutional Animal Care and Use Committee shall have administrative authority concerning the care, protection, and ethical use of animals in research at Shepherd University. The IACUC will ensure both ethical compliance and, once a federal Assurance is established, that research, funded or non-funded, is fully compliant with the letter and spirit of PHS and USDA policies and laws governing the use of animals in research. Ultimately, the IACUC is responsible for determining whether research proposed complies with these regulations and conforms to the ethical standards espoused by researchers at Shepherd University. The IACUC will have oversight of approved projects and care of animals. The IACUC will conduct semi-annual reviews of animal facilities and submit a report to the IO that identifies any problems where corrective actions are required. Once a federal Assurance is established, these reports will also provide the foundation of the annual reports to the OLAW and the USDA. The IACUC is also charged with the oversight of animal use on the Shepherd campus and to report problems that arise to the IO and, if necessary, to report any unapproved deviations from approved animal care protocols to the appropriate Federal agency. The main responsibilities of the IACUC include the following:

5.0.1. review all proposed projects at Shepherd University involving vertebrate animals;

5.0.2. routinely inspect the facilities where vertebrate animals are housed and the research is conducted;

5.0.3. review and make recommendations concerning the animal care program;

5.0.4. ensure compliance with Federal, state, and local regulations governing animal use;

5.0.5. establish the general Shepherd University policy on humane care and use of vertebrate animals;

5.0.6. while the University operates under a federal assurance, prepare the annual OLAW assurance update, semiannual inspection reports, and assist in the IO in preparing the *Annual Report of the Research Facility* for submission to the USDA.

5.1. ***All*** researchers (students, faculty, and staff) are required to complete an appropriate training course as described in Appendix B. After completing the training course the member must download the certificate of completion and submit a copy of the certificate to the IACUC Chair. Certification will be valid for three (3) years.

5.2. Researchers using vertebrate animals must submit an animal use protocol (see Appendix C) to the IACUC for approval. When an investigator is preparing a grant proposal for external funding, the animal use protocol must be submitted well in advance of the agency deadline. This will ensure that a review and documentation of approval can be received as part of the funding application.

5.3. The IACUC will meet as needed to review submitted animal use protocols. In addition, the IACUC will meet at least twice each year to review the animal facilities and the approved animal use protocols. The IACUC Chair will work with the members of the Committee and establish the meeting schedule which will be made available to the campus community. This meeting schedule will include the dates by which researchers must submit animal use protocols for Committee review at the upcoming meeting.

6.0 Principal Investigator and Researcher Responsibilities

The Principal Investigator (PI) is responsible for all aspects of the proposed research. Pursuant to this the PI will not allow any member of the research team to work with vertebrate animals until the appropriate training has been completed. Additionally, the PI will monitor the actions of all researchers working with him or her to ensure that the appropriate policies are adhered to and that the approved research protocol is implemented. The members of the IACUC will address all relevant correspondence to the PI. Because of the crucial role that the Principal Investigator plays, only members of the Shepherd University faculty or professional staff will be allowed to serve in this capacity. While student research is an important part of the educational experience, all student research projects involving vertebrate animals must be conducted under the direction of a faculty or staff member serving as the PI. Responsibilities of the PI include, but are not limited to the following:

6.0.1. preparation and submission of an animal use protocol for IACUC review;

6.0.2. ensuring that no research is started until IACUC approval has been obtained;

6.0.3. ensuring that all members of the research team are properly trained in the appropriate and relevant methods and procedures identified in the animal use protocol and the proper care for the vertebrate species to be used;

6.0.4. answering any questions and submitting reports requested by the IACUC;

6.0.5. conducting the research as described in the approved animal use protocol and submitting requests for modifications to the animal use protocol as necessitated;

6.1. ***All*** researchers must be acutely aware that failure to comply with appropriate Federal, state, or local regulations or with IACUC policies and procedures may result in suspension of the approved animal use protocol and that notification of noncompliance may be required to be sent to the applicable regulatory and funding agencies, if any. While these actions will negatively impact the PI, they will also jeopardize Shepherd University's Animal Welfare Assurance which may lead to suspension of PHS research funding, monetary fines, and USDA imposed sanctions. Given this, researchers must recognize that the ability to use vertebrate animals in research is a privilege and not a right and that all members of the animal use community share in the burden of protecting the ability of Shepherd University to continue to conduct research using vertebrate animals.

6.2. The research team identified by the PI on the animal use protocol includes all of those students, faculty, and staff members who will be involved in the research project. While the PI is responsible for the actions of his or her research team, each team member has a responsibility to uphold the standards of ethical use of animals in research and ***must*** receive proper training before participating in the research project.

7.0 Types of Research and Animal Use Protocol Requirements

The diversity of research activities and sources of vertebrate animals necessitates a discussion and description of the types of research and other considerations.

7.1. ***Use of Live Vertebrate Animals***: In any instance where live vertebrate animals are to be used in research activities a full animal use protocol must be submitted to the IACUC for review. While research using vertebrate eggs is exempt, research using the vertebrate embryo requires IACUC review. This submission must include all relevant information as outlined on the animal use protocol form and any relevant appendices.

7.2. ***Use of Procured Tissues or Preserved Vertebrate Animals***: Some research projects can be completed using tissues that are available from commercial sources, salvaged animals (e.g., animals found dead), or animals killed for some other purpose outside the scope of the proposed research (e.g., hunter-harvested tissue samples). When researchers use tissues from salvaged animals or preserved vertebrate animals obtained commercially or from recognized museums IACUC review is not required.

7.3. ***Field Studies***: Research involving wildlife, including the capture and tagging of animals, collection of blood or tissue samples, or other invasive procedures requires IACUC approval. The PI of these types of field studies must submit an animal use protocol to the IACUC for review and approval.

7.4. ***Collaborative Animal Use***: When researchers at Shepherd University conduct collaborative research involving vertebrate animals with researchers at other institutions animal use protocols are not required to be submitted and reviewed by the Shepherd University IACUC if a) the funding for the research is provided to the collaborating institution and b) an animal use protocol has been approved by the collaborating institution's IACUC. Shepherd University does, however, require that a copy of the approved animal use protocol and the approval letter from the collaborating institution's IACUC be sent to the Shepherd IACUC Chair and the IO.

7.5. ***Exempt Animal Use***: A limited number of research activities using vertebrate animals are exempt from IACUC review. The following are exempt from IACUC review:

7.5.1. Field research where only the observation of vertebrate animals is conducted.

7.5.2. Research involving invertebrate animals.

7.5.3. Research involving non-human vertebrate eggs before embryogenesis. Eggs that develop into embryos and beyond require IACUC approval.

7.5.4. Research using cell lines or blood products available commercially or through recognized repositories.

7.5.5. Ecological restoration projects conducted for management purposes.

Researchers conducting projects that are exempt are required to submit a letter to the IACUC Chair and IO briefly describing the project and identifying the reason for the exemption from IACUC review and the source of funding. Additionally, the PI of the project should retain records detailing the procurement of the animal tissues, cells, or blood products.

7.6. ***Vertebrate Animals in Teaching***: Faculty members using vertebrate animals in classroom, laboratory, or student research projects must submit animal use protocols prior to obtaining and using animals. If the vertebrate animal use falls under one of the exempt categories, the faculty member is not required to submit

an animal use protocol for review. As the use of animals in teaching is being more closely scrutinized, it is essential that the IACUC review the animal use protocols and be able to affirm that the use of animals is justified and that consideration has been given to alternatives that would allow for the same concepts to be communicated to the students. It is also necessary for the faculty member to provide alternatives to students who are uncomfortable with the use of animals.

8.0 Animal Use Protocol Preparation and Submission

The animal use protocol is the document that will provide a written description of the proposed activity (research or teaching) involving vertebrate animals. This document will provide the necessary details to ensure that all members of the IACUC can review the proposed activities. The animal use proposal should be submitted on the appropriate animal use protocol form (see Appendix D). Animal use proposals that are incomplete, involve excessive or unnecessary detail, or use confusing or excessively technical language are not acceptable and may be returned without review.

8.1. The completed animal use protocol will provide sufficient detail to allow the IACUC to evaluate the proposal regarding the appropriateness of species chosen, procedural soundness, appropriateness of number of animals, and evidence that the alternatives to animal use have been completely evaluated.

8.2. In addressing the elements required by the protocol the following should be included:

8.2.1. ***Level of Pain or Unrelieved Distress***: In preparing the animal use protocol the PI must identify the amount of pain that the vertebrate animals will experience using the USDA pain categories described below.

8.2.1.1. ***Category B*****:** Animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but **not yet used** for such purposes. This includes animals being bred or housed without any research manipulations (should not include animals undergoing genotyping procedures)

8.2.1.2. ***Category C*****:** Animal use activities that involve no more than momentary or slight pain or distress (no greater than an injection) where there is no need for use of pain-relieving drugs. This includes a) holding, weighing, or physical examinations of animals in teaching or research activities, b) injections, blood collection, or catheter implantation via superficial vessels, c) observation or positive reinforcement training of animals in a laboratory setting, d) pre-weaning (<21 days of age) methods of identification or gentoyping (ear notching, wing banding, tail clipping, tattooing – unless general anesthesia needed), d) feeding studies that do not result in clinical health problems, e) routine agricultural husbandry procedures approved by the IACUC, e) humane euthanasia that meets current AVMA standards, f) live trapping with minimal potential for injury, g) short-term chemical immobilization or restraint, such as for transport, and h) studies involving clinical signs not judged to involve more than slight pain or distress.

8.2.1.3. **C*ategory D*****:** Animal use activities that involve accompanying pain or distress to the animals and for which appropriate anesthetics, analgesics, tranquilizing drugs, or humane endpoints are used to avoid pain or distress. This includes a) survival surgical procedures where perioperative pain or distress is alleviated, such as the following: catheter cut-down, laparoscopy, and biopsies, b) non-survival surgical procedures, c) retro-orbital blood collection in mice and rats,

d) exsanguinations under anesthesia, f) tail clipping in rodents > 21 days old or tattooing that requires general anesthesia, and g) induction of disease, infection, or a genotype that causes pain or distress which is alleviated as soon as signs develop with the use of pain-relieving drugs or humane euthanasia.

8.2.1.4. ***Category E*****:** Animal use activities that involve accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs or other methods for relieving pain or distress are **NOT** used. Category E research, testing, or procedures will require strong scientific justification as to why pain-relieving drugs or other methods for relieving pain cannot be used on animals. This includes citations to published studies, if applicable; describing what alternatives were considered and how alternatives will be used whenever possible; and clarifying whether animals will be euthanized when moribund, and, if not, what information is to be gained in the interval between moribundity and death. Examples are a) research, testing, or procedures that require death as an endpoint or continuation without pain-relieving intervention, even after clinical signs of pain or distress are evident, b) application of noxious chemicals or stimuli (e.g., electrical shock) when the animal cannot avoid or escape the stimuli and they are severe enough to cause pain or distress, c) novel, prolonged restraint, d) exposure to extreme environmental conditions, e) food or water deprivation beyond that necessary for routine pre-surgical preparation or is deemed stressful to the animal, f) euthanasia by non-AVMA approved methods, or g) any procedures for which needed analgesics, anesthetics, or tranquilizers must be withheld for justifiable purposes.

8.2.2. ***Animal Justification***: The IACUC is charged with verifying that the species chosen for the study is appropriate and the number of animals used is the minimum number required to adequately complete the proposed work and achieve the teaching or scientific objectives of the study. The PI must explain why the species was selected and how the number of animals used will allow for statistically powerful results to be obtained or for the educational objectives to be met. When field studies are proposed, the PI is expected to provide a justification for the estimated number of animals to be used. In no case are researchers allowed to use more than the approved number of animals.

8.2.3. ***Analgesia***: When discomfort, distress, or pain are anticipated to occur as part of the project, the animal use protocol should outline the proposed analgesic to be used and the treatment regimen to be employed. The PI should assume that if a procedure would be expected to cause discomfort, distress, or pain in humans that it would also have similar consequences in animals. Except when scientifically justified (e.g., analgesics or anesthetics would interfere with data collection), failure to relieve the discomfort, distress, or pain is ***not*** an acceptable practice. The PI must also clearly describe the procedures that will be used to monitor the animals for efficacy of the treatment and the steps that will be taken to alleviate the discomfort, distress, and pain that the animal is experiencing. Clear and accurate records must be kept regarding the administration of any analgesics.

8.2.4. ***Anesthesia***: When anesthesia is to be used, the animal use protocol must clearly describe the type, rate, and route of administration, dosage, and timing of anesthesia. Only members of the research team with the appropriate training should administer anesthesia, as pain and distress can occur in animals where anesthesia is improperly administered. It is crucial that the veterinarian be consulted regarding the use of anesthesia and that he or she verifies that the appropriate training has been received by team members involved in administering the anesthesia and monitoring the animals. It is not acceptable to change the procedure following IACUC approval and thorough records must be kept and maintained.

8.2.5. ***Surgery***: Any surgical procedures (nonsurvival or survival) proposed must be fully described in the animal use protocol. Nonsurvival surgical procedures must conform to accepted practices and standards – cleanliness of instruments, environment, etc. Survival surgical procedures are required to follow norms associated with aseptic technique and can only be conducted in an area approved for animal surgery. Members of the research team participating in surgical procedures must be adequately trained and if training is needed the veterinarian must be consulted. Good surgical technique requires the proper facilities, appropriate preparation, aseptic technique, proper instruments, and a strong knowledge of animal anatomy, tissue handling, and suturing.

8.2.6. ***Physical Restraint***: Some research projects may require that the animals be physically restrained. It is incumbent on the PI to adequately justify the need for restraint and ensure that the restraint is conducted in such a manner as to minimize any discomfort, distress, and pain that the animal experiences. This would include ensuring that the restraining device is the most animal-friendly available and that the duration of restraint is of the shortest time required to meet the experimental objectives.

8.2.7. ***Food or Fluid Restriction***: Accepted standards of animal care specify the normal food and drink standards for each species. Any deviation from these standards must be adequately justified in the animal use protocol and approved by the IACUC.

8.2.8. ***Documentation and Record Keeping***: Principal Investigators and members of their research team have the major responsibility of documentation and record keeping required by regulations and Shepherd University. Examples of these records include animals received, animal use under an approved protocol, administration of medicines, post-procedure care, method and date of euthanasia, and basic and critical animal care records.

8.3. The schedule of IACUC meetings will be determined by the Committee and the dates posted and distributed to the members of the Shepherd University community. If no animal use protocols have been received by the Committee Chair for review prior to 10 working days before the scheduled meeting the meeting will be cancelled. If a complex or controversial animal use protocol is received for review, additional time may be required by the IACUC. The IACUC will make every effort to review animal use protocols in a timely manner.

8.4. A Principal Investigator initiates the IACUC review process when the PI electronically submits the completed animal use protocol to the Committee Chair as a pdf attachment to an e-mail requesting the protocol review.

8.5. Upon receipt of the animal use protocol for review the Committee Chair determines whether the protocol is complete. Complete protocols are then given a tracking number, entered into the IACUC database, and then sent to all committee members electronically.

8.6. ***Designated Review:*** Any animal use protocol with a Category B or C pain classification is eligible for a designated review. For designated reviews, the IACUC members have three (3) working days following the receipt of the protocol to request a full committee review as described below. If none of the Committee members requests a full committee review, the Chair will appoint one or more Committee members to review the protocol. In a designated review, reviewers can a) approve the protocol, b) require modifications prior to approval, or c) request a full committee review but they cannot disapprove the proposed protocol.

8.7. ***Full Committee Review:*** Any protocol where the pain category is D or E requires a full committee review of the animal use protocol by the IACUC at a regularly scheduled meeting where a quorum of the voting membership is present. The outcomes of a full committee review are a) approve as submitted, b) approve with minor revisions, or c) disapprove with recommendations for major revisions. A majority vote of the voting members of the IACUC present is required for any of these outcomes. For those protocols that receive approval the Chair will send the PI an approval letter that will include the starting and ending dates of the approval.

8.7.1. ***Approve*** means that the IACUC has determined that the animal use protocol has met the standards previously identified (appropriate justification, alternatives have been examined and found lacking, research methods are acceptable and within standards of care).

8.7.2. ***Approve with Minor Revisions*** means that the IACUC has determined that the animal use protocol requires minor corrections or clarifications. In this case the specific concerns are identified and the IACUC Chair notifies the PI of these concerns and invites the PI to either submit responses or meet with the Committee to discuss the concerns. The Committee agrees to approve the animal use protocol if the PI agrees to the revisions needed to address the concerns. Approval is withheld until revisions have been made and the PI cannot start the research until all signatures at the end of the IACUC protocol application have been completed.

8.7.3. ***Disapprove*** means that the IACUC has determined that the animal use protocol has not met the standards previously identified (appropriate justification, alternatives have been examined and found lacking, research methods are acceptable and within standards of care). The IACUC will also disapprove a protocol if it is overly confusing. Administrative disapproval will result if a PI does not respond to a request for additional information and/or modifications within thirty (30) days.

8.8. Many granting agencies require IACUC review and approval prior to agency review and/or funding. Some agencies may review and score funding proposals and withhold funding pending the receipt of IACUC approval. As a result, PIs are encouraged to submit animal use protocols for review prior to submitting proposals for external funding.

8.9. Any PI can request and schedule a meeting with the IACUC Chair or request to address the IACUC at a meeting. At these meetings the PI can answer questions about a protocol in development or attempt to resolve any difficulties related to the approval of a protocol.

8.10. There is no appeal to a decision by the IACUC to deny an animal use protocol.

9.0 Changes to Approved Protocols

Once an animal use protocol has been approved by the IACUC, the materials and methods will be followed without modification for the duration of the approved protocol. If changes are necessitated these changes must be approved by the IACUC.

9.1. Modifications to previously approved animal use protocols must be completed prior to implementing the desired changes regarding animal use and care. A PI who needs to make changes to an approved protocol must submit an amendment to the protocol to the IACUC Chair for review. This amendment should detail the proposed modifications and the rationale for these modifications. Additionally, the PI should include any

supporting documents relevant to the modifications requested. If the requests are minor, the IACUC Chair has the power to approve the requested modifications. For any other requests, a process that mirrors that of initial approval will be followed. Examples of significant changes that would require IACUC review include the following:

9.1.1. Changing a surgical procedure from nonsurvival to survival.

9.1.2. Addition of a surgical procedure to an animal use protocol.

9.1.3. Changes in procedures such that the pain category changes.

9.1.4. Changing or adding a species to the protocol.

9.1.5. Changes in key personnel identified in the animal use protocol.

9.1.6. Changes in the type or use of analgesics and anesthetics.

9.1.7. Changes in the method of euthanasia.

9.1.8. Addition of blood or tissue sampling.

9.1.9. Increases in the number of animals that exceed 10% of the original number.

The IACUC can approve the modified animal use protocol, approve the modified animal use protocol with minor revisions, or disapprove the modified animal use protocol. If approved, the modified protocol will supersede the previous protocol and will carry the same approval period. If the modified protocol is disapproved the initial protocol will remain enforce.

9.2. In the unforeseen event of a PI requesting a transfer of an approved animal use protocol to continue or finish the research, an amendment is required. The PI of record and the proposed PI submit a joint amendment to the IACUC Chair requesting a transfer of the protocol with an explanation of the circumstances necessitating the transfer. If the proposed PI is not a member of the approved research team the amendment must provide adequate information so that the IACUC can determine if the proposed PI has the training and qualifications to assume the role of PI. This information should include the proposed PI's training and experience with the species and methods used in the protocol and familiarity with the research objectives. Following receipt of the amendment the IACUC Chair will forward the amendment to the Committee for review.

10.0 Approval Length, Annual Review, and Resubmission of Approved Protocols

In order to comply with USDA Animal Welfare Regulations, animal use protocols cannot be approved for an indefinite period of time and must be subjected to annual review. Additionally, these regulations require that status reports of each approved animal use protocol are submitted to the IACUC on an annual basis.

10.1. The IACUC can only approve an animal use protocol for a period of no more than three (3) years.

10.2. ***Annual Protocol Status Reports***: Each year the PI will be contacted by the IACUC Chair no less than six (6) weeks before the animal use protocol's annual date to request an Annual Protocol Status Report. The PI must submit the completed report to the IACUC Chair before the annual date of the protocol. Upon review the IACUC Chair may request that the PI submit an amendment if the Chair determines that substantive changes in the approved protocol have occurred.

10.3. ***Triennial Resubmission***: Animal use protocols must be resubmitted for full committee review every three years. The resubmission must include all of the relevant materials and use the appropriate animal use protocol form. The resubmission should incorporate all of the approved amendments and any additional changes that the PI wants to include in the protocol. It is essential that the resubmission be a "stand alone" document and reviewable in the absence of the previously approved animal use protocol. Any approved protocol that is not approved through the resubmission process on or before the annual date will be deemed to have expired. If an animal use protocol expires research must cease and any of the remaining animals must be transferred to an active protocol. If there are no active protocols using this species of vertebrate animal the IACUC Chair will make a recommendation on the disposition of the animals. If possible, animals will be put up for adoption, released into the wild, or donated to a local zoo.

11.0 Investigations and Reporting

Shepherd University takes the responsibility for ensuring that all vertebrate animals are treated in a humane and ethical manner seriously. In that endeavor the IACUC is charged with overseeing the protection of animals used in laboratory and field research. The IACUC is responsible for investigating reports of unethical and/or inhumane treatment of animals. The existing regulatory system for oversight and compliance has foundations in trust between the PI and his or her research team, the IACUC, the IO, regulatory agencies, and funding agencies. In keeping with the commitment for humane animal use and care Shepherd University encourages anyone with concerns about any aspect of animal research to report these concerns to a University official. Reports can be made anonymously and the IACUC will investigate the complaints and take the actions deemed necessary to alleviate the problems identified.

11.1. The IACUC will be responsible for investigating complaints of inhumane treatment of harm due to either a research process or a PI or member of a research team not following an approved animal use protocol.

11.1.1. If any of the animals in an experiment is harmed the PI must report this to the IACUC Chair. Any member of the Shepherd community with concerns for animals involved in approved experiments should be encouraged to report their concerns directly to any member of the IACUC.

11.2 If a complaint or report of animal harm or injury is received the IACUC, the Chair will conduct an initial investigation as quickly as possible following receipt of the complaint/report. The initial investigation will determine if the following is true:

11.2.1. the assertion of harm or complaint has merit and

11.1.2. whether the animals will be at risk if the study is allowed to continue.

11.3 If the initial investigation finds that the complaint or report is without merit no further action is required.

11.4. If the initial investigation is found to have merit the IACUC will temporarily suspend the research until a full investigation is completed. If a temporary suspension is necessary the IACUC Chair will notify the PI, the Chair of the PI's department, and the IO both verbally and in writing that the research has been temporarily suspended.

11.5 If research has been suspended the IACUC will temporarily withdraw approval for a protocol. When this occurs it will initiate an investigation based on the Shepherd University policy for investigating research misconduct as described in the Shepherd University Research Integrity Policy.

11.6. Complaints of harm or non-compliance found to have merit will be brought to the full IACUC within two (2) weeks following the Chair's determination. At this meeting the IACUC will be presented with the facts that have been collected and the PI and members of the research team will be invited to present information. The IACUC will then decide if the proposal should be continued as originally approved, reinstated, suspended pending further investigation, or terminated.

11.7 In cases of non-compliance (engaging in unapproved research activities under the auspices of an approved protocol, continuing research under an expired protocol, engaging in research without a previously approved protocol) an investigation will be initiated by the IACUC Chair using the Shepherd University policy for investigating research misconduct and the non-compliance will be reported to the IO.

11.8. As required by law, the IO will report instances of misconduct to the appropriate Federal, state, or local funding agency.