Animal Care and Use Handbook

Animal Welfare Assurance number A3679-01
USDA certificate number 73-R-0010

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Section 1: Introduction

1.0 Purpose and Scope of Manual

It is the responsibility of Oklahoma State University Center for Health Sciences (OSU CHS) to provide suitable orientation, appropriate materials, adequate resources and training to enable research faculty and staff and IACUC members to carry out their respective duties consistent with the *Guide for the Care and Use of Laboratory Animals* (the *Guide*), the *Public Health Service Policy on Humane Care and Use of Laboratory Animals* (PHS Policy) and the *Animal Welfare Act and Animal Welfare Regulations* (AWRs).

Local institutional policies and procedures need to be a part of the training and education program. Frequently, researchers and IACUC members find it confusing to understand the differences between the federal policies and requirements and institutional policies and procedures. The Institution is responsible for informing researchers and IACUC members of their responsibilities, providing training relative to their respective roles, and ensuring information to fulfill their duties is available.

1.1 Mission Statement

Oklahoma State University Center for Health Sciences (OSU CHS) recognizes the importance of animals in research and the scientific and ethical responsibility for their humane care and use. All those involved with the use of laboratory animals are responsible for insuring the health and well-being of the animals used in research and education at OSU CHS. The IACUC is responsible for overseeing the provisions for the care and well-being of animals used for research and educational purposes at the University and serves the public by ensuring compliance with all legal and ethical standards regarding the use of animals in research and teaching at OSU CHS.

1.2 Office of Laboratory Animal Welfare (OLAW)

The Office of Laboratory Animal Welfare (OLAW) implements PHS Policy. While OLAW is located organizationally at the National Institutes of Health (NIH) in Bethesda, Maryland, OLAW's responsibility for laboratory animal welfare extends beyond NIH to all PHS-supported activities involving animals. From time to time, OLAW issues policy guidance, interpretation, or general notices regarding PHS Policy, and co-sponsors animal welfare workshops that are held in different locations across the country.

Specific OLAW responsibilities include:

- Implementation of the PHS Policy;
- Interpretation of the PHS Policy;
- Negotiation of Animal Welfare Assurances;

• Evaluation of compliance with the PHS Policy; and
• Education of institutions and investigators receiving PHS support.

1.2.1 Animal Welfare Assurance

Before the PHS may award a grant or contract that involves the use of animals, the recipient institution and all performance sites involving or using animals must have on file with OLAW an approved Animal Welfare Assurance (Assurance). The Assurance is the cornerstone of a trust relationship between the institution and the PHS. Included in the Assurance are:

• The designation of the Institutional Official responsible for compliance;
• A commitment that the institution will comply with the PHS Policy, with the *Guide*, and with the AWA and the Animal Welfare Regulations; and
• A description of the institution's program for animal care and use.

The PHS Policy applies to the use of live, vertebrate animals in any activity supported or conducted by the Public Health Service (PHS). PHS agencies include:

• Agency for Healthcare Research and Quality;
• Agency for Toxic Substances and Disease Registry;
• Centers for Disease Control and Prevention;
• Food and Drug Administration;
• Health Resources and Services Administration;
• Indian Health Service;
• National Institutes of Health;
• Office of Public Health and Safety;
• Office of the Secretary;
• Program Support Center;
• Substance Abuse and Mental Health Services Administration; and
• Office of the Assistant Secretary for Preparedness and Response.

OSU CHS has an Animal Welfare Assurance on file with OLAW. The Animal Welfare Assurance number is A3679-01.

1.3 United States Department of Agriculture (USDA)

In 1966, Congress passed the Laboratory Animal Welfare Act (PL 89-544) and the United States Department of Agriculture (USDA) was named the responsible agency for the enforcement of the Animal Welfare Act (AWA) to protect certain animals from inhumane treatment and neglect. Congress passed the AWA in 1966 and strengthened the law through amendments in 1970, 1976, 1985, and 1990. The USDA's Animal and Plant Health Inspection Service (APHIS) administers the AWA, its standards, and its regulations.

OSU CHS is a registered Class R Research Facility with the USDA (customer number 1593

under certificate number 73-R-0010).

1.3.1 The Animal Welfare Act

The Animal Welfare Act (AWA) requires that minimum standards of care and treatment be provided for certain animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. Individuals who operate facilities in these categories must provide their animals with adequate care and treatment in the areas of housing, handling, sanitation, nutrition, water, veterinary care, and protection from extreme weather and temperatures.

1.3.1.1 Inclusions

The AWA (Title 7, Chapter 54, Section 2132(g)) defines the term "animal" to mean any live or dead dog, cat, monkey (nonhuman primate mammal), guinea pig, hamster, rabbit, or such other warm-blooded animal that is being used, or is intended for use, for research, testing, experimentation, or exhibition purposes, or as a pet. With respect to a dog, the term means all dogs including those used for hunting, security, or breeding purposes.

Animal shelters and pounds are regulated if they sell dogs or cats to dealers.

1.3.1.2 Exemptions

The AWA (Title 7, Chapter 54, Section 2132(g)) excludes birds, rats of the genus *Rattus*, and mice of the genus *Mus*, bred for use in research, horses not used for research purposes, and other farm animals, such as, but not limited to livestock or poultry, used or intended for use as food or fiber, or livestock or poultry, used or intended for use for improving animal nutrition, breeding, management, or production efficiency, or for improving the quality of food or fiber.

Retail pet shops are not covered under the Act unless the shop sells exotic or zoo animals or sells animals to regulated businesses. Pets owned by private citizens are not regulated.

1.3.1.3 Research Facilities

Regulated research facilities must provide the required standards of veterinary care and animal husbandry. Researchers must also give regulated animals anesthesia or pain-relieving medication to minimize the pain or distress caused by research if the experiment allows. The AWA also forbids the unnecessary duplication of a specific experiment using regulated animals.

Research facilities must establish an Institutional Animal Care and Use Committee (IACUC) to oversee the use of animals in experiments. The IACUC is responsible for ensuring that the facility remains in compliance with the AWA and for providing documentation of all areas of compliance to the USDA/APHIS. The AWA also does not permit APHIS to interfere with

research procedures or experimentation. To ensure that all licensed and registered facilities continue to comply with the AWA, APHIS inspectors make unannounced inspections at least once annually.

If an inspection reveals deficiencies in meeting the AWA standards and regulations, the inspector instructs the facility to correct the problems within a given timeframe. If deficiencies remain uncorrected at the unannounced follow-up inspection, APHIS documents the facility's deficiencies and considers possible legal action.

APHIS also conducts reviews and investigates alleged violations. Some cases are resolved with Official Notices of Warning or agency stipulation letters, which set civil penalties for the infractions. Civil penalties include cease-and-desist orders, fines, and license suspensions or revocations. If APHIS officials determine that an alleged AWA violation warrants additional action, APHIS submits all evidence to the USDA for further legal review.

In addition to conducting regular inspections, APHIS will perform inspections in response to public input about the conditions of regulated facilities. Concerned individuals also are encouraged to inform APHIS about facilities that should be licensed or registered.

Section 2: Institutional Animal Care and Use Committee

2.0 Authority

Institutional Animal Care and Use Committees (IACUC's) derive their authority from the law. The Health Research Extension Act (HREA) of 1985 and the Animal Welfare Act mandate the existence of IACUC's. The laws require the Chief Executive Officer (CEO) of an organization to appoint the IACUC, whose responsibilities are delineated in the law and federal policy and regulations. The Office of Laboratory Animal Welfare (OLAW) considers the CEO to be the highest operating official of the organization. The Vice President of Research at OSU CHS delegates authority through the Institutional Official (IO) to appoint the membership of the IACUC on an annual basis.

Once appointed, the IACUC reports to a senior administrator known as the Institutional Official (IO). The Assistant Dean of Research is the appointed IO at OSU CHS. The IO is given the administrative and operational authority to commit institutional resources to ensure compliance with the PHS Policy and other requirements.

The IACUC's mandate to perform semiannual program evaluations as a means of overseeing the animal care and use program puts the IACUC in an advisory role to the IO. In its semiannual reports the IACUC advises the IO of the status of the Institution's compliance, establishes plans and schedules for correcting deficiencies necessary to either maintain or achieve compliance, and makes recommendation to the IO regarding any aspect of the Institution's animal program, facilities, or personnel training.

The IACUC's authority to review and approve protocols is independent of the IO, who may not overrule an IACUC decision to withhold approval of a protocol. If the IACUC approves a protocol, however, the Institution is not required or obligated to conduct the research activity. The Institution may also subject protocols to additional institutional review (e.g., department head, Biosafety committee, etc.).

OSU CHS has established an Institutional Animal Care and Use Committee, which is qualified through the experience and expertise of its members to oversee the Institution's animal program, facilities, and procedures.

2.1 Committee Composition

The IACUC is composed of regular voting members, alternate voting members, and non-voting members. The IACUC may use, as necessary, non-voting members and consultants during review discussions. Some IACUC members fulfill specific regulatory requirements (e.g., veterinarian with program responsibility, an individual nonaffiliated with the Institution); others have unique roles by virtue of their position (e.g., Chair, Veterinarian, etc.)

There are no specific prohibitions regarding individuals filling more than one role on the IACUC, but OLAW strongly recommends against the same person serving multiple roles, because the responsibilities and authorities vested in each of the positions are distinct and often require different skills. Appointing one individual to more than one of these roles may circumvent intended checks and balances. Also of importance is the perception of conflict of interest, which can lead to allegations of improprieties from various sources.

Required categories of membership include:

Veterinarian. The PHS Policy and AWRs mandate the appointment of a veterinarian with direct or delegated program responsibility to the IACUC. The IO may appoint more than one veterinarian to the IACUC, but the veterinarian with direct or delegated program responsibility must be designated as such. The veterinarian with program responsibility, e.g., Attending Veterinarian, must have training or experience in laboratory animal science and medicine or in the care of the species being used.

Chair. The Chair is appointed annually and is a faculty member of OSU CHS with research experience.

Nonaffiliated. The nonaffiliated member(s) represent general community interests. Neither they, nor their immediate family, have an affiliation with OSU CHS. These members have equal status (e.g., voting) to every other committee member and are provided the opportunity to participate in all aspects of IACUC functions.

Scientist. PHS Policy requires that the IACUC include a practicing scientist experienced in research involving animals.

Nonscientist. PHS Policy requires that the IACUC include a member whose primary concerns are in a nonscientific area. Examples include, but are not limited to, ethicist, lawyer, member of the clergy, librarian, etc.

The Institution should consider persons with expertise in the disciplines involved in institutional research and teaching programs for service on the IACUC. In addition to the required categories of membership, it is suggested that individuals with expertise in specific areas pertinent to protocol review and program oversight be considered (e.g. statisticians, occupational health experts, information resource specialists, animal health technicians, and scientific research staff).

There is no requirement that any particular member or category of members be present at all IACUC meetings. The institution, however, must have a properly constituted IACUC in order for the IACUC to conduct valid official business.

Alternate members may be appointed to the IACUC as long as they are appointed by the IO or other official with authority to appoint members, and there is a specific one-to-one designation of IACUC members and alternates. An IACUC member and his/her alternate may not count toward a quorum at the same time or act in an official member capacity at the same time. Alternates

should receive training identical to the training provided to regular IACUC members.

OSU CHS IACUC meets the compositional requirements set forth in Section IV.A.3.b. of PHS Policy.

2.2 Conflict of Interest

Both the AWRs and PHS Policy state that no IACUC member "may participate in the IACUC review or approval of an activity in which that member has a conflicting interest, (e.g. is personally involved in the activity) except to provide information requested by the IACUC."

All investigators, consultants, and/or IACUC members are required to disclose any conflicts of interest according to OSU CHS policy.

An investigator or IACUC member is said to have a conflict of interest whenever that person, his or her spouse, or dependent child falls under any of the following conditions:

- Is an investigator or sub-investigator on the protocol (IACUC members only, not applicable to PI's).
- Has entered into a financial arrangement with the sponsor or agent of the sponsor, whereby the outcome of the study could influence the value of the economic interest.
- Acts as an officer or a director of the sponsor or an agent of the sponsor.
- Has an equity interest in the sponsor of $10,000 or greater or 5% or greater of the equity sponsor.
- Has received payments or other incentives from any sponsor that when aggregated for the investigator or member, spouse and dependent children, total of $10,000 or greater.
- Has identified him or herself for any other reason as having a conflict of interest. Other possible examples of conflict of interest include cases where:
    - A member is involved in a potentially competing research program;
    - Access to funding or intellectual information may provide an unfair competitive advantage;
    - A member's personal biases may interfere with his or her impartial judgment.

If the investigator submitting a protocol believes that an IACUC member has a potential conflict, the investigator may request that the member be excluded. The Chair (or in his/her absence, the Vice-Chair) will present the declared conflict and the Committee will determine whether a conflict exists.

Should an IACUC member declare involvement in any way in a research protocol under review by the IACUC, or state a conflict of interest with the research protocol, then the member(s):

- May remain in the meeting room to provide information requested by the IACUC;
- Leave the meeting room for discussion and voting; and
- Are not counted towards quorum.

2.3 Confidentiality

To protect the integrity of the Institution and its researchers, IACUC members must not:

• Disclose confidential or proprietary information (protocol or investigator specific) to any non-IACUC member or,
• Discuss, or disclose any details of IACUC business (e.g., protocol reviews, non- compliance discussion, subcommittee investigations or reviews, etc.) to third parties without the consent of the IACUC Chair (or in his/her absence the Vice-Chair).

Material provided to the IACUC for review shall be considered confidential information and the members must, therefore, assure the confidentiality of the data contained therein. All IACUC applications and other sensitive review materials must be either filed in a secure location or otherwise disposed of in an appropriate manner, e.g., shredding.

Under the Animal Welfare Act, IACUC members who violate confidentiality regarding "trade secrets" or other proprietary information may be subject to significant fines. However, this provision of the Animal Welfare Act is not intended to discourage participation on the IACUC, but rather to protect institutions. It should be noted that the USDA Animal Welfare Act Regulations (which implement the Animal Welfare Act itself) state that reports of violations to regulatory agencies by IACUC members are NOT violations of confidentiality requirements.

The IACUC views the sharing of information for educational purposes in faculty and staff meetings an important benefit of departmental representation and is considered a vital part of the member's experience. This information may include such items as IACUC concepts, policies, regulations, and educational issues, providing no specific personal, confidential, or proprietary information is divulged.

If, following a Full Committee Review, the Committee agrees that consultation or discussions with individuals outside of the Committee are necessary; a person designated by the IACUC will first obtain permission from the Principal Investigator. If the Principal Investigator does not grant such permission, this may preclude final approval by the IACUC if questions concerning the protocol cannot be resolved.

2.4 Quorum Requirements

Certain official IACUC actions require a quorum: full committee review of a research project (Policy IV.C.2. and AWR §2.31(d)(2)) and suspension of an activity (Policy IV.C.6. and AWR §2.31(d)(6)).

OSU CHS defines a "quorum" as more than half of the regular IACUC voting members.

A protocol is approved only if a quorum is present, and if more than 50% of the quorum votes in favor of protocol approval. For reasons other than conflict of interest, abstentions from voting do not alter the quorum or change the number of votes required. For example: If the IACUC has 5

voting members, at least 3 members must be present at a convened meeting to constitute a quorum and approval of a protocol would require a minimum of 2 votes whether or not there were abstentions.

2.5 Functions of the IACUC

The Institutional Animal Care and Use Committee (IACUC) will:

1. Review at least once every six months the program for humane care and use of animals, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual program reviews are described in Section 7.1.
2. Inspect at least once every six months all of the facilities holding animals, including satellite facilities, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual facility inspections are described in Section 7.2.
3. Prepare reports of the IACUC evaluations as set forth in the PHS Policy IV.B.3 and submit reports to the Institutional Official. The IACUC procedures for developing reports and submitting them to the Institutional Official are described in Section 7.3.
4. Review concerns involving the care and use of animals at OSU CHS. The IACUC procedures for reviewing concerns are described in Section 8.
5. Make written recommendations to the Institutional Official regarding any aspect of the Institution's animal program, facilities, or personnel training. The procedures for making recommendations to the Institutional Official are described in Section 2.8.
6. In accord with PHS Policy IV.C.1-3, the IACUC shall review and approve, require modifications in (to secure approval), or withhold approval of activities related to the care and use of animals. The IACUC procedures for protocol review are described in Section 3.
7. Review and approve, require modifications in (to secure approval), or withhold approval of proposed significant changes regarding the use of animals in ongoing activities as set forth in PHS Policy IV.C. The IACUC procedures for reviewing proposed significant changes in ongoing research or educational projects are described in Section 3.9.
8. Notify investigators and OSU CHS in writing of its decision to approve or withhold approval of those activities related to the care and use of animals, or of modifications required to secure IACUC approval as set forth in the PHS Policy IV.C.4. The IACUC procedures to notify investigators and OSU CHS of its decisions regarding protocol review are described in Section 3.6.4.
9. Conduct continuing review of each previously approved, ongoing activity covered by PHS Policy at appropriate intervals as determined by the IACUC, including a complete review in accordance with the PHS Policy IV.C.1-4 at least once every three years. The IACUC procedures for conducting continuing reviews are described in Section 4.
10. Be authorized to suspend an activity involving animals as set forth in the PHS Policy IV.C.6. The IACUC procedures for suspending an ongoing activity are described in Section 8.3.

2.6 Liability

Under PHS Policy, the primary responsibility for meeting applicable federal and state rules rests with the research facility or PHS awardee institution. The Institutional Official (IO) is the

individual held responsible on behalf of the research facility for ensuring compliance. Failure to comply with PHS Policy could result in OLAW's withdrawal of approval of the institution's Animal Welfare Assurance, thereby making the institution ineligible to receive Federal funds for activities involving animals. Failure to comply with the Animal Welfare Act could result in the USDA's withdrawal of Certification and assessment of monetary fines.

2.7 Use of Electronic Mail (Email) for Official Correspondence

Electronic mail (email), like postal mail, is a mechanism for official OSU CHS communication. The IACUC will exercise the right to send email communications to all laboratory animal users and the IACUC will expect that email communications will be received and read in a timely manner.

This policy applies to all faculty, staff, students, or any other person listed on an animal care utilization proposal (ACUP) submitted to the IACUC for review and approval. Official communications using email can include email to a group, or an email message to only one person.

2.8 Making Recommendations to the Institutional Official

The IACUC will make written recommendations to the Institutional Official regarding any aspect of the Institution's animal program, facilities, or personnel training. The procedures for making recommendations to the Institutional Official are as follows:

1. Recommendations regarding any aspect of the University's animal program, facilities, or personnel training are formulated at convened meetings of the IACUC.
2. Recommendations are prepared in writing by the IACUC Administrator, the Attending Veterinarian, the IACUC Chair (or in his/her absence, by the Vice-Chair), and/or any IACUC member. A copy of these recommendations are reviewed and approved at a convened meeting of the IACUC. Any minority views are noted and included in the final report.
3. The IACUC Chair or his/her designee submits recommendations, including minority views that are approved by the IACUC to the IO.

Section 3: IACUC Research Proposals

3.0 Protocol Review

The IACUC is responsible for overseeing and evaluating all aspects of animal care and use, and is charged with reviewing proposals that involve animals to ensure that the criteria established in the PHS Policy and the Animal Welfare Regulations (AWRs) are implemented. In its review of proposals, the IACUC's primary goal is to facilitate compliance with applicable laws, regulations and policies consistent with the performance of appropriate and productive scientific endeavors.

3.1 General Scope of Review

The following kinds of activities involving animals are subject to review by the IACUC prior to initiation:

- Activities conducted by OSU CHS faculty, staff, or students;
- Activities performed on the premises of the OSU CHS;
- Activities performed with or involving the use of facilities or equipment belonging to the OSU CHS;
- Activities satisfying a requirement imposed by the OSU CHS for a degree program or completion of a course of study; and/or
- Activities certified by a dean or department head to satisfy an obligation of a faculty appointment at the OSU CHS, including requirements for clinical or adjunct appointments.

3.2 Specific Types of Activities

- Research

Many of the animals covered in IACUC review are used in research, including medical, biological, and behavioral research.

- Teaching

The use of animals in educational settings is subject to IACUC review. Examples include using animals to teach animal husbandry and medical or veterinary procedures.

Review is required even if the activity does not seem to qualify as "true research" (e.g. when the results are not intended for publication, will not advance work in another area, or will not contribute to generalizable knowledge).

- Research Conducted by "Affiliated Faculty"

Research conducted by "affiliated faculty"—those who hold clinical or adjunct appointments—is subject to the Institution's guidelines for animal use and must be submitted for IACUC review.

Any research project that is conducted by or under the direction of any employee or agent of the institution, in connection with his or her institutional responsibilities, requires IACUC approval.

• Research Projects in Which the Investigator is a Consultant

In some instances, OSU CHS faculty or staff may serve in an advisory capacity for a research project conducted outside the OSU CHS community. IACUC review is required unless the investigator has a strict consulting relationship in which:

- The investigator is hired on his or her own time;
- The investigator holds no rights in the work; and
- Neither the investigator nor the OSU CHS retains any data.

Unless all three of these criteria are met, the IACUC must review the project. Review by another institution or facility's IACUC is insufficient unless a cooperative arrangement between that IACUC and the Institution's IACUC is agreed upon prior to initiating the consultant relationship.

• Research in Foreign Countries

Research conducted by the Institution's investigators in foreign countries falls under the Institution's purview and guidelines. Regardless of the setting, the standards for ethical and responsible use of animals in research will not be relaxed even if different customs prevail.

All animal-based research conducted in foreign countries is subject to IACUC review. This includes the use of animals in foreign research institutions, and fieldwork involving either domestic or wild animals.

Research projects must be approved by the local equivalent of an IACUC before they are initiated. Where there is no equivalent board or group, investigators must rely on local experts or community leaders to provide approval. The IACUC requires documentation of this local approval, as well as documentation of any necessary permits, before granting final approval for the project.

With regard to activities supported by PHS funds, foreign institutions that serve as performance sites must also have Assurances on file with OLAW.

3.3 Exemptions

3.3.1 Field Studies

Research and/or teaching field studies are exempted from filing an animal care and use protocol

and obtaining IACUC approval provided that the field studies are only observational in nature and do not involve capturing/trapping, physical/chemical restraint, and/or invasive procedures.

3.3.2 Studies That Do Not Use Live Animals

Research, teaching, or testing protocols that do not involve the care or use of live animals (i.e., only involve the use of animal cadavers, body parts, tissues, blood, etc.) are exempted from filing an animal care and use protocol and obtaining IACUC approval provided that the animal cadavers, body parts, tissues, blood, etc. are obtained from an IACUC approved source and are disposed of in accordance with state law and OSU policy for disposal of hazardous/ infectious/ pathologic waste.

IACUC approved sources for animal cadavers, body parts, tissues, blood, etc.:

- US Department of Agriculture (USDA) licensed dealers

- USDA inspected slaughterhouses (OSU Food Animal Products Technology Center or private commercial slaughterhouses)

- Oklahoma Animal Disease Diagnostic Laboratory (OADDL) (i.e., derived from animals presented for euthanasia and/or necropsy that would otherwise be disposed of as pathological waste.)

- Municipal pound/shelter (i.e., derived from stray/unclaimed animals that are euthanized in accordance with USDA regulations, Oklahoma Statutes, and local Municipal Ordinances)

- An IACUC approved animal use protocol (i.e., derived from dead animals that would otherwise be disposed of as pathological waste.) (Note: An IACUC approved protocol is required if additional/special ante-mortem procedures are involved in the harvesting of tissue, blood, etc.)

- Commercial grocery store and/or meat market (i.e., fresh/frozen beef, pork, poultry, fish, etc.)

- Specimens obtained by legal hunting or trapping that would otherwise not require a protocol.

- Specimens obtained from colleagues at universities, accredited museums, zoos, aquaria, or state, provincial and federal agencies.

- Specimens salvaged in the field (i.e., found dead)

Investigators/instructors performing research, teaching, or testing that involves the use of animal cadavers, body parts, tissues, blood, etc. from a source not listed above must file a request for exemption with the IACUC that contains the following minimum information:

• The PI's name, office address, department, phone number and email address;

• A brief description of what the animal cadavers, body parts, tissues, etc. will be used for;

• The source(s) of animal cadavers, body parts, tissues, blood, etc.;

• Where the animal cadavers, body parts, tissues, etc. will be stored and/or used; and

• How the animal cadavers, body parts, tissues, blood, etc. will be disposed of.

3.4 Who can be a Principal Investigator?

The Principal Investigator listed on a grant proposal is not necessarily the same as a Principal Investigator listed on an Animal Care and Use proposal.

All use of animals in research and/or teaching at OSU CHS must be under the direct supervision of a tenured, tenure track, or research faculty with assigned research space at OSU CHS. Faculty are considered to be sufficiently knowledgeable to supervise and/or conduct research as determined by their appointment, and thus, can be listed as the Principal Investigator on an Animal Care and Use proposal. The IACUC, however, may at its discretion, determine that a faculty member lacks sufficient expertise to carry out any particular research project based on their relevant training and experience.

Research conducted by non-faculty, academic support staff, post-doctoral fellows, staff appointments, graduate students or undergraduate students must be under the direction of a faculty member, as defined above. In such cases, the faculty member shall be considered the Principal Investigator. The PI may delegate the performance of any or all components of the research to non-faculty if they certify to the IACUC that the individuals are sufficiently trained to perform the functions assigned.

Individuals that do not meet any of the above criteria may, by demonstrating sufficient cause and necessary expertise, petition the Institutional Official for permission to submit an application for approval of an IACUC protocol. Such agreement shall be in writing and require the individual to comply with all relevant IACUC and OSU CHS policies for the conduct of research involving animal subjects.

3.5 Protocol Review Criteria

In order to approve proposed research projects or proposed significant changes in ongoing research projects, the IACUC shall conduct a review of those components related to the care and use of animals and determine that the proposed research projects are in accordance with PHS Policy, AWRs, and the applicable US Government Principles. Since the PHS Policy further requires that the provisions of the *Guide* apply, there are many other aspects of research that an

IACUC should review, such as food and water deprivation, use of noxious stimuli, and physical restraint. The *Guide* provides useful guidance on these and other practices.

If the IACUC does not have the scientific and technical expertise to evaluate all aspects of a proposal it may bring in outside expert consultants to provide information. Such consultants will not have a conflict of interest with the research activity and may not vote on any matters pertaining to the protocol. In all cases, the onus should be on the investigator to justify and explain his or her proposed experiments to the satisfaction of the IACUC.

3.6 Protocol Review Procedures

The procedural review requirements of the PHS Policy or the AWRs take precedence even though they may differ from some commonly used parliamentary procedures. The Institution may develop its own meeting procedures as long as the procedures do not contradict or are not inconsistent with the requirements of the PHS Policy or the AWRs.

If a proposed activity may cause more than momentary or slight pain or distress to animals, the AWRs specifically require investigators to consult with the Attending Veterinarian (AV) or his or her designee during protocol development.

The PHS Policy and AWRs recognize two methods of protocol review: Full Committee Review (FCR) and Designated Member Review (DMR). The following pertains to review of initial protocols as well as to review of proposed significant changes in previously approved protocols.

3.6.1 Full Committee Review (FCR)

Full committee review of protocols requires a convened meeting of a quorum of the IACUC members. The PHS Policy and AWRs are explicit that proposals reviewed by the full committee must receive the approval vote of a majority of the quorum present in order receive approval.

The Committee has the authority to approve, require modifications in (to secure approval), disapprove, or table (defer until future meeting) any proposed activity. In many cases, the Committee finds the protocols approvable on certain conditions and votes to allow the protocol to be reviewed, and approved, using the Designated Member Review (DMR) process, as described in Section 3.6.2. Approval of the change from FCR to DMR must be unanimous (of a quorum of members (Section 2.4)) and is recorded in the minutes. Committee members are given the opportunity to require that the requested modification(s) be brought before the next committee meeting. Under no circumstances will animal work be permitted to resume or begin until final approval is granted.

IACUC members can also take the initiative to contact the investigator prior to the meeting for clarifications, additional information, or in anticipation of questions the IACUC may raise.

3.6.2 Designated Member Review (DMR)

To utilize designated member review (DMR), each IACUC member must be provided with, at a minimum, a list of the proposed research protocols or proposed significant changes to previously approved protocols prior to the review. Written descriptions of the research proposals must be made available to IACUC members upon request. Each IACUC member is provided a copy of the protocol document from the IACUC Administrator. Committee members are given a five (5)-business day member consideration period to review the protocol document and respond either allowing the DMR to review the protocol or to hold the protocol for the next FCR. Members are reminded that failure to respond within the member consideration period is considered as approval to use DMR for review. These responses are sent to the IACUC Administrator via email. The IACUC Administrator tallies the votes to ensure that more than half of the voting members respond, then at the end of the member consideration period, the IACUC Administrator sends the protocol to DMR for review. If any one member votes to hold the protocol until the next IACUC meeting, then the protocol is placed on the agenda for the next IACUC meeting. If all members vote to allow the DMR to review the protocol before the end of the member consideration period, then the IACUC Administrator sends the protocol to DMR for review.

The IACUC Chair (and in his/her absence, the Vice-Chair) designates one or more qualified members to review the proposal (or proposed amendment or annual renewal). These designated member(s) have authority to approve, require modifications in (to secure approval), or request full committee review. A designated reviewer may not withhold approval; this action may only be taken if the review is conducted using the full committee method of review.

3.6.3 Administrative Review (AR)

While Federal regulations allow for two types of review of animal use protocols (FCR and DMR), recent guidance from the Office of Laboratory Animal Welfare (OLAW) granted authority for a small number of items to be administratively approved.

Amendment/modification applications to existing protocols that involve certain changes not considered significant (see Section 3.9.2) can be reviewed and approved administratively.

3.6.4 Notification of Review Outcome

The IACUC will notify investigators and OSU CHS in writing of its decision to approve or withhold approval of those activities related to the care and use of animals, or of modifications required to secure IACUC approval as set forth in the PHS Policy
IV.C.4. The IACUC procedures to notify investigators and OSU CHS of its decisions regarding protocol review are as follows:

- Upon completion of the review process, each Principal Investigator receives a written notification of review decisions (approved, modifications required in (to secure approval), approval withheld, or tabled) and whether any special monitoring provisions will be required. Records of communication are maintained within the IACUC protocol files.

- Upon completion of the review process, a copy of the meeting minutes is provided to the IO. This informs the IO of all actions taken by the IACUC.
- If modifications are required in the protocol to secure approval, the Principal Investigator has 75 days to make the changes and re-submit to the IACUC. If the protocol is not resubmitted within the 75 day timeframe, the protocol will be administratively closed.

3.6.5 Appeal of an IACUC Decision

Investigators shall have the right to appeal a decision of the IACUC within two (2) weeks of notification by the IACUC Chairperson. A Principal Investigator may appeal decisions made by the Institutional Animal Care and Use Committee (IACUC) by following the below steps:

1. The appealer states in writing to the IACUC Chair specific points of disagreement with the Committee's action, reasons for disagreement, and the desired outcome of the appeal.
2. The IACUC Chair appoints at least one IACUC member ("the hearer") to present the appeals to IACUC members at a convened meeting of a quorum of the IACUC.
3. A quorum of the IACUC membership hears the appeal from the hearer and/or from the person appealing and determines an outcome. The appealer will in any case be invited to attend and provide comments to the IACUC regarding the appeal.
4. All decisions of the IACUC regarding an appeal request will be conveyed to the appealer in writing and copied to the Institutional Official.
5. If the person(s) appealing is not satisfied with the IACUC's decision, he or she may appeal to the Institutional Official and thereby initiate further IACUC consideration if the Official so requests. **Officials of the institution, however, cannot approve an animal activity that has not been approved by the IACUC.**

3.7 Required Principal Investigator Certifications

In order to submit an Animal Care and Use Protocol to the IACUC for review, the Principal Investigator must certify the following pursuant to applicable Federal laws and regulations, Oklahoma Statutes, and Oklahoma State University Policies and Procedures:

> I affirm that all use of vertebrate animals in Oklahoma State University sponsored research, teaching, and/or testing programs shall be covered by an Animal Care and Use Protocol (ACUP) that has been reviewed and approved by the Oklahoma State University Institutional Animal Care and Use Committee (IACUC) and that IACUC approval shall be obtained prior to ordering animals and/or performing any animal procedures described therein.
>
> I affirm that any proposed changes in personnel, species, usage, animal procedures, anesthesia, post-operative care, or biohazard procedures that will significantly impact upon the animal portion of the study will be reported in writing to the IACUC in the prescribed format and that IACUC approval shall be obtained prior to performing the revised animal procedures described therein.

I affirm that unauthorized deviation from an approved ACUP is grounds for suspending/terminating the protocol and may result in disciplinary action.

I affirm that the OSU Attending Veterinarian may perform unannounced inspections and observations of animal quarters and/or experimental procedures and that the OSU Attending Veterinarian is authorized to humanely euthanize animals that are found to be experiencing severe pain and/or distress that cannot be relieved and/or unilaterally suspend an approved protocol pending full IACUC review. (NOTE: The OSU Attending Veterinarian will make a concerted effort to contact the PI and/or his/her designated staff prior to initiating such action.)

I affirm that all use of biohazardous materials and/or radiological materials must be reviewed and approved by the applicable Oklahoma State University Institutional safety officials/committee. Failure to follow those approved protocols may result in withdrawal of authorization to conduct research/teaching/testing at Oklahoma State University.

I affirm that I have considered alternatives to the use of live animals in research, teaching, or testing.

I affirm that the activities/methods/procedures described herein do not unnecessarily duplicate previous experiments.

I affirm that all animal procedures described herein that may cause more than momentary or slight pain or distress will be performed with appropriate sedatives, analgesics, or anesthetics unless scientifically justified and approved by the IACUC; that paralytics will not be used without anesthesia; and that I have consulted the OSU Attending Veterinarian or other veterinarian in planning/developing the regimen to alleviate pain/distress.

I affirm that personnel performing animal manipulation, experimental techniques, surgery, etc. are or have been adequately trained and proficient prior to performing those procedures.

I affirm that the ACUP contains sensitive information and is not to be released to unauthorized individuals.

I affirm that the information contained herein does not materially conflict with and/or deviate from information contained in related grant proposal documents submitted to extramural funding agencies listed in the protocol.

It is implicit upon submission of the protocol that the Principal Investigator has read and agrees to abide by the assurance statements listed above and the Oklahoma State University Institutional Policies governing the use of animals in research, teaching, and/or testing programs.

3.8 Range of IACUC Actions

Upon review of protocols, the IACUC may take one of several different actions depending upon the findings of the committee: approval, modifications required in (to secure approval), and withhold approval. An IACUC may also defer or table review of a protocol. The PHS Policy and AWRs require the IACUC to notify investigators and the institution in writing of its decision to approve or withhold approval, or require modifications in (to secure approval) of a protocol. If approval is withheld the IACUC must provide the reasons for its decision and give the investigator an opportunity to respond.

• Approval

When the IACUC has determined that all review criteria, based on the PHS Policy and AWRs, have been adequately addressed by the investigator, the IACUC may approve the project, thus granting the investigator permission to perform the experiments or procedures as described.

The IACUC-approved proposal may be subject to further appropriate review and approval by institutional officials due to financial, policy, facility, or other institutional or administrative considerations. Those officials, however, may not approve an activity if it has not been approved by the IACUC.

• Modifications required in (to secure approval)

The IACUC may require modifications to the protocol before granting approval. If the IACUC determines that a protocol is approvable contingent upon receipt of a very specific modification (e.g., receipt of assurance that the procedure will be conducted in a fume hood), or clarification of a specific point, the IACUC may handle these modifications or clarifications as administrative details that any member, such as the Chair, could verify prior to granting approval.

If a study is unusually complex or involves untried or controversial procedures the IACUC may wish to impose restrictions, (e.g., approval for the use of a limited number of animals as a pilot study with a written report of interim results, or close monitoring by veterinary or other qualified personnel). If such modifications represent significant departures, the IACUC can ask the investigator to revise the protocol to reflect the modifications imposed by the IACUC.

If the protocol is missing substantive information necessary for the IACUC to make a judgment, or the IACUC requires extensive or multiple modifications, then the IACUC can require that the protocol be revised and resubmitted. If the IACUC wishes to shift to the designated member reviewer mode for the approval of the modified protocol, that shift should be explicitly noted in the meeting minutes and the requirements for designated review must be met.

• Withhold approval

When the IACUC determines that a proposal has not adequately addressed all of the requirements of the PHS Policy and AWRs, as applicable, or the described activities represent inappropriate or unethical use of animals, the Committee may withhold approval. A designated reviewer may not withhold approval; this action may only be taken if the review is conducted using the full committee method of review.

As indicated above, a higher institutional authority may not administratively overrule an IACUC decision to withhold approval of a proposal.

• Defer or table review
If the protocol requires significant clarification in order for the IACUC to make a judgment, Committee members with certain expertise are not present, the IACUC wishes to seek external consultation, or any of a number of other reasons prevent the IACUC from conducting its review, then the IACUC may wish to defer or table review until a future FCR.

3.9 Review of Modifications to Approved Protocols

3.9.1 Significant Changes

Significant changes to an IACUC-approved protocol must be reviewed and approved by the IACUC before they occur (PHS Policy IV.C.1., and AWR §2.31[d][1]). The Institution interprets significant changes to mean those that have the potential to impact substantially and directly on the health and well-being of the experimental animals. Examples of significant changes include, but are not limited to:

• Principal investigator of an animal study protocol.
• Use of hazardous agents in animal procedures (this could mean chemical or biological or test compounds).
• Procedures that will result in more than momentary or slight pain or distress.
• Method of anesthesia, sedation or analgesia. (Minor changes may be approved by the Attending Veterinarian.)
• Dosage of experimental materials (increase), dose route (i.e., changing from I.P. to I.V. infusion), or dose frequency (increase).
• Protocol that would require animals to be fed, housed or cared for in a way that is not standard for that species, or does not meet that species' minimum requirements.
• Significant food/water restrictions (not routine fasting).
• Experimental protocol requiring more than momentary physical restraint of the conscious animal, e.g., use of other devices to physically restrain the subject while the experiment is in progress.
• Protocol where death becomes the experimental end point. For purposes of this criterion, death is defined as natural death resulting from experimental conditions (rather than euthanasia at a time when a set of criteria recognized as the end point is met).
• Protocol that would eliminate or restrict an animal's access to veterinary care.
• Protocol from non-surgery to surgery, from minor to major surgery, from non-survival to survival surgery, or from single to multiple survival surgery.
• Method of euthanasia: e.g., (a) from a chemical or inhalant method to a physical method, (b) from any method to decapitation without anesthesia (c) from an AVMA recommended method to a method not specifically recommended.
• Species.
• Number of animals needed over original number approved, specifically an increase of more than ten percent (10%)

Proposed significant changes require IACUC review (and approval) prior to initiation.

3.9.2 Non-Significant Changes

The IACUC interprets non-significant changes to mean those that do not have the potential to impact substantially and directly on the health and well-being of the experimental animals. Examples of non-significant changes include, but are not limited to:

- Changes in the funding source;
- Addition/Deletion of personnel (other than the PI);
- Changes in the use of a new vivarium housing location;
- Transfer of animals to another protocol where animals (same stock/strain) are already approved on that study;
- Euthanasia procedures (from one AVMA approved method to another only); and
- Addition of animals (10% or less than the # approved for).

Proposed non-significant changes require administrative review (and approval) prior to initiation.

3.10 Minimization of Pain and Distress

In design of the research, training or educational activities, it is the responsibility of the PI to consider and include procedures that minimize animal pain or distress.

As required by the PHS Policy and the AWRs, and reiterated in the *Guide*, the IACUC is mandated to critically evaluate research protocols to ensure that pain and distress are minimized in laboratory animals and assure that appropriate steps will be taken to enhance animal well-being. The AWRs stipulate that the IACUC determine that the principal investigator has considered alternatives to procedures that may cause more than momentary or slight pain or distress to the animal and has provided a written narrative description of the methods and sources used to determine that alternatives were not available. The *Guide* states that the IACUC should ensure the protocol addresses:

- Appropriate sedation, analgesia, and anesthesia;
- Criteria for timely intervention, removal of animals from study, or euthanasia if painful or stressful outcomes are anticipated; and
- Details of post-procedural care.

The protocol must provide adequate information for the IACUC to assess the potential animal pain and/or distress resulting from the study and the effectiveness of the pain- and distress-relieving agents proposed for use. Criteria for re-dosing the animal should also be established. The AV must be consulted for any procedure that has the potential to cause more than momentary pain or distress.

Examples of procedures which the *Guide* suggests may have the potential to cause pain or distress, include:

- physical restraint,
- survival surgeries,
- food or water restriction,
- death as an endpoint,
- noxious stimuli,
- skin or corneal irritancy testing,
- tumor burdens,
- intra-cardiac or orbital sinus blood sampling, and
- abnormal environmental conditions.

3.10.1 Assessing Pain and Distress

Numerous references indicate that both laboratory animals and humans receive and process noxious stimuli using similar mechanisms. An animal's response to pain is often adaptive to reduce movement to minimize re-injury and aid recuperation. This response, however, may lead to physiological and behavioral changes which impact negatively on both the animal's well-being and the research results.

Fundamental to the relief of pain is the ability to recognize its clinical signs in various species of animals. Due to the inability of animals to verbalize, it is essential that animal care staff and researchers receive adequate training on how to recognize clinical signs of pain and distress. It is often useful to start with a general set of observations for assessing pain and distress such as change in body weight, physical appearance/posture or changes in unprovoked and provoked behavior. The assessment system should then be modified on a case-by-case basis using specific changes that may be anticipated in a particular study.

3.10.2 Alleviation of Pain and Distress

Accepted best practices for dealing with the possibility of unrelieved pain and distress should be considered and incorporated into protocols unless there is a sound scientific rationale for deviation from those practices. The investigator must also provide an assurance that unrelieved pain will continue for only the minimum period of time necessary to attain the study objectives.

Protocol methodology should be considered that decreases the potential for pain or distress. In addition to thorough searches of the literature, this can be done through the careful use of pilot studies to determine earlier endpoints or less invasive alternatives.

Pharmacologic treatment of pain or distress should be given as consistent with the type of pain/distress and the needs of the research question. The veterinarian must be consulted for all such protocols and should provide guidance to investigators and the IACUC. Non-pharmacologic treatments should also be employed. This may include special housing

considerations, dietary and other environmental enrichments, adjustments and careful supportive care.

It is the responsibility of the investigator to show s/he has considered all the options for minimizing pain and distress that do not compromise the scientific validity of the experiment. The IACUC's deliberations regarding the management of potential pain and distress in a protocol will be documented. Personnel should be trained in pain and distress management. The IACUC should ensure that there is a mechanism in place for prompt reporting of sick animals to the veterinary staff.

Section 4: Monitoring of Approved Protocols

4.0 Continuing Review: The Annual Review

Animal Welfare Regulations require an annual review of protocols using USDA-regulated species. PHS Policy requires the IACUC to conduct continuing review of each previously approved, ongoing activity covered by PHS Policy at appropriate intervals as determined by the IACUC, including a complete review in accordance with the PHS Policy IV.C.1-4 at least once every three years.

When Annual Update Forms are submitted to the IACUC Administrator prior to the protocol's expiration date, the protocol is considered active and experiments can be conducted while the annual update is under review.

4.0.1 Procedures for Conducting Annual Reviews

Sixty (60) days before the first and second anniversary of the protocol approval, the PI is sent a notification requesting the status of the protocol (active or inactive) and requesting any proposed modifications to the protocol. The PI must complete the Annual Update Form and return it to the IACUC Administrator by the first and second anniversary of the protocol approval. Review of the Annual Update Form is conducted as described in Section 3. If a PI fails to submit an Annual Update Form by the first and second anniversary of the protocol approval, the following action is taken:

1. If the protocol includes species that are not regulated by the USDA, then the action described in Section 4.1.1 will be followed.
2. If the protocol includes species that are regulated by the USDA, the PI must promptly provide, in writing, a statement that he or she will not use any animals under the protocol for teaching or research until the IACUC has reviewed and approved the annual review. If the PI fails to promptly provide such verification statement and continues animal work, then OSU CHS may report such incident, as described in Section 8.3.
3. When the PI has successfully submitted and obtained approval of the Annual Update after an appropriate review method (as described in Section 3.6), animal work may continue.

If a protocol is allowed to lapse while the associated vertebrate animals are still being housed on campus, they must be turned over to the custody of the Animal Facility Management (an IACUC-approved holding protocol is present to cover such situations). The Animal Facility Manager will make a determination (after possible consultation with the IACUC Chair, the relevant Dean, and/or the IO) on whether the animals can be safely and humanely maintained temporarily by the animal care staff, or if they should instead be transferred to another study, placed with an outside agency, or euthanized.

4.0.2 The Purpose and Substance of Continuing Review

The purpose of continuing review is primarily threefold:

- To inform the IACUC of the current status of the project;
- To ensure continued compliance with PHS, USDA and institutional requirements; and
- To provide for re-evaluation of the animal activities at appropriate intervals.

Federal requirements, research ethics, and moral obligations of the scientific community to society demand that IACUC's conduct appropriate and meaningful reviews of ongoing animal protocols in the same responsible manner that initial reviews are done. This means that the IACUC will not "rubber stamp" a previously approved protocol during continuing review just because it has undergone a thorough initial review. In a society where use of animals in research, testing and teaching is viewed with increasing concern, high standards of oversight must be maintained. Within the framework of federal regulations and policies, however, there is need for institutions to develop review procedures that are reasonable, meaningful and efficient, and that do not burden the IACUC or investigators with unnecessary requirements that do not contribute directly to the welfare of the animals or provide significant information relevant to the role of the IACUC.

4.0.3 Ethical Cost-Benefit Analysis

Animal activities are most frequently justified from an ethical cost-benefit perspective. This means that any animal pain, morbidity and mortality must be outweighed or at least balanced, by the potential benefits of the project in terms of its relevance to human or animal health, advancement of knowledge or the good of society. Ethical cost-benefit assessment should be a major focus during initial and continuing review by the IACUC. This assessment should not, however, be misconstrued as the equivalent of an NIH study section review of scientific merit. Instead, it represents a threshold level of review that documents that the use of animals continues to be justified. Without such assessment, there is lack of accountability, which negates the purpose of continuing review, particularly for projects not funded by the PHS or other funding agencies with rigorous peer review.

The obvious question that arises is why an ethical cost-benefit relationship would change over time. After a protocol is initially approved by the IACUC it is possible that new information may have become available, which allows application of one of the "three R's" (reduction, refinement, replacement). For example, new in vitro techniques or statistical methods may be discovered that could reduce the number of animals required. Or an investigator may find that a lesser degree of morbidity can be used as an experimental end point. Conversely, in some situations, it may be necessary for scientific reasons to increase the number of animals or to allow animals to reach a more advanced stage of morbidity than originally specified in the protocol. In either case, the ethical cost-benefit ratio will be altered and the IACUC should, therefore, re-evaluate this new relationship. Proposed changes in the protocol can be considered during continuing review and approved as warranted. Admittedly, there are considerations related to scientific continuity and grant requirements that may dictate whether changes in a protocol are possible. Nonetheless, it is incumbent on investigators and the IACUC alike to

determine during continuing review whether the 3Rs can be applied further to the protocol.

4.1 The Third-Year Resubmission: de novo Review

The PHS Policy requires that a complete IACUC review of PHS-supported protocols be conducted at least once every three years. This triennial review is interpreted by OLAW as a requirement for *de novo* review, meaning that the criteria and procedures for review specified in IV.C. of the PHS Policy must be applied not less than once every three years.

The three-year period begins on the actual date of IACUC approval; the IACUC may not administratively extend approval beyond the three years. Since protocol approval period cannot be extended, investigators must be cognizant of the protocol approval period. To aid investigators, the IACUC Administrator shall attempt to provide adequate warning of pending protocol expiration. It is the responsibility of the investigator to submit the third-year resubmission by the appropriate deadline date for a scheduled Full Committee Review (FCR) prior to protocol expiration. The IACUC requires a Third Year Resubmission be submitted as a new proposal, using the most recent version of the application. Once the protocol has obtained IACUC approval, it will be assigned a new ACUP number. ACUP numbers shall be unique and not reused.

4.1.1 Procedures for Conducting Triennial Reviews

Ninety (90) days prior to the three-year anniversary of the animal protocol approval date, the PI is sent a notification requesting a resubmission of the protocol. The PI must resubmit the entire protocol to the IACUC Administrator. A *de novo* review of the third-year resubmission is conducted as Section 3.6. The third-year resubmission must be approved by the IACUC before the expiration date of the original protocol. If a PI fails to submit a third- year resubmission and receive approval by the expiration date of the protocol, the following action is taken:

1. On the third anniversary of the protocol approval, the IACUC Chair (or in his/her absence, the Vice-Chair) will notify the PI, the PI's dean (and/or department chair), the Attending Veterinarian, and the IO that the animal protocol has expired. The PI will be notified in writing that all activities under the protocol must cease and any ongoing work under the expired protocol is a serious and reportable violation of PHS Policy.
2. The Attending Veterinarian will be notified of the expired protocol and any remaining animals under that protocol will be transferred to a holding protocol.
3. When the PI has successfully obtained approval of the protocol animals will be transferred from the holding protocol to the new approved protocol.
4. If the PI fails to successfully renew the protocol, the IACUC may consider suspension or recommending to the IO that the PI's animal use privileges should be terminated.

4.2 Comparison of Protocols to Grants

Public Health Service (PHS) agencies will not make an award for research involving live

vertebrate animals unless the applicant organization and all performance sites are operating in accordance with an approved Animal Welfare Assurance and have provided verification that the IACUC has reviewed and approved those sections of the application that involve use of vertebrate animals, in accordance with the requirements of the Policy. Additionally, PHS agencies will not make an award for research involving live vertebrate animals to an individual unless that individual is affiliated with an organization that accepts responsibility for compliance with the Policy and has filed the necessary assurance with OLAW.

Regardless of when the review occurs, the investigator should ensure that the research described in the grant proposal application is consistent with any corresponding protocol(s) reviewed and approved by the IACUC. Therefore, a copy of the of the funded or unfunded grant proposal application may be requested by the IACUC and reviewed by designated member(s) to confirm that all research outlined in the grant is included in the approved IACUC protocol.

4.2.1 Verification of Protocol and Proposal Consistency

The extents of the verification of consistency between grant proposals and IACUC protocols will be a confirmation that the species and procedures relating to use of animals described in the proposal are included in the protocol. This will be a unidirectional comparison of the procedures described in the grants. In conducting the verification, the IACUC focuses on the following two (2) questions:

- Are the species used in the grant proposal included in the IACUC protocol?
- Are animal care and use procedures described in the grant proposal included in the IACUC protocol?

Verification of grant and protocol consistency concentrates on animal care and use and **will not** include a judgment of scientific merit.

4.2.2 Timing of Verification

The IACUC will compare the grant to the protocol during the review of the protocol. The verification will not add additional time to the review process. In addition, the IACUC will compare the grant to the protocol when a new funding source for a protocol is proposed, or when the Grants & Contracts staff requests verification.

4.2.3 Protocol Amendments

There are two types of amendments to animal research protocols that have specific relevance to this policy—(1) a change in funding source and (2) a change in animal use procedures. Submission of an administrative amendment requesting a change in funding source will include a verification of consistency between the new grant and the current protocol to which it is being linked. The verification will include a confirmation that the species and procedures relating to use of animals described in the proposal are included in the protocol (see Section 4.2.1).

The IACUC understands that research projects evolve over time and therefore the specific direction of a protocol may change from the original description of animal use procedures. These changes should be submitted as a significant amendment to the protocol and should be consistent with the objectives, purpose, or aims stated in the original protocol. It is the Principal Investigator's responsibility to explain how the changes relate to the original protocol. Because the determination of consistency between the grant and original protocol has already been established, there will generally be no need to "re-verify" grant-to-protocol consistency for amendments.

For PHS-supported grants (e.g., NIH, CDC, etc.) it is the responsibility of the Principal Investigator to indicate any significant changes in the use of vertebrate animals in the Progress Report Summary section of their Non-Competing Continuation Progress Report (PHS 2590).

4.2.4 Managing Grant-Protocol Inconsistencies

The Office of Research usually conducts the grant to protocol comparison. The Principal Investigator, through the IACUC, will be consulted regarding any apparent inconsistency. As noted above, significant changes require that the PI notify the extramural Program Official. Verification of this request and subsequent approval must be shared with the IACUC.

4.3 Post-Approval Monitoring (PAM)

Periodically, the IACUC will identify certain protocols or procedures that the IACUC determines that the laboratory could benefit from close veterinary oversight. The requirement of specific monitoring can be a provision of protocol approval and is communicated to the PI. Once a protocol action (e.g., new protocol, revision, etc.) is approved with a condition for PAM, a specific notice to that effect will be sent to the PI. The notice will be sent separately rather than being combined with any other correspondence (such as approval notices or review queries). The Animal Facility veterinary staff is notified of the need for monitoring and provided with the pertinent details. The veterinary group coordinates this monitoring and periodically, and as necessary, provides updates to the IACUC.

Section 5: Training in the Humane Care and Use of Laboratory Animals

5.0 Training

All staff working with laboratory animals must be appropriately qualified to do so in order to ensure the humane treatment of animals. Training is a classic performance standard where the emphasis is on the outcome (i.e., all personnel are qualified to do their jobs). Although the PHS Policy and Animal Welfare Regulations (AWRs) do not specify a particular program or the frequency with which a program should be offered, the requirement for competence is mandatory.

The AWRs, in Sec. 2.32 (a) and (b), specify:

It shall be the responsibility of the research facility to ensure that all scientists, research technicians, animal technicians, and other personnel involved in animal care, treatment, and use are qualified to perform their duties. This responsibility shall be fulfilled in part through the provision of training and instruction to those personnel. Training and instruction shall be made available, and the qualifications of personnel reviewed, with sufficient frequency to fulfill the research facility's responsibilities.

The PHS Policy, Section IV.C.1.f. places responsibility specifically with the IACUC to ensure that personnel conducting procedures on research animals are appropriately qualified and trained in those procedures.

Personnel's training in the care and use of research animals is also an important aspect of the alternatives concept (replacement, reduction and refinement). Training in the recognition and alleviation of animal pain, distress, and abnormalities addresses refinement. Similarly, training in the conduct of animal procedures prepares staff to work without causing unnecessary harm to the animal. Technical proficiency also invokes reduction by avoiding wasted animal lives through failed procedures.

The consulting veterinarian provides training, education and assistance as necessary or requested on an individual or small group basis regarding special procedures or techniques, pre- and post-procedure care, and animal handling and restraint.

5.1 Who Should Receive Training?

All personnel (i.e., principal investigators (PIs), research faculty/staff, graduate students, laboratory technicians, students, etc.) involved in animal care, treatment, and/or use of live vertebrate animals used for research, teaching or testing at OSU CHS shall complete prescribed mandatory animal care and use training prior to protocol approval and prior to working with animals.

Training should also be made available to temporary staff, such as students and visiting scientists. PI's are responsible for identifying these people and assuring that appropriate training is accomplished.

5.2 Training Requirements for Laboratory Animal Users

The IACUC requires all personnel that conduct any research and/or teaching that involves handling, manipulating, or performing procedures on live vertebrate animals, whether in the laboratory or in the field to complete this training. Protocols will not be reviewed until all personnel listed on a protocol are current with their training.

The IACUC-required online training modules through www.citiprogram.org:

1. "Working with the IACUC" course is required for the PI only.
2. Personnel who plan to conduct studies that have the potential to cause "more than momentary pain and distress" in Mice or Rats must complete the course on "Minimizing Pain and Distress".
3. Personnel who plan to work with mice must complete the course "Working with Mice in Research". Or, if are working with rats, personnel must complete the course "Working with Rats in Research Settings". If personnel plan to work with an animal model other than mice or rats, contact the IACUC Administrator for further training instructions.
4. Personnel who plan to perform aseptic surgery on animals must complete the course on "Aseptic Surgery."

***Refresher training for all personnel is required every three years.

5.3 Education and Training for IACUC Members

5.3.1 New Member Orientation

New IACUC member orientation consists of the following: a description of the IACUC and responsibilities; U.S. Government Principles; criteria for membership; authority of the IACUC; protocol review process; monitoring of approved protocols, periodic review; protocol modifications; records; semiannual reviews; roles and responsibilities; and federal regulations. Documentation of training is maintained through the use of IACUC member files.

The objectives of providing this information are the following:

- To introduce members to the role of the IACUC and its evolution;
- To provide the basic information necessary for IACUC members to discharge their responsibilities; and
- To provide a forum for response to, and discussion of, members' concerns and questions.

Effective June 15, 2011, all new IACUC members must complete the "Essentials for IACUC

Members" online training course at www.citiprogram.org.

5.3.2 Continuing Education

Continuing education for IACUC members usually occurs at each IACUC meeting. The objectives of providing ongoing training for IACUC members is to increase their knowledge, understanding, and awareness of current laws and regulations, new directives, best practice guidelines and institutional policies. It also provides a regular forum for the IACUC to discuss concerns or questions brought forth by the faculty, staff or members of the community. Information provided for these sessions will include questions and concerns brought to the attention of the IACUC, official directives, relevant publications, conference announcements, seminar proceedings, animal facility staff and/or veterinarian's observations/recommendations, issues involving facility inspections and program evaluations, and compliance issues.

Section 6: Occupational Health Program

6.0 The IACUC's Responsibility for Occupational Health and Safety

The PHS Policy places responsibility for ensuring a safe working environment for personnel involved in the animal care and use program with the institution. An effective Occupational Health Program works with many separate institutional components including animal care and use, research, environmental health and safety, occupational health, and administration and management. A natural point of convergence for these functionally distinct institutional elements at many institutions is the IACUC. Assurance of a safe working environment is one of the topics the IACUC considers in each animal use proposal and as part of the semiannual program evaluation. It is generally necessary to involve health and safety specialists in the design and implementation of the IACUC review guidelines.

6.1 Role of the IACUC in the Occupational Health Program

Procedures should be developed for conducting a health and safety review of research activities that present hazards. These procedures should be incorporated into the IACUC protocol review process. Procedures to identify and address non-experimental hazards (e.g., during semiannual facility inspections and program reviews) should also be implemented. Communication and other procedural links between the IACUC and the environmental health and safety professional or office should be established, maintained and documented. The IACUC has a role in ensuring that personnel comply with health and safety requirements (e.g., ensuring personnel have received appropriate training, evaluating compliance with standard operating procedures or institutional policy during semiannual facility inspections, etc.).

6.2 Elements of the Occupational Health Program

An effective program design requires input from health and safety specialists and can include the following elements:

- Administrative procedures,
- Facility design and operation,
- Risk assessment,
- Exposure control,
- Education and training,
- Occupational healthcare services,
- Personal protective equipment,
- Equipment performance,
- Information management,
- Emergency procedures, and
- Program evaluation.

The details of each element are dictated by the extent and nature of employees' exposure and the type of animal use program.

6.3 Participation in the Occupational Health Program

A wide range of personnel (e.g., animal care staff, investigators, technical staff, students, volunteers, engineers, housekeepers, security officers, and maintenance personnel who care for or use animals, their tissues or fluids, or who may be exposed to them as a consequence of their job) should be provided the opportunity to participate in the Occupational Health Program.

The extent and level of participation of personnel in the Occupational Health Program is based on risk assessment, including:

- hazards posed by the animals and materials used;
- exposure intensity, duration, and frequency;
- susceptibility of personnel; and
- history of occupational illness and injury in the workplace.

The program is designed to customize the participation requirements based on the type and degree of exposure to animals. A set of questionnaires (an initial health risk assessment, a baseline health assessment and one for periodic updates) is used to assess this degree of risk.

6.4 Occupational Health Program Education and Training

There are ethical and legal requirements to inform individuals of workplace health risks that could potentially affect them and appropriate precautions to mitigate those risks. The objectives of the Occupational Health Program can be achieved only if employees are appropriately trained and understand the hazards associated with their work area and job duties, and how those risks are mitigated through institutional policies, engineering controls, work practices, and personal protective equipment.

Training should include information about:

- Zoonoses,
- Chemical safety,
- Microbiologic and physical hazards (e.g., allergens and radiation),
- Hazards associated with experimental procedures,
- Handling of waste materials, and
- Personal hygiene.

Section 7: Semiannual Program Review and Facility Inspections

7.0 Semiannual Reviews

The PHS Policy and Animal Welfare Regulations (AWRs) stipulate that the IACUC must review the program for humane care and use of animals at least once every six months, using the *Guide* as the basis for evaluation. Federal requirements also state that the IACUC must inspect all institutional animal facilities at least once every six months

7.1 Program Review

The animal care and use program review includes an evaluation of institutional policies and responsibilities (lines of authority and reporting channels), IACUC membership and functions, and IACUC recordkeeping and reporting procedures. It also includes a review of the adequacy and appropriateness of the veterinary medical care program, the training program for personnel, and the occupational health and safety program.

The IACUC will review at least once every six months the University's program for humane care and use of animals, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual program reviews are as follows:

1. During the regular convened meetings of the IACUC in May and November of each year, the IACUC reviews the University's animal care and use program using a Program Review Checklist (PRC). Each area of evaluation is evaluated and any deficiencies are categorized as minor or significant. No member is involuntarily excluded from participating in any portion of the program review.
2. Findings from the Program Review, including a Deficiency Correction Schedule (See Section 7.3), are compiled and prepared. The IACUC Administrator requests additional comments and minority views from all members present.

7.2 Facility Inspections

The facility inspections are a physical inspection of all buildings, rooms, areas, enclosures and vehicles (including satellite facilities in which animals are housed for more than 24 hours) that are used for animal confinement, transport, maintenance, breeding, or experiments inclusive of surgical manipulation. The Animal Welfare Regulations apply to animal study areas where animals are maintained for more than 12 hours (applicable only to USDA-covered species).

Laboratories in which routine procedures, such as immunization, dosing, and weighing, are conducted may be evaluated by other means such as random inspections. The institution, however, through the IACUC, is responsible for all animal-related activities regardless of where animals are maintained or the duration of the housing. The IACUC must have reasonable access

to these areas for the purpose of verifying that activities involving animals are being conducted in accordance with the proposal approved by the IACUC.

The IACUC inspects, at least once every six months, all of the University's animal facilities, including satellite facilities, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual facility inspections are as follows:

1. Every six (6) months, inspections of the animal facilities are conducted during February and August. The IACUC may inspect the facilities more often than every six months. Inspections are conducted using the *Guide*, the PHS Policy on Humane Care and Use of Laboratory Animals, and as applicable, 9 CFR Chapter I, subchapter A, as a basis for evaluation. Deficiencies are categorized as minor or significant. All IACUC members are invited, and encouraged, to attend the facility inspections. At a minimum, two (2) members are present for each inspection. No member is involuntarily excluded from participating in any portion of the facility inspections.
2. A responsible party (e.g., Principal Investigator, hereinafter referred to as PI) is notified, in writing, of any minor or significant deficiency identified in their laboratory, facility or designated space. Responsible parties are required to promptly provide a response to the deficiency notification with a description of how the deficiency has been corrected or to submit a written plan with a timeline outlining how the deficiency will be corrected.
3. Findings from the Facility Inspections, including a Deficiency Correction Schedule (see Section 7.3), are compiled and prepared. The IACUC Administrator requests additional comments and minority views from all members present.

7.3 Deficiency Correction Schedule

All deficiencies identified in during the Facility Inspection and/or Program Review are designated by the IACUC as minor or significant. A significant deficiency is defined as a situation that is or may be a threat to animal health or safety. The IACUC, through the IO, is obligated to promptly report to OLAW any serious or continuing noncompliance with the PHS Policy or any serious deviation from the provisions of the *Guide* (See Section 8.3).

For both categories of deficiencies, a reasonable and specific plan and schedule with dates for correction must be included in the final report. All individuals to be involved in the corrections should be consulted to ensure that the plan is realistic. If the institution is unable to meet the plan, the IACUC, through the IO, will inform Animal and Plant Health Inspection Service (APHIS) officials within fifteen business days of the lapsed deadline (AWRs). Federally funded projects will have their relevant funding agency informed.

7.4 Documentation

A written report of the semiannual program review and facility inspection is prepared. The AWRs require the report to be signed by a majority of the IACUC members at a convened meeting. The report describes the institution's adherence to the AWRs, PHS Policy, the *Guide*, and identifies specifically any deviations from these documents.

The report will indicate whether or not any minority views were filed, and minority views will be included in the final document. A copy of the report is sent to the IO and is kept on file for a permanently in the Office of Research. OSU CHS notifies OLAW of the dates of the semiannual program evaluations and facility inspections in the annual report to OLAW.

Section 8: Animal Welfare Concerns and Non-Compliance Situations

8.0 Reporting the Mistreatment of Animals and Deficiencies at OSU CHS

It is the policy of OSU CHS that the care, use, and treatment of university-owned laboratory animals should be of high quality and in compliance with all federal, state, and local regulations. The law requires that all persons involved or in any way associated with the use of animals in research know how to report deficiencies in animal care and treatment. There are no restrictions on who can report an alleged incident.
Anyone who has knowledge of such a deficiency is obligated to report it to the proper OSU CHS official immediately. Under no circumstances will reporting such incidences in good faith be detrimental to an individual's standing within the organization.

8.1 Definition

Allegations of animal mistreatment or deficiencies in care include the following: 1. The wrongful or abusive physical or psychological treatment of an animal. 2. Non-compliance with established procedures, policies or approved protocols.

8.2 Procedure for Reporting

Any person with knowledge of deficiencies or with reasonable suspicions of deficiencies or mistreatment involving OSU CHS laboratory animals is obligated to report them directly to the Chair of the OSU CHS Institutional Animal Care and Use Committee (IACUC), any member of the IACUC, the Laboratory Animal Resources Manager, or the Institutional Official. Timely reporting is essential to protect the animals involved and to aid the investigation of the allegations.
1. Neither administrative action nor retribution of any kind may be taken against a person making a good faith report of deficiencies. This is in accordance with public law [9 CFR, Part 2, Subpart C 2.32 (c) (4)].
2. Reports of suspected deficiencies should be made in writing whenever possible and should include, but need not be limited to, the nature and the place of the occurrence, the alleged person or persons involved, the date, the time, and any supporting facts.
3. If a person actually witnesses mistreatment or abuse, the witness will immediately notify the Veterinarian, the IACUC Chair or the Institutional Official, so that the animal or animals involved can be evaluated and receive medical treatment if necessary. The person should then report the incident through channels as described above.
4. The IACUC will investigate allegations and report its findings and recommendations to the Institutional Official in a timely fashion.
5. Individuals who wish to file their concerns through a different avenue may use the organization “Ethics Point”, which is supported by the OSU system. Reports to Ethics Point can be made via internet at http://www.ethicspoint.com, or by toll-free telephone at 1-866-294-8624.

Details of any reports or allegations of deficiencies, findings or recommendations of the IACUC, as well as administrative or legal actions taken by the committee are considered privileged information and may be released only through official channels, or as required by law.

Willful mistreatment or abuse of animals may be grounds for suspension of all animal use activities or approved protocols involved, or other disciplinary actions. Disciplinary action may be appealed.

This policy (Reporting the Mistreatment of Animals and Deficiencies at OSU CHS) will be distributed to all personnel involved in any way in animal research at or through OSU CHS facilities. Principal investigators will be responsible to assure that all personnel involved in research activities under their direction are aware of the above procedures.

8.3 Procedures for Dealing with Allegations

Allegations should be made in writing, when possible, to the Chair (or to any member) of the IACUC or to the Institutional Official. In all instances these allegations shall be immediately forwarded to the IACUC Chair. There are no restrictions on who can report an alleged incident. In accordance with the public law [9 CFR, Part 2, Subpart C 2.32(c) (4)], under no circumstances will reporting such incidences be detrimental to an individual's standing within the organization. Instruction regarding the methods by which allegations may be made to the IACUC and whistle-blower protection will be outlined in mandatory investigator training sessions. In addition, these instructions will be posted on bulletin boards in each building where research animals are used.

IACUC PROCEDURES FOR THE INVESTIGATION OF A COMPLAINT: The IACUC Chair is responsible for the receipt and disposition of all complaints. All allegations will remain confidential to the extent possible until proven or disproven. When the complainant wishes to be openly identified, the IACUC Chair will acknowledge receipt of the allegation to the complainant in writing. The IACUC Chair will present all allegations either to a convened subcommittee or to the IACUC during its next meeting. The IACUC or subcommittee will then determine if the complaint has sufficient substance to warrant a full investigation and then determine the procedures by which it will carry out an investigation. All persons involved in the investigation will be informed verbally or in writing of the purpose of the investigation and the manner in which it will be conducted. **If there is indication of serious noncompliance, the IACUC may, with the concurrence of the Institutional Official, suspend an activity pending the outcome of a full investigation.**

The IACUC will examine all pertinent documents, animals, procedures, and interview involved personnel during its investigation. Persons against whom the complaint is made will be given the opportunity to appear before the committee. The final result(s) of the investigation will be presented in executive session during a formal meeting of the IACUC and all committee members will be given the opportunity to present minority views. The IACUC will inform all parties involved, including the complainant, of the committee's findings.

The results will be forwarded to the Institutional Official with appropriate recommendations.

1. If following an investigation of the alleged incident the IACUC finds no evidence of animal mistreatment or noncompliance, the report of the investigation will be forwarded to the Institutional Official with the recommendation that no further action be taken.
2. If allegations of animal mistreatment are substantiated, the Institutional Official will be advised of the committee's findings and recommendations. The Institutional Official will then take appropriate action after consulting with the IACUC and reviewing the results of the IACUC investigation. The Institutional Official has the power to impose sanctions on an investigator found responsible for mistreatment or noncompliance. The decision of the Institutional Official is final.
3. The IACUC, through the Institutional Official, will promptly provide OLAW (and USDA, if appropriate) with a full explanation of the circumstances and actions taken with respect to:
    a. Any serious or continuing noncompliance with the PHS policy.
    b. Any serious deviations from the provision of the *Guide*.
    c. Any recommendation of suspension of an activity by the IACUC to the Institutional Official.

8.4 Reporting Requirements

Failure by research personnel to follow Federal and/or OSU CHS regulations, guidelines, policies and/or procedures may require reporting to the appropriate institutional, local, state and/or Federal agencies. Violations may include, but not limited to:

- Serious or continuing non-compliance with the PHS Policy;
- Serious deviations from the *Guide for the Care and Use of Laboratory Animals*; and
- IACUC suspensions.

8.4.1 Principal Investigator Reporting

The Principal Investigator and protocol personnel must report any serious or continuing non-compliance with an IACUC protocol, policies, procedures, decisions, or deviations from the *Guide*. The report should be on University/departmental letterhead, addressed to the IACUC Chairperson, and emailed or mailed to the Office of Research. The self-report of non-compliance should include the following information:

- relevant grant or contract number(s);
- full explanation of the situation, including what happened, when and where, the species of animal(s) involved, and the category of individuals involved (e.g., principal or co-principal investigator, technician, animal caretaker, student, veterinarian, etc.);
- description of actions taken by PI to address the situation; and
- description of short- or long-term corrective plans and implementation schedule(s).

8.4.2 Response to External Requests for Information

In accordance with applicable policies, guidelines and regulations, upon request, OSU CHS will make available to the public all IACUC meeting minutes and any documents submitted to or received from funding agencies with the latter are required to make available to the public. Redaction of proprietary and private information is allowed but "must be done so judiciously and consistently for all requested documents." In addition, the IACUC will adhere to requirements for providing copies of documents as specified in the Oklahoma Open Records Act (Title 51 §§ 24A.1-24A.24).

Section 9: Recordkeeping

9.0 Maintaining IACUC Records

The institution is responsible for maintaining:

- The Assurance approved by OLAW;
- Minutes of IACUC meetings;
- Records of IACUC activities and deliberations;
- Minority IACUC views;
- Documentation of protocols reviewed by the IACUC, and proposed significant changes to protocols;
- IACUC semiannual program evaluations and facility inspections, including deficiencies identified and plans for correction; and
- Accrediting body determinations.

9.1 Meeting Minutes

Review of proposals by the IACUC invokes a deliberative process, and the PHS Policy and AWRs require that the institution maintain "minutes of IACUC meetings, including records of attendance, activities of the Committee, and Committee deliberations" (PHS Policy IV. E; 9 CFR Part 2 Subpart C 2.35 (a)(1)). The IACUC has some latitude in the degree of detail in these minutes.

Recorded minutes from IACUC Full Committee Reviews are intended to reflect the substantive discussion of protocols. Minutes are intended to contain sufficient information that a reasonable person could understand the nature of the discussion. Meeting minutes are not intended to provide a verbatim transcript of discussion nor to reiterate shared knowledge of the Committee such as recent discussions about a protocol in previous minutes. Historical evidence of compliance or non-compliance would be recorded in the minutes if it were germane to the discussion. Minutes may include reference to historical discussion by the IACUC from members who have served on the Committee and observed the procedures being proposed, served as reviewers for protocols involving similar procedures (where their questions were answered), or participated in past IACUC discussions about the procedures.

Minutes of each FCR are recorded in writing and include records of attendance, a summary of the issues discussed and the resolution of issues, and the results of IACUC votes on protocols.

- Records of attendance

Although members may arrive late or leave during a meeting, generally a member is marked as either present or absent. An exception would be when the IACUC member leaves the meeting

room during discussion of a protocol on which that member is a participant. If the temporary absence of a member drops the number of members present below the quorum no official actions may take place and this will be noted in the minutes.

• Activities of the Committee

Activities of the Committee include, but not limited to, corrections or approval of previous minutes; presentation of program, policy, facility and compliance reports; and decisions on policies, protocols, and amendments.

• Deliberations of the Committee

A deliberation of the Committee refers to the discussion and reasons leading to particular IACUC decisions. Minutes should include as a minimum a summary of the key points discussed prior to a committee decision.

Completed minutes are distributed to all IACUC members. Minutes are discussed at a subsequent convened meeting of the IACUC (e.g., FCR) and the Committee votes on approval. A copy of the approved meeting minutes is then provided to the IO. This informs the IO of all actions taken by the IACUC.

9.2 Protocols

The PHS Policy and the AWRs require that animal applications and proposed significant changes be retained permanently. Proposals submitted to the IACUC must be kept permanently even if approval was not granted or animals were not used. The records must show whether or not IACUC approval was given.

9.3 Other Records

Both the PHS Policy and the AWRs require that OSU retain the semiannual Program Review and Facility Inspections Report and any recommendations of the IACUC. PHS Policy also requires that the OLAW Assurance and reports of accrediting agencies (e.g., AAALAC) be kept on file. Animal health records are not usually maintained by the IACUC but are kept in the animal facility or in research laboratories. All these records must be kept for at least three years; and must be accessible to OLAW, USDA/APHIS, and funding agencies for inspection or copying.

9.4 Record Retention Policy at OSU

No original records listed in the Oklahoma General Records Disposition Schedule For State Universities and Colleges shall be destroyed until either a Notice of Intent to Destroy Records (ARC Form 4) has been submitted to and has been approved by the Oklahoma State Records Administrator or his designee [OAC 60:10-3-2(b) of the Rules and Regulations of the Archives and Records Commission].

Unless statutory provisions, court decisions, Code of Federal Regulations (CFR), Oklahoma Rules and Regulations adopted in accordance with the Administrative Procedures Act (75 O.S. §250 et seq.), or other state and federal regulations mandate longer retention periods, all records except those identified as original records may be destroyed when they are no longer required for administrative purposes provided the institution has identified all individual original records and the administrative units responsible for maintaining them for their entire stipulated retention periods.

The Consolidated General Records Disposition Schedule can be found at
http://www.odl.state.ok.us/oar/docs/ucgrds-schedule.pdf

Excerpts from this schedule:

1-50 **Institutional Animal Care and Use Committee File**
Description: Files containing applications submitted by faculty, students and staff to use animals in a laboratory setting for teaching and/or research purposes, correspondence relating to review of applications, and federal guidelines regarding the care and use of laboratory animals.
Disposition: Retain permanently in office.

1-13 **Councils/Committees--Minutes**
Description: Minutes with attendant memos and agendas of all councils and committees.
Disposition: Retain in office five (5) years, then transfer to the Institutional Archives, with authority to weed, for permanent preservation.

Section 10: Veterinary Medical Care Procedures

10.0 Preventative Medicine/ Animal Procurement and Transportation

10.0.1 Evaluation of animal vendors

A list of certified vendors is kept in the Office of Research. Certified vendors will produce their lab animals in a clean and conventional environment and will be required as per their procedures to alert the OSU CHS animal facility management of any disease issues occurring in their stock.

10.0.2 Procedures for lawful animal procurement, evaluation of animals and transport

Animals are procured and shipped only through certified transportation companies. Animal shipments must be scheduled to arrive during normal business hours. Animals are unpackaged as soon as possible upon arrival. Their condition and health status is assessed, recorded, moved to cages, and provided food and water.

10.0.3 Procedures for quarantine stabilization

Quarantine will not be required for animals received from certified vendors. Wild caught animals will be quarantined for 30 days. Quarantine entry will be all in/all out. Once animals are in the quarantine room, entry into this room will be restricted to personnel assigned to care for them. Quarantine routine animal husbandry procedures should be performed after all other laboratory animals have been cleaned and fed. All cages, water bottles, and other cage furnishings and utensils used in the quarantine room should remain there and not be used in other areas of the lab animal facility. Quarantine animals will receive 2 fecal parasite exams as a group or individual. Fecals will be performed, one at the beginning half of the quarantine period and one at the end of the quarantine period. Fecal parasite exams will be performed by direct and float techniques. Animals found to be infested with intestinal parasites will be treated with an anthelmintic based on the discretion of the consulting veterinarian in consultation with the PI and animal facility management. Quarantine animals will be examined during the quarantine period for health status, infectious, traumatic, parasitic and other diseases. Any animals that die during the quarantine period should be placed in the refrigerator and the consulting veterinarian alerted immediately. Quarantine animals that die in the quarantine period will receive a post mortem exam and tissues collected for histologic exam at OSU OADDL. Successful quarantine completion will be determined by the consulting veterinarian, based on exam, observation, and quarantine diagnostics.

10.0.4 Policies on Separation by species, source, health status

Animals should be housed in rooms dedicated to that species and if possible by their microflora status (i.e. conventional animals should not be housed with gnotobiotic, or other flora types.) Animals from certified vendors can be housed in the same room with others of the same species and microflora types and other certified vendor sources.

10.0.5 Policies on isolation of sick animals

Animals determined to be ill should have the date and a basic description of the problem written on their cage cards and also on the veterinary inspection sheet. Description should include animals' room, species, cage number or individual number, and brief description of abnormality. Veterinarian should be notified of animals that have abnormalities during their routine inspection or at any time lab animal care staff or manager feel the animals need veterinary care.
Sick animals should be housed individually if possible so that feed and water consumption, stool production and quality can be monitored. Animals in need of specialized care or treatment may be moved to the hospital facilities of the consulting veterinarian for care, diagnostics and treatment. Animal can be returned to OSU CHS animal facility if kept separate from other non–lab animals at the consulting veterinarian's hospital facilities and have not be exposed to animals with a known infectious disease.

10.0.6 Program of surveillance, diagnosis, treatment and control of disease

Laboratory animal facilities will be inspected by the consulting veterinarian at least bimonthly and more frequently if needed. Consulting veterinarian or their back up veterinarian must be available for emergencies and advice at all times via telephone.

10.0.7 Availability of diagnostic resources for preventative health program

Diagnostic tests and procedures will be made available from the consulting veterinarian's practice. Diagnostic tests and equipment includes: basic laboratory equipment, radiology, and surgical facilities for the care (but not for the experimentation procedures) of the laboratory animals.

10.0.8 Provision for emergency, weekend and holiday veterinary care

Consulting veterinarian is available at all times via cell and office phone. When not available the contact information for the backup veterinarian is also available.

10.1 Surgery

10.1.1 Procedures for monitoring surgical anesthesia and analgesia

Anesthetics can be delivered via intraperitoneal injection, or inhalation of volatile anesthetics. Anesthetic monitoring of depth should be based on loss of righting response, lack of response to stimuli, muscle relaxation, and respiratory rate, depth and quality.

10.1.2 Pre-surgical plan

Each research proposal that includes survival surgery will state clearly its surgical plan that includes where the surgery will take place, anesthetics used, type of surgery and required survival time, analgesics to be used, dose frequency and how analgesics will be administered. Research proposals will be evaluated for their surgical explanations completeness and adequacy by the IACUC committee. Post-operatively laboratory animals should be kept warm and isolated from other animals until completely recovered from anesthesia. Animals with external sutures, external devices and or unhealed incisions must also be housed individually until such time sutures are removed or incisions are healed to prevent cage mates from over-grooming or traumatizing these areas.

10.1.3 Appropriate training or experience of personnel in surgery and anesthesia

Staff involved with surgical procedures should have basic training on the monitoring, delivery of anesthetics, use of instruments and post-operative care. Suitability for such staff to assist in surgery will be determined by the PI and based on staff's completion of required lab animal training procedures and modules.

10.1.4 Major procedures distinguished from minor

Major procedures versus minor are defined in the Animal Care and Use Protocol form. Major procedures are those that enter a body cavity, CNS, involve incision of the skin, or breaking of bones. Minor procedures are those that involve body fluid sample collection, injection of substances via SQ, IM or IP, monitoring or manipulation of behavior or vital systems during exercise/maze tasks.

10.1.5 Use of effective aseptic procedure for survival surgery

Survival surgery must be performed with sterile instruments, gloves, drapes in a clean and well-lit environment. Surgical preparation of the animal should include the judicious application of a topical scrub and rinse. Disinfectants should be used in a manner adequate to disinfect the skin prior to surgical incision but avoid excessive application that can cause chilling of the animal.

Anesthetized animals should be maintained on a warmed plate, warm towels or heating pads designed to prevent hypothermia during anesthesia, surgical manipulation and recovery.

10.1.6 Implemented procedures for use of surgical facility

Surgical facilities are provided on the 5th floor and reservations to use the facilities should be made with animal facility management.

10.1.7 Implemented procedures for using/scavenging volatile anesthetics

The laboratory animal surgical suite has a portable anesthetic machine that has an anesthetic gas scavenging canister. This canister should be monitored by weight and replaced when the weight increase has reached the defined weight to be ineffective.

10.1.8 Sterilization of instruments

Surgical instruments should be washed, dried and wrapped in appropriate drapes for sterilization via autoclaving. Surgical packs should be taped with autoclave tape that has the date of sterilization, name of pack and initials of the person that prepared it.

10.1.9 Documentation of post-operative monitoring and care

Records of the surgical procedure should be kept for each animal that document what procedure was done, recovery time and time, dose and administration of post-operative medications as necessary.

10.2 Pain, Distress, Analgesia and Anesthesia

10.2.1 Guidelines for the assessment and categorization of pain

Pain is assessed through the IACUC review of protocols (See Section 3.10). Major procedures are assumed to cause some degree of pain and provision for mitigation of pain should be provided through use of analgesics and good post-operative care. Recommendations of IACUC for such analgesic provisions should be followed.

10.2.2 IACUC guidelines for avoiding unnecessary pain and distress

Guidelines are followed through IACUC review of protocols (See Section 3.10). Major survival procedures must make provisions for analgesia unless justified through an IACUC approved protocol.

10.2.3 Appropriate anesthetics, analgesics, tranquilizers used for each species

Drug choices are made based on the PI's experience, veterinary recommendation and needs of the protocol. Drug choices made by the PI are reviewed and approved by the IACUC.

10.2.4 Special precautions for the use of paralytics

Experience of the PI with use of paralytics will be explained at time of IACUC review.

10.2.5 Veterinary input in the choice of drugs

Consulting veterinarian has input on drugs used for anesthesia, analgesia through IACUC review of protocols.

10.3 Euthanasia

10.3.1 Euthanasia

Euthanasia of lab animals at OSU CHS will only be done in accordance with *AVMA Guidelines on Euthanasia* (2007) acceptable methods. Other methods must be presented to IACUC and approved on a case by case review.

10.3.2 Guidance provided on appropriate methods for each species

According to the *AVMA Guidelines on Euthanasia* (2007), acceptable agents/methods of euthanasia for rodents and other small mammals are barbiturates, inhalant anesthetics, CO_2, CO, potassium chloride in conjunction with general anesthesia, and microwave irradiation. Conditionally acceptable methods are those that by the nature of the technique or because of greater potential for operator error or safety hazards might not consistently produce humane death or are methods not well documented in the scientific literature; Conditionally acceptable methods for rodents include Methoxyflurane, ether, N_2, Ar, cervical dislocation (rats < 200 g), and decapitation. Please refer to the AVMA Guidelines for further information.

10.3.3 Training available for personnel in humane methods of euthanasia

All personnel performing euthanasia should be adequately trained and approved by the IACUC for such procedures through each Animal Care and Use protocol.

10.4 Drug Storage and Control

10.4.1 Safe, secure, storage arrangement

Drugs for use in the lab animal facility are stored in a closed cabinet within the surgical suite. No controlled substances are stored here. Use of drugs is by the order of a veterinarian. A written treatment sheet with complete prescription instructions is provided by the prescribing

veterinarian. The animal care staff must follow the instructions and initial the log for administration of specified doses.

10.4.2 Record keeping regulations

Prescription instructions meet all state medical pharmacy laws as to instructions, name of drug, dose, animal identification and prescribing veterinarian.

10.4.3 Procedure exists for ensuring drugs are within expiration date

Consulting veterinarian will review drugs stored quarterly at each IACUC facility inspection Veterinarian will check that drugs in the storage area are in date and adequately stored. Out of date drugs will be disposed.

10.5 Personal hygiene procedures in facility

Eating, drinking, chewing gum and smoking are not permitted on the 5th floor.

Personnel should wash their hands before and after handling a laboratory animal. Personnel working with animals in a room should wash their hands with soap and water before exiting the room and before entering another lab animal room. A laboratory coat is recommended if handling laboratory animals. This lab coat should remain in each individual room and not be worn from room to room. The coat should be laundered regularly as needed.

Section 11: Disposition of Surplus Laboratory Animals

Laboratory animals assigned to and/or used on research, teaching, or testing protocols will be disposed of in accordance with the approved IACUC protocol and/or turned-in to Animal Facility Management for final disposition when the PI is finished with them and/or at the termination of the study.

Animals turned-in to Animal Facility Management that cannot be reassigned/transferred to another IACUC approved protocol may be declared surplus by Animal Facility Management. Disposition options for surplus OSU CHS owned laboratory animals include, but are not limited to:

- Sale/transfer of animals to another institution;
- Sale at local auction;
- Sale/transfer of the animals to the original supplier for credit/cash;
- Transfer of carcasses to appropriately licensed entity;
- Euthanasia; and/or
- Adoption

Surplus OSU CHS-owned laboratory animals may be adopted out provided that all of the following conditions apply:

- The animals cannot be transferred/assigned to another approved animal protocol;
- The animals cannot be returned for credit to the supplier;
- The animal's temperament does not pose a risk to people or other animals;
- The animal is in good health and is physiologically and anatomically normal;
- The person wishing to adopt the animal is adopting the animal to be their personnel pet (i.e., is not "adopting" the animal for the purpose of finding the animal another permanent home, resale, or as a broker/agent for some other person); and
- All required adoption paperwork is processed and approved by Animal Facility Management prior to the animal being released to the new owner.

Section 12: Animal Facility Access

Entrances into animal housing facilities are secured at all times by a magnetic card system. All OSU CHS faculty, staff and students can acquire an ID badge from Security. Access to the animal facility will be given to faculty, staff, and students who are listed on APPROVED IACUC protocols. The access card is for the individual's own use. It is not to be loaned or passed on to anyone at any time. If the access card should fail to function as expected, please bring it to the Security desk and the status can be checked. The access card is to be returned to the issuing department upon an individual's termination of employment. Loss or theft of the access card should be reported to the issuing department and to the Security desk immediately.

In an effort to protect research animals and minimize any possibility of disease transmission, visitors, including family members and especially children, are not allowed in OSU CHS animal facilities without prior approval by the Animal Facility Management.

Principal Investigators must ensure that un-trained/non-qualified personnel are supervised by qualified personnel at all times while working with or near live animals.