The Use of Live Animals in Teaching and Observational Field Studies

(Long Version)

The use of animals in research, teaching and testing is an important ethical and political issue. Much of the discussion about this issue revolves around the relative value, or 'moral value', of humans and animals. When the needs of animals and humans come into conflict, which takes precedence. Today there exists a wide spectrum of views on this subject, ranging from those concerned with animal 'rights' to those who view animals only as a resource to be exploited. All of these viewpoints have contributed to the development of ethical principles of animal use. These in turn have shaped animal use regulations promulgated by the United States Department of Agriculture (USDA) and the Public Health Service (PHS).

Advances in biology that began in the 1800s have provided some of the strongest arguments for imbuing animals with an enhanced moral value. By recognizing that the nervous systems of all vertebrate animals are very similar, it is assumed that activities that will cause a human pain or distress will likewise cause pain or distress to other animals. It is for these reasons that current animal use regulations require the use of analgesics, anesthetics and sedatives for any procedures on animals that may cause more than momentary pain or distress.

Current legislation also recognizes that there are diverse viewpoints about the moral value of animal use. Thus, any activity involving live animal use in research, teaching or testing must be reviewed and approved by a committee with diverse membership. There is also an emphasis on minimizing the overall use of animals. Proposals for animal use are reviewed based on the potential for learning new information, or for teaching skills or concepts that cannot be obtained using an alternative. There are also provisions for ensuring that animal use is performed in as humane a manner as possible, minimizing pain, distress or discomfort. These provisions include a requirement for a veterinarian to be employed at each institution, so that the needs of the animals are looked after by someone with professional training in animal health. It is also required that all personnel with animal contact be trained in appropriate handling techniques and the use of analgesics, anesthetics and sedatives as needed, and that they be skilled in any experimental procedures that will be performed. Finally, basic husbandry requirements are specified, ensuring that an animal's food, water and shelter are provided for in an optimal manner.

An important ethical principle of animal use in biomedical research is that alternatives to live animals should be used whenever possible. Animal users are legally required to document and search for alternatives to animal use. Users are also required to explain how alternatives were incorporated into the design of the experiment or to explain why alternatives cannot be used. The current definition of alternative that has become pervasive in the biomedical research setting is the "3R's": replacement, reduction and refinement.

- **Replacement:** means replacing "higher" animals with "lower" animals, or replacing live animals with non-animal models such as dummies, computer simulation or in-vitro systems.
- **Reduction:** means minimizing the number of animals needed to perform an experiment or teach a concept.

Refinement: means refining experimental protocols to minimize pain or distress whenever possible.

Animal Welfare Act

The Animal Welfare Act (AWA) first passed by Congress in 1966 and amended a number of times since then, is the principal federal statute setting forth the standards for the care and use of laboratory animals, including housing, feeding, cleanliness, ventilation and veterinary care. The AWA applies to all species of warm-blooded live or dead vertebrate animals used for research, testing or teaching, except farm animals used for agricultural research. Currently, the Animal Welfare Regulations also exempt birds, rats of the genus Rattus, and mice of the genus Mus. All facilities using laboratory animals covered under the AWA must register with and be inspected by the USDA enforcement division. Through annual unannounced inspections the USDA ensures that institutions are complying with all federal regulations. USDA personnel are authorized to issue citations for non-compliance.

PHS Policy

All Institutions receiving grants from the US Public Health Service (PHS), e.g. NIH (National Institutes of Health) funding, must adhere to the PHS Policy. The branch of the government that implements the Policy is called the Office of Laboratory Animal Welfare (OLAW). The PHS Policy covers all live vertebrate animals used or intended for use in research, research training, experimentation or biological testing or for related purposes. Under the terms of the Policy, not only must institutions adhere to the AWA, they also must follow the detailed recommendations on animal care and use that are contained in a book entitled the, "Guide for the Care and Use of Laboratory Animals". The Institution must file and update annually an Animal Welfare Assurance with the OLAW office. OLAW can suspend or revoke PHS grants or contracts if an institution does not remain in compliance.

Enforced Self-Regulation

The AWA regulations and the PHS Policy are both based partially on a concept of enforced self-regulation. Any serious or continuing non-compliance with the PHS Policy, serous deviations from the Guide and IACUC suspensions must be reported to OLAW. The Assurance may be withdrawn or restricted by OLAW if the Institution fails to self-regulate. Any significant deficiencies from the federal regulations that remain uncorrected must be reported to the USDA (APHIS).

Institutional Animal Care and Use Committee (IACUC)

The AWA, the PHS Policy and the "Guide" require all institutions conducting research involving animals to establish an Institutional Animal Care and Use Committee (IACUC). This committee is responsible for the oversight and evaluation of the animal care program. The Committee must have at least 5 members under the PHS Policy. They must include a veterinarian, a public member who represents the community's interest and one practicing scientist experienced in research involving animals. The PHS Policy also requires that a member of the Committee be a non-scientist. Some of the Committee's functions include review and approval of proposed activities related to the care and use of animals in research, teaching and field studies before the activities are conducted. Conduct of field studies will be in accordance with all applicable guidelines for field research. The Committee also must evaluate the entire animal care program at least once every 6 months including the inspection of all animal facilities and study areas. The Committee has the authority to suspend an activity it finds in violation of the PHS Policy, the 'Guide' or the AWA regulations. The Committee will handle any concerns regarding the care and use of animals. There is a whistle-blower clause in the law that protects the rights of individuals who report concerns regarding animal care and use to the Committee.

Personnel Qualifications and Training

The AWA, the PHS Policy and the "Guide" require that Institutions ensure that all personnel caring for, treating or using animals are qualified to perform their duties. At UWM, there is a general training course or training hand-out for all animal users, a facilities training course, special surgery training, continuing education and an animal care program website that is kept up to date and can be found at: <u>Animal Care Program</u>

All live animal work conducted under teaching/classroom protocols must be supervised at all times by a principal investigator who has been trained in the care and use of animals. It is the Principal Investigator's responsibility to assure that all participants are properly trained in animal handling and the procedures conducted as part of this protocol.

Occupational Health and Safety

As part of the occupational health and safety program all individuals who handle laboratory animals are given information regarding methods to minimize risks involved in using animals. An Occupational Health Program for Personnel with Laboratory Animal Contact brochure, and a Lab Animal Allergy brochure can be found on the animal care program website at: <u>Animal Care Occupational Health</u>.

Animal Adoption Program

UWM has an animal adoption program that allows for research/teaching animals to be adopted if they have not been given any type of drug or treatment that might render them unfit for this program. There is a form that must be completed prior to the adoption and the veterinarian must perform a health check prior to their release.