



University of Wisconsin
Whitewater

Office of Research and
Sponsored Programs

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE GUIDE

Office of Research and Sponsored Programs

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APPENDIX A

GENERAL REFERENCES

GENERAL REFERENCES

The following selected bibliography is taken from **Education and Training in the Care and Use of Laboratory Animals: A Guide for Developing Institutional Programs**. Gale D. Taylor, Lynn C. Anderson, David A. Blake, Lynn Dahm, Thomas E. Darby, John E. Harkness, and James F. Harwell. 1991. Washington DC: National Academy Press.

LAWS, POLICIES, AND GUIDELINES

Animal Welfare Act. 1985. U.S. Code, Title 7, Sections 2131-2157.

Animal Welfare Regulations. Code of Federal Regulations, Title 9 (Animals and Animal Products), Subchapter A (Animal Welfare), Parts 1-3 (9 CFR 1-3).

_ **Guide for the Care and Use of Laboratory Animals.** National Research Council. 1996. A report of the Institute of Laboratory Animal Resources Committee on Care and Use of Laboratory Animals. NIH Pub. Washington D.C.: U.S. Department of Health and Human Services.

_ **Public Health Service Policy on Human Care and Use of Laboratory Animals.** Public Health Service. 1986. Washington, D.C.: U.S. Department of Health and Human Services.

ETHICS, ANIMAL WELFARE, AND THE USE OF ANIMALS IN BIOMEDICAL RESEARCH, EDUCATION, AND TESTING

Models for Biomedical Research. A New Perspective. National Research Council. 1985. A report of the Board on Basic Biology Committee on Models for Biomedical Research. Washington, D.C.: National Academy Press.

Principles of Humane Experimental Technique. W.M.S. Russell and R.L. Buch. 1959. Springfield, Ill.: Charles C. Thomas.

Utilization of Alternative Species for Toxicity Testing: An Overview. L.B. Gross and T.D. Sabourin. 1985. J. Appl. Toxicol. 5:193-219.

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEES

Recommendations for Governance and Management of Institutional Animal Resources. AAMC-AAU Ad Hoc Committee on the Governance and Management of Institutional Animal Resources. 1985. Washington, D.C.: Association of American Medical Colleges-Association of American Universities.

Science and Animals: Addressing Contemporary Issues. H.N. Guttman, J.A. Mench, and R.C. Simmonds, eds. 1989. Bethesda, Md.: Scientists Center for Animal Welfare.

RECOGNITION AND ALLEVIATION OF PAIN AND DISTRESS IN SURGERY

Animal Pain. Perception and Alleviation. R.L. Kitchell and H.H. Erickson, eds. 1983. Bethesda, Md.: American Physiological Society.

Assessment of Pain in Animals. R.L. Kitchell and R.D. Johnson. 1985. Bethesda, Md.: American Physiological Society.

Laboratory Animal Anesthesia. PA. Flecknell. 1987. London: Academic Press.

Pain, Anesthesia, and Analgesia in Common Laboratory Animals. F.P. Gluckstein. 1987. National Library of Medicine Literature Search, No.86-17.

Principles and Practices of Veterinary Anesthesia. CE. Short, Ed. 1987. Baltimore: Williams & Wilkins.

– **Recognition and Alleviation of Pain and Distress in Laboratory Animals.** National Research Council. 1992. A report of the Institute of Laboratory Animal Resources Committee on Pain and Distress in Laboratory Animals. Washington, D.C.: National Academy Press.

– **Research Animal Anesthesia, Analgesia and Surgery.** A.C. Smith and M.M. Swindle, eds. 1994. Greenbelt, Md.: Scientists Center for Animal Welfare.

EUTHANASIA

Euthanasia Agents and Methods. D.C. Sawyer. 1988. Philadelphia: The Charles Press.

1986 Report of the AVMA Panel on Euthanasia. American Veterinary Medical Association (AVMA) Panel on Euthanasia. 1986. J. Am. Vet. Med. Assoc.

BIOLOGY, HUSBANDRY, AND CARE

American Association for Laboratory Animal Science Training Manual Series. D.M. Stark and M.E. Ostrow, eds. 1989. Cordova, Tenn.: American Association for Laboratory Animal Science.

Laboratory Animal Housing. Institute of Laboratory Animal Resources Committee on Laboratory Animal Housing. 1978. Washington, D.C.: National Academy of Sciences.

Principles of Proper Laboratory Animal Use in Research. G.R. Novak and R. Hitzelberg. 1989. Silver Springs, Md.: MTM Associates, Inc.

SPECIES-SPECIFIC REFERENCES

Anatomy of the Laboratory Rat. R. Hebel and MW. Stromberg. 1976. Baltimore: Williams & Wilkins. **The Biology and Medicine of Rabbits and Rodents.** 3rd ed. J.E. Harkness and J.E. Wagner. 1989. Philadelphia: Lea & Febiger.

Biology of the House Mouse. Symposia of the Zoological Society of London. No.47. R.J. Berry, ed. 1981. London: Academic Press.

The Golden Hamster: Its Biology and Use in Medical Research. R.A. Hoffman, P.F. Robinson, and H. Magalhaes, eds. 1968. Ames: Iowa State University Press.

Laboratory Animal Management: Rodents. Institute of Laboratory Animal Resources Committee on Rodents. 1977. ILAR News 20(3):L1-L15.

Research Techniques in the Rat. C. Petty. 1982. Springfield, Ill.: Charles C. Thomas.

For further species-specific references, contact ORSP at orsp@uww.edu

GENETICS AND NOMENCLATURE

Genetics and Probability in Animal Breeding Experiments. EL. Green. 1981. New York: Oxford University Press.

Laboratory Animal Management: Genetics. Institute of Laboratory Animal Resources. 1979. ILAR News 23(1):A1-A16.

NUTRITION

_ Control of Diets in Laboratory Animal Experimentation. Institute of Laboratory Animal Resources Committee on Laboratory Animal Diets. 1978. ILAR News 21(2):A1-A12.

Feeds and Feeding. 3rd ed. A.E. Cullison. 1981. Reston, VA: Reston Publishing.

Nutrient Requirements of Laboratory Animals. 3rd rev. ed. Board on Agriculture and Renewable Resources Subcommittee on Laboratory Animal Nutrition, Committee on Animal Nutrition. 1978. Nutrient Requirements of Domestic Animals Series. Washington, D.C.: National Academy of Sciences.

Nutrition and Disease in Experimental Animals. W.D. Tavernor, ed. 1970. London: Bailliere, Tindall and Cassell.

OCCUPATIONAL HAZARDS AND LABORATORY SAFETY

Control of Biohazards Associated with the Use of Experimental Animals. W.E. Barkey and J.H. Richardson. 1984. Orlando, Fla: Academic Press.

Diseases Transmitted from Animals to Man. 6th ed. W.T. Hubbert, W.F. McCulloch, and P.R. Schnurrenberger, eds. 1975. Springfield, Ill.: Charles C. Thomas.

Handbook of Laboratory Safety. 3rd ed. A.k. Furr, ed. 1990. Boca Raton, Fla.: CRC Press.

For further references and information on University of Wisconsin-Whitewater policies and procedures, contact the Office of Compliance and Risk Management.

PATHOLOGY AND THERAPY

Introduction to Veterinary Pathology. N.F. Cheville. 1988. Ames: Iowa State University Press. Laboratory Profiles of Small Animal Diseases. C. Sodikoff. 1981. Santa Barbara, Calif.: American Veterinary Publications.

Pathology of Laboratory Animals. W.E. Ribelin and J.R. McCoy, eds. 1965. Springfield, Ill.: Charles C. Thomas. Veterinary Pathology. 5th ed. T.C. Jones and R.D. Hunt. 1983. Philadelphia: Lea & Fibiger.

DESIGN OF EDUCATIONAL COURSES

Design of a Course to Introduce Research Personnel in the Care and Use of Laboratory Animals. DR. Faulkner. 1989. Lab Anim. 18(1)21-25.

A Pilot Program on Principles of Animal Experimentation for Research Technicians. G.L. Ivan Hoosier, Jr, B. Hammond, D. Johnson, and M.B Dennis, Jr. 1985. Lab. Anim. Sd. 35:541.

APPENDIX B

Organizations Concerned with Animals Used for Research, Teaching, and Other Activities

Organizations Concerned with Animals Used for Research, Teaching, and Other Activities

American Association for Accreditation of Laboratory Animal Care (AAALAC)

11300 Rockville Pike, Suite 1211, Rockville, MD 20852-3035

FAX: 301-231-8282

Web: <http://www.aaalac.org>

AAALAC is a non-profit corporation composed of scientific and professional organizations interested in laboratory animal care. It was organized in 1965 to conduct a voluntary program for the accreditation of laboratory animal care methods and facilities. This program strives to improve the welfare and health of laboratory animals and thereby facilitate animal research.

American Association For Laboratory Animal Science (AALAS)

9190 Crestwyn Hills Drive, Memphis, TN 38125

Telephone: 901-754-8620

FAX: 901-753-0046

Web: <http://www.aalas.org/>

Email: info@aalas.org

AALAS is a non-profit organization made up of individuals and institutions professionally concerned with the production, care, and study of laboratory animals. Formerly the Animal Care Panel, it was organized in 1950 and serves as a clearinghouse for the collection and exchange of information on all phases of the care and management of laboratory animals. This objective is accomplished through its annual sessions bimonthly journal, Laboratory Animal Science (formerly Laboratory Animal Care), AALAS Bulletin, and other publications.

American College of Laboratory Animal Medicine (ACLAM)

c/o Dr. Melvin W. Balk, Executive Director, 96 Chester Street, Chester, NH 03036

Telephone: 603-887-2467

FAX: 603-887-0096

Email: mwbaclam@gsinet.net

ACLAM was founded in 1957 to encourage education, training and research in laboratory animal medicine; to establish standards of training and experience for veterinarians professionally concerned with the care and health of laboratory animals; and to recognize qualified persons in laboratory animal medicine by certification examinations and other means. ACLAM was incorporated under the laws of the state of Illinois as a non-profit organization and is a specialty recognized by the American Veterinary Medical Association. The educational programs of ACLAM also receive great emphasis in apprising the membership and the scientific community of advances in laboratory animal medicine.

American Humane Association (AHA)

63 Inverness Drive East, Englewood, CO 80112-5117

Telephone: 303-792-9900

Web: <http://www.americanhumane.org>

AHA, a non-profit organization established in 1877, is a national federation for the prevention of cruelty of children and animals. AHA's Animal Protection Division has recently helped draft the equivalent of a "bill of rights" for farm animals.

American Society for Laboratory Animal Practitioners (ASLAP)

c/o Patricia Brown, Office of Lab Animal Science, NCI, Bldg. 31, Rm. 4A34, 31

Center Drive, MSC 2471,

Bethesda, MD 20892-2471

Web: <http://www.aslap.org>

ASLAP was incorporated in the state of Illinois on July 11, 1967 and was officially recognized as an auxiliary organization of the American Veterinary Medical Association. On July 3, 1968, the Society became an affiliate of the American Association for Laboratory Animal Science. ASLAP promotes the dissemination of ideas, experiences and knowledge among veterinarians engaged in laboratory animal practices. It also encourages postgraduate education of veterinarians, provides training, and encourages research in basic and clinical problems relating to laboratory animal practice, acts as spokesperson for its members before the veterinary profession and other medical organizations or groups, and actively encourages the training of veterinarians in laboratory animal medicine, at both the pre- and post-doctoral levels, assisting those carrying on such training programs.

American Society for the Prevention of Cruelty to Animals (ASPCA)

424 East 92nd Street, New York, NY 10128-6804

Telephone: 212-876-7700

Web: <http://www.aspca.org>

ASPCA was founded in 1866 by Henry Bergh as a non-profit organization for the prevention of cruelty to animals. The ASPCA, oldest and largest humane organization in the western hemisphere recognizes the need for animals in research. Believing that pain and suffering should be eliminated to the maximum extent consistent with the experiment, the ASPCA is helping the scientific community reach the goal of humane treatment for all laboratory animals. Furthermore, believing only well-cared for animals can produce valid research results, the ASPCA is also contributing to sound research practices.

American Veterinary Medical Association (AVMA)

1951 North Meacham Road, Suite 100, Schaumburg, IL 60173

Telephone: 847-925-8070

FAX: 847-925-1329

Web: <http://www.avma.org>

AVMA is a non-profit, national association of veterinarians established in 1863 (formerly known as the United States Veterinary Medical Association). AVMA's basic, overall purpose is the advancement of the science and art of veterinary medicine, including its relationship to public health and agriculture. In striving to develop and maintain the highest standards of professional competence and conduct, the AVMA seeks to:

- a. Encourage improvement in professional and post-doctoral medical education.
- b. Inform the public about matters of animal and public health.
- c. Work with health-related professional organizations on matters of mutual and public concern.
- d. Support research in the continuing effort to improve animal and human health.
- e. Promote and enhance service to clients, animal patients, and the general public.
- f. Recognize and encourage outstanding accomplishments by veterinarians.

Animal Welfare Institute (AWI)

P.O. Box 3650, Washington, DC 20007

Telephone: 202-337-2332

FAX: 202-338-9478

Web: <http://www.animalwelfare.com>

AWI was founded in 1951 for the advancement of the welfare of all animals, but with special emphasis on research animals. The AWI has also established the Society for Animal Protective Legislation to further its aim.

Association for Gnotobiotic (AG)

c/o Roswell Park Memorial Institute, 666 Elm Street, Buffalo, NY 14263 Web:

<http://www.cvm.ncsu.edu/research/agsite/aghome.htm>

AG was formed in 1960 to stimulate research in the field of basic and applied gnotobiotic and expedite the dissemination of information relative to gnotobiotic and gnotobiotic technology. It stimulates the production, maintenance, distribution and use of gnotobiotic, and has established standards for gnotobiotic microbiological testing and husbandry practices, as well as a certification program. AG also works to standardize an acceptable nomenclature in the field.

Humane Society of the United States (HSUS)

2100 L Street, NW Washington, DC 20037 Telephone: 202A52-1 100

Web: <http://www.hsus.org/>

HSUS (formerly the National Humane Society) was founded in 1954 by three former directors of the American Humane Association. The three former directors of the AHA, Fred Myers, Director of the National Humane Review (the official magazine of the AHA), Helen Jones, Director of Education for AHA and Larry Andrews, Director of Field Services for AHA, resigned from the AHA in response to AHA's nonsupport of their attack on the National Society for Medical Research organization. The NSMR was attacked for its policies of indiscriminate procurement and use of animals. HSUS is a non-profit organization chartered to prevent cruelty and suffering to all animals.

Institute of Laboratory Animal Resources (ILAR)

National Academy of Sciences, 2101 Constitution Avenue, NW Washington DC 20418

Telephone: 202-334-2590

FAX: 202-334-1687

Web: <http://www4.nas.edu/cls/ilarhome.nsf>

ILAR was founded in 1952 under the auspices of the National Research Council (NRC) and its parent organization, the National Academy of Sciences (NAS). A component of the Division of Biological Sciences, Assembly of Life Sciences, ILAR serves as a coordinating agency and a national and international resource for compiling and disseminating information on laboratory animals, promoting education, planning and conducting conferences and symposia surveying existing and required facilities and resources, upgrading laboratory animal resources, and promoting high quality, humane care of laboratory animals in the United States.

National Association for Biomedical Research (NABR)

818 Connecticut Avenue, NW Suite 303, Washington, DC 20006

Telephone: 202-857-0540

FAX: 202-659-1902

Web: <http://www.nabr.org/>

The ABR (formerly Research Animals Alliance) was founded in 1979 as a direct response to the increasingly restrictive laws and regulations being promulgated by the government related to the use of animals in research. In 1984, ABR combined with the National Society for Medical Research (NSMR) to form the NABR, which acts as a clearinghouse for information, and monitors proposed, pending and existing laws, rules and regulations. It also provides reference materials, expert witnesses to participate in public hearings, and attempts to coordinate and establish uniform standards worldwide for the laboratory animal industry.

Scientists Center for Animal Welfare (SCAW)

7833 Walker Drive, suite 340, Greenbelt, MD 20770 Telephone: 301-345-3500

FAX: 301-345-3503

SCAW was established in 1978 as a non-profit educational organization whose goals are to engage in analysis and to improve the welfare of animals by reducing unnecessary suffering. The Center seeks to introduce alternatives where possible and holds that high standards of animal welfare complement the quality of scientific results. The Center recognizes the benefits and need for biomedical experimentation on animals but is dedicated to the principle that a humane concern for animals should be incorporated into the scientific process. For more information, write to the Scientists Center for Animal Welfare at the above address.

United States Department of Agriculture (USDA)

Washington, D.C. 20250 Telephone: 202-720-2791

Web: <http://www.usda.gov/>

The Veterinary Services Office of the Animal and Plant Health Inspection Service (APHIS) has assigned responsibility for the enforcement of the Animal Welfare Act. In addition, they maintain national laboratories in Ames, Iowa, and Plum Island, New York, for the investigation of serious, zoonotic, and foreign disease problems. They are a valuable reference service to the nation's diagnostic laboratories.

Wisconsin Association for Biomedical Research and Education (WABRE)

750 North 18th Street, Suite 110, Milwaukee, WI 53233

Telephone: 414-933-9500

Web: <http://www.wabre.org>

WABRE is a nonprofit educational organization dedicated to improving human and animal health through animal research. WABRE is founded on the belief that informed public understanding of the benefits, conduct and regulation of animal research within our state is essential for continued progress in human and veterinary medicine, as well as for medical education and agricultural research. WABRE strongly supports the continued role of animals in research since, in many cases, no alternative exists to promote better human and animal health. WABRE affirms that individuals engaged in research involving animals have both a moral and legal responsibility to assure their humane care and protection.

APPENDIX C

IMPORT, EXPORT, AND WILDLIFE SOURCES

United States Department of Agriculture

Washington, D.C. 20250

Telephone: 202-720-2791

Web: <http://www.usda.gov/>

Department of Natural Resources

Southeast Region

2300 Martin Luther King Drive

P0 Box 12436

Milwaukee, WI 53212

Telephone: 414-263-8500

Web: <http://www.dnr.state.wi.us>

Department of Natural Resources

Bureau of Wildlife Management

Telephone: 608-266-1877

Wisconsin Department of Commerce

123 West Washington

Avenue Madison, Wisconsin 53703

Telephone: 608-266-1018

Web: <http://badger.state.wi.us/agencies>

The Centers for Disease Control and Prevention

1600 Clifton Road, Northeast

Atlanta, Georgia 30333

Telephone: 404-329-3311

Web: <http://www.cdc.gov/>

United States Fish and Wildlife Service

Region 3

1 Federal Drive

BHW Federal Building

Fort Snelling, MN 55111

Web: <http://www.fws.gov/>

APPENDIX D

UW-WHITEWATER IACUC

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|-----------------------------------|--|-------------------------------|
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| • Practicing Scientist | | |

APPENDIX E

UW SYSTEM EUTHANASIA GUIDELINES

UW SYSTEM EUTHANASIA GUIDELINES

Generally, it is the policy at the UW System, USDA, and NIH to follow the guidelines of the AVMA Panel on Euthanasia. Modes, methods, agents, and precautions are discussed in the report. All vertebrate animals on campus that are to be killed during the course of or at the conclusion of an experiment must be euthanized using an approved

method. The method of euthanasia to be employed must be included in the University of Wisconsin-Whitewater Protocol Review Form. The procedures are reviewed by the animal care committee for ethical acceptability for the species involved.

Euthanasia by definition is a quick, painless death. Pain can be defined as the perception of distress that results from nerve impulses reaching the cerebral cortex. Therefore, unconscious animals cannot experience pain. Rapidly occurring unconsciousness followed by respiratory and cardiac arrest is required for the method to be acceptable. At the conclusion of the euthanasia procedure, a follow-up exam is required to confirm the absence of a heartbeat. There are horror stories of animals assumed to be dead who reportedly begin to revive later.

The investigator has the responsibility of choosing a proper euthanasia method both on ethical grounds and on compatibility with the experimental data needed from post-mortem examinations. The humanitarian requirements of the method cannot be ignored in the urgency and/or need to obtain significant experimental results.

Euthanasia may be required during the course of an experiment. Investigators have a moral obligation to alleviate unnecessary pain and suffering. "An animal that is observed to be in a state of severe pain which cannot be alleviated should be immediately destroyed." It is sometimes difficult to recognize pain and suffering and species may vary in their manifestations. All personnel working with animals should be familiar with the signs of pain and suffering in their particular species. Clinically obvious depression, loss of appetite and vocalization are possible signs of stress and pain.

MODES AND METHODS

Judging the humaneness of a particular euthanasia method can be difficult for an uninformed observer. During the process of euthanasia, movements of an animal's body (muscle contractions) do not necessarily indicate consciousness, nor does lack of movement in response to painful stimuli indicate the absence of pain (such as under the influence of curariform drugs).

There are three modes of action for euthanizing agents.

1. Hypoxia/hypoxemia
2. Direct depression of neurons
3. Physical damage to brain (CNS) tissue

The best choice depends on the use of animal postmortem, safety to personnel, and the ethical considerations already discussed.

METHODS

As in any procedure involving animals, restraint and handling play a vital role. The proper physical control and environment will minimize discomfort and maximize safety and smoothness of operation. The procedure should be performed out of sight and hearing range of other animals and in a calm and preferably familiar environment.

Unacceptable methods;

1. Strychnine
2. Curariform drugs alone are condemned
3. Exsanguination without prior anesthesia
4. Drowning without prior anesthesia
5. Electrocution

RECOMMENDED METHODS BY SPECIES

RODENTS:

1. Inhalation agent overdose (ether, halothane, methoxyflurane). These must be used under a hood. They act by direct depression of vital neurons. This is one of the less desirable methods due to its danger to personnel and difficulty in volatilizing methoxyflurane.
2. Guillotine (decapitation). This is to be used with small rodents only. Some recommend that the head be immediately placed in liquid nitrogen. However, a new study questions the effectiveness of using liquid nitrogen. We now recommend that the animal be sedated or lightly anesthetized. There are few tissue changes with this technique. Since existing data suggests that animals remain conscious for 13-14 seconds following decapitation, we discourage this technique and will accept it only with scientific justification and scrutiny.
3. Nitrogen gas. Although effective in a closed chamber system, it is less preferable than other methods. Newborn animals will survive much longer than adults. Rats may exhibit signs of distress and panic before collapsing and dying. This is a hypoxic agent; tissue changes associated with hypoxemia may occur.
4. CO₂ chamber. CO₂ rapidly acts by direct depression of the cerebral cortex. Length of time to effect may be prolonged in immature animals. There are no changes in cellular structure, however, some involuntary muscle activity after unconsciousness may be noticed. There are specific chambers made for this purpose. It is important that the flow be adequate to eliminate layering of the gas which will cause the animals to seek any air left at the top of the chamber thus causing death from stress and not from hypoxia. This is the preferred method under the proper conditions.
5. Barbiturate overdose. Given intraperitoneally in rodents, this works quickly, as it does in all species, by depressing CNS functioning beginning in the cerebral cortex and moving to the respiratory center. Cardiac arrest quickly follows. Pentobarbital is the most frequently used barbiturate. It will cause drug residues and an enlarged spleen. Aesthetically it is considered more acceptable due to the appearance of putting the animal under general anesthesia first. A disadvantage is that the DEA requires strict accounting of all drug uses.
6. Cervical Dislocation. (Used in mice, hamsters, gerbils and immature rats.) This technique causes direct depression of the brain. It may be distasteful to some due to violent muscle contractions which usually follow. The technique requires training and skill. The tissues remain unaltered by chemicals. The best choice for individual animals when the technician has proper training and skills.
7. Microwave. Only microwave chambers specifically designed for use on rats and mice can be used. They direct most of their energy to the head causing immediate unconsciousness and death. The method is useful for neurobiologists in fixing brain metabolites without loss of anatomical integrity.

FISH:

After anesthetization with MS-222, or 4-Styrlpyridine added to the water, the fish may be exsanguinated, decapitated if small, or placed in a CO₂ chamber.

AMPHIBIA:

They must be tranquilized by refrigeration and decapitated or anesthetized with MS-222 then exsanguinated.

REPTILES:

Reptiles will become more tractable if they are refrigerated at 40-45 degrees for 15-20 minutes. Ketamine can be given to induce general anesthesia. At this point decapitation and/or exsanguination is a suitable method for euthanasia. An overdose of pentobarbital or other barbiturate given P or IV is preferable. Confirmation of death requires more care in reptiles particularly if they have been refrigerated first.

BIRDS:

Because of the bird's high respiratory rate, an overdose of anesthetic inhalant agents will work well (i.e. ether, halothane, methoxyflurane). Personnel, however, must take precautions when working with these agents. CO₂ also works well, but birds may show some distress before losing consciousness. T-61 appears to have a smoother induction than barbiturates in birds. These are given IV, most often injected in the wing vein. Cervical dislocation is acceptable only in chickens and small turkeys.

RABBITS, CATS, DOGS AND HORSES:

Dogs, cats and horses have close cultural bonding to humans. Putting companion type animals "to sleep" is best accomplished by using barbiturates or specific euthanizing agents such as T-61. These drugs must be given IV; veins in all these species are readily accessible. Horses are often sedated prior to administering the euthanizing agent. 1. Barbiturates. Two people should be used to perform the procedure. Tissue changes from these drugs are well known. 2. T-61. This is a non-narcotic mixture of three drugs, which have general anesthetic, curariform, and local anesthetic actions. Currently it is not controlled by the DEA. The mode of action is direct depression of CNS and heart muscle. There will be tissue residues, and the drug may cause pulmonary edema and other tissue lesions.

PRIMATES:

Primates have a phylogenetic closeness to humans. Because they tend to be on long term experiments and are well known to the animal care staff, special care must be taken when euthanizing them. Chemical restraint with ketamine precedes an overdose of pentobarbital. This may be given IV without the animal being aware of what is taking place. T-61 is an acceptable substitute for the barbiturate, but it is generally felt that its course of action is not as smooth.

LARGE ANIMALS:

Large food producing animals used in research and teaching require different considerations. Personal attachments are uncommon due to historic cultural use and the genetic breeding towards a herd animal. These animals, however, must be euthanized using the same criteria of rapid loss of consciousness. Their physical size and strength require special attention to the safety of the handlers. Drugs may leave residues which will make the meat unfit for human consumption.

1. Captive bolt. This method causes physical damage to the cerebrum and brainstem. A retractable bolt propelled by gunpowder is directed toward the center of the brain. The

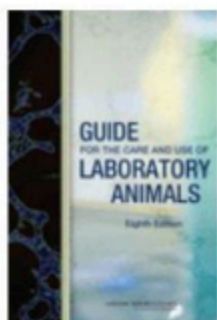
animals must be adequately restrained to ensure proper placement of the bolt. This procedure is followed with exsanguination.

2. Intravenous injection of barbiturates and T-61. If the animal is not to be used for food consumption, then this is the preferred method.

APPENDIX F

GUIDE FOR THE CARE AND USE OF LABORATORY ANIMALS

GUIDE FOR THE CARE AND USE OF LABORATORY ANIMALS: EIGHTH EDITION



Guide for the Care and Use of Laboratory Animals: Eighth Edition

Committee for the Update of the Guide for the Care and Use of Laboratory Animals; National Research Council
ISBN: 0-309-15401-4, 248 pages, 6 x 9, (2010)

**This PDF is available from the National Academies Press at:
<http://www.nap.edu/catalog/12910.html>**

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APPENDIX G

**UNIVERSITY OF WISCONSIN-WHITEWATER
INSTITUTIONAL ANIMAL CARE AND USE**

ANIMAL STUDY PROTOCOL SUBMISSION FORM

If you wish to submit a protocol, please reach out to ORSP.

APPENDIX H

REQUIRED ANIMAL CARE AND USE TRAINING

REQUIRED ANIMAL CARE AND USE TRAINING

All IACUC members, campus faculty/staff and students who work with animals are required to complete CITI Program animal care training prior to beginning animal care or research.

The CITI Program Animal Care and Use (ACU) series covers general principles of the ethical care and use of animals in research, training, and testing. It is designed to meet U.S. Department of Agriculture (USDA) and Office of Laboratory Animal Welfare (OLAW) requirements for basic training in the humane care and use of animals.

Required training includes a section on Working with the IACUC and one or more animal specific courses depending on the species with which you will be working.

The CITI training certification is valid for four years at which time a refresher course will be required.

CITI Program access information and instructions for registrations are included on the following pages:

University of Wisconsin – Whitewater Collaborative Institutional Training Initiative (CITI) Login/Registration Instructions

Select the link from the IACUC webpage, or Login to www.citiprogram.org

If you have not previously used the CITI Program Website, please select: Register (Create an Account) or login under your current login information.

Search for: University of Wisconsin–Whitewater

Follow the site instructions to enter your personal and login information

**Please be sure to enter your uw.edu email address as your 'institutional' email address.*

During setup, you will be asked if you are interested in the option of receiving Continuing Education Unit (CEU) Credit for completed CITI Program Courses. You may select 'YES' for this option; however, you will be responsible for any fees associated with CEU credit (purchase options are offered at the end of course completion). If you select 'No' at this time, you can change this setting at a later date.

On the final registration page (7). You will be asked a series of questions to determine the educational modules required by UW-Whitewater to conduct Human or Animal Research.

HUMAN RESEARCH:

Typically for human research, you will require the “Social, Behavioral, & Educational (SBE) Sciences – All Researchers”. Additional/alternative modules are available for Biomedical Research.

ANIMAL RESEARCH:

If you are a staff/faculty member or student performing animal research, you will require the “Working with the IACUC Course” and we encourage the “Minimizing Pain and Distress” module as applicable to your research. You must also choose one or more of the “Species appropriate” modules depending upon the animals in your research. Alternative modules are available for those with varying roles in the administration of animal research on campus.

If you have been awarded a federal grant, additional modules or one-on-one training may be required. Please review the grant requirements or contact Donna Kempf to help determine the educational requirements for grant compliance. The first course for Responsible Conduct of Research (RCR) is available on the CITI Program site at any time.

Upon completion of the educational modules and a passing score of 80% on the final quiz, a report will be sent to the UW-W Research Compliance Manager notifying them of your results. Successful completion of the required modules must be available and will be verified, by the Compliance Manager prior to IRB or IACUC protocol approval. Any training for grant compliance must be completed prior to award acceptance. Training certification expires 4 years from the date of successful quiz completion and renewal will be required at that time.

You may login to your CITI account at any time to review and print your information, or to choose additional training modules as required. Upon transferring to another institution that uses the CITI program, you may also change your affiliation.

Please contact ORSP at orsp@uww.edu, 262-472-5212 with any questions regarding the CITI Program.

APPENDIX I

ANIMAL HANDLERS HEALTH QUESTIONNAIRE

If you wish to submit a questionnaire, please reach out to ORSP.