

AALAS resources and programs supporting the 3 R's and humane concepts in animal research

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Abstract

The American Association for Laboratory Animal Science is a nonprofit association dedicated to providing humane treatment of animals used in research. AALAS professional programs, publications, and websites provide resources for:

- professional development of research staff in alignment with ethical standards for animal research;
- bioethics training on animal care and use among research personnel and the public;
- support of research to provide a solid scientific basis for the development of guidelines related to the care and use of laboratory animals; and
- awareness among youth for career options in laboratory animal science.

Keywords: training, certification, continuing education, career information, public outreach

Introduction

The mission of the American Association for Laboratory Animal Science (AALAS) is to advance the responsible care and use of laboratory animals for the benefit of people and animals. The AALAS membership believes that the use of laboratory animals in scientific and medical research is essential to the improvement and protection of the quality of all life. The humane and responsible care of laboratory animals is vital to quality research and is, as such, an essential aspect of AALAS endeavors.

AALAS is dedicated to building and disseminating a knowledge base in laboratory animal science for the education and training of those who work in the laboratory animal science field or who may consider this field for career opportunities. An important area in this knowledge base is humane concepts in animal methodologies based on the 3 R's principles focusing on the replacement, reduction, and refinement of the use of animals in research (Russell and Burch, 1959). AALAS has included humane concepts in all resources developed to educate research personnel and the public. This paper focuses on AALAS' efforts to further the awareness and incorporation of humane concepts and the 3 R's in the care and use of laboratory animals via position statements, personnel education and development, research staff training, grants for laboratory animal science, and public

outreach.

Position statements

AALAS publishes position statements endorsing and promoting humane standards for the care and use of animals in research. The full text of these position statements is available on the AALAS web site (AALAS, 2007a); a brief summary is provided below.

1. *AALAS Position Statement on Humane Care and Use of Laboratory Animals.* AALAS endorses the United States Government "Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training" and requires that all research reported in articles in the Journal of AALAS and Comparative Medicine be conducted in conformance with these principles.
2. *Improving the Scientific Basis for Regulation of Animal Care and Use.* AALAS encourages the development of principles for assessing the quality and impact of animal-based regulations to ensure that they meet sound scientific and ethical criteria.
3. *Recognition and Alleviation of Pain and Distress in Laboratory Animals.* AALAS acknowledges that animal research personnel have the legal and moral obligation to seek alternatives to the use of animals in research,

to recognize and alleviate pain and distress in laboratory animals, to be trained and qualified in humane methodologies, to monitor potentially painful procedures with veterinary supervision, and to avoid using animal death as an experimental endpoint.

4. *Use of Animals in Precollege Education.* AALAS endorses the *Principles and Guidelines for the Use of Animals in Precollege Education* from the Institute of Laboratory Animal Research (ILAR). AALAS recognizes that a positive interaction between students and animals in the classroom enhances not only scientific learning but also provides an avenue for promoting the development and growth of the students' sense of responsibility and respect for all living things. As part of its broader educational mission to ensure that all animal use is performed responsibly and humanely, AALAS developed a series of informational documents about caring for animals in the classroom (see Public Outreach below).

Professional development in the laboratory animal science field

Education and certification

Competence in the care and use of laboratory animals is essential for the ethical conduct of animal research, and education lays the necessary groundwork through the development of professional competence. AALAS certification programs provide a path for animal research technicians and managers to attain the knowledge and skills to support animal welfare in the conduct of research, consistent with two of the 3 R's: refinement and reduction. The AALAS certification programs and the related educational resources provide a framework for pursuing professional competence in the laboratory animal science field.

AALAS has more than 40 years of experience in the education, certification, and continuing education of laboratory animal technicians. Since the Technician Certification program was first launched in 1961, AALAS has certified over 27,000 technicians in the laboratory animal science field and continues to certify approximately 2,000 technicians and technologists annually. AALAS certifies technicians at three levels, and certified individuals use the acronym as a credential: Assistant Laboratory Animal Technician (ALAT); Laboratory Animal Technician (LAT); and Laboratory Animal Technologist (LATG) (AALAS, 2007b).

In support of the Technician Certification program, the first AALAS training manual was developed in 1967. AALAS now publishes three manuals corresponding to the three certification levels, and these manuals are updated about every 5 years. The

ALAT Training Manual focuses on the role of the animal technician in research and discusses the ethics of animal use and the 3 R's principles. Throughout the manual series, the emphasis on the humane care and use of animals addresses two of the 3 R's in technician training and education: refinement through optimizing animal welfare and reduction through optimizing research procedures.

For manager training, AALAS established in 1993 the Institute for Laboratory Animal Management (ILAM). This program prepares trainees for optimizing managerial oversight in animal care and use programs of research facilities (AALAS, 2007c).

In 2001, AALAS launched a management certification program culminating in a new professional credential, Certified Manager of Animal Resources (CMAR) (AALAS, 2007d). The CMAR certification program is designed to raise competency and professionalism in the field of animal resources management. The Animal Resources Exam, a component of the CMAR program, includes a focus on topics of achieving regulatory compliance, managing animal welfare, and assuring public trust.

Continuing education

The animal research field is an evolving and dynamic profession, necessitating the continuous acquisition of new knowledge and skills throughout a professional career. Continuing education is therefore an essential component of an assurance of competent and humane animal care and use and the continued adherence to the 3 R's principles. AALAS provides many resources for the lifelong education of laboratory animal technicians and managers to help these individuals strengthen their careers and uphold high ethical standards for the care and use of animals in research. Upon joining AALAS, individuals quickly realize the learning potential offered through the association. Conferences are held at national and district levels, with diverse educational programs and networking opportunities. AALAS offers venues for laboratory animal science personnel to publish technical reports, which bring about many benefits through the education and professional development of other colleagues.

AALAS offers a Technician Certification Registry for the documentation of continuing competence of registered AALAS-certified technicians at the ALAT, LAT, or LATG level (AALAS, 2007e). As an extension of the certification credential, the Registry acknowledges ongoing training and education. Participation in the Registry allows the addition of an "R" at the beginning of the certification credential (thus, RALAT, RLAT, and RLATG), providing a visible recognition for the commitment of staying up-to-date with new information and innovations in laboratory animal science. For individuals

participating in the Technician Certification Registry, continuing education units (CEU's) must be earned and documented on a 2-year cycle: 10 CEU's for RALAT; 14 CEU's for RLAT; and 24 CEU's for RLATG. AALAS provides guidelines on the CEU value of activities in formal education, publications, reports, presentations, participation in laboratory animal science societies, tests on JAALAS articles, and online courses/distance learning.

The CMAR program includes a mandatory recertification component, for which CMAR-certified individuals must submit documentation of 24 CEU's every two years (AALAS, 2007d). CMAR recertification reflects the individual's dedication to maintaining the highest animal welfare standards while continuing one's own professional development.

Research staff training

AALAS has developed an online learning platform, the AALAS Learning Library (ALL), which offers 125 courses on animal welfare topics for all personnel working with laboratory animals (Duffee, 2006; AALAS, 2007f). The ALL supports both initial training and continuing education through its many courses. A growing use of the ALL is to train scientists and other technical personnel on bioethics and the regulatory requirements for the care and use of animals in research. The "Working with the IACUC" course, which is the most highly used ALL course and is free to the public, devotes a full lesson to the alternatives to animals, explaining the 3 R's and describing the U.S. federal requirements for searches on the alternatives to the use of animals in research protocols.

Grants for Laboratory Animal Science

To aid in the development of new scientific knowledge for enhancing the welfare of animals used in research, AALAS established in 2006 the Grants for Laboratory Animal Science (GLAS) program to support research studies in laboratory animal science (AALAS, 2007g). Applications for grants are accepted each February, and approved grants are awarded each May.

Public outreach

Animals in Pre-College Education

AALAS provides a web-based booklet on the care and use of animals in pre-college education, presenting guidelines and resources for the humane care and responsible use of animals in classrooms (AALAS, 2007h). This booklet is also available in sections which may be downloaded separately. The booklet focuses on the ethics of having animals in the classroom and provides guidelines on their care. Topic titles are: "Use of Animals in Precollege Education"; "Should You Have a Pet in Your Classroom?";

"Recognizing Common Diseases in Animals in the Classroom"; "Signs of Pain and Distress in Rodents and Other Classroom Animals"; "Allergy and Asthma Concerns"; and "Establishing a Critter Care Committee" (i.e., a school animal care and use committee). Additional topics in the booklet provide guidance on the specific care of common classroom species: gerbils, guinea pigs, hamsters, mice, rats, rabbits, South African clawed frogs, snakes, and turtles.

Career information

Through multiple avenues, AALAS disseminates information about careers in laboratory animal science to inform young people about the range of occupations in research. The AALAS Foundation funds the development and production of outreach resources related to laboratory animal science, including websites and other materials on careers in biomedical research. These resources are distributed at no charge to the public through AALAS.

On the Kids4Research website, a careers page describes the occupations of a laboratory technician, veterinarian, research scientist, engineer, and animal behaviouralist (AALAS Foundation, 2007a). Representatives of each profession tell about their love of animals, their desire to do their best in supporting animal welfare, the type of work they do, and the pride they feel for their role in research.

Another resource on career information is the AALAS Foundation video *Accept the Challenge to Care: Careers in Laboratory Animal Science* (AALAS Foundation, 2007b). This video describes the range of careers in animal research, stresses a commitment to the 3 R's principles in animal research, and explains how the work of professionals in the field benefits both people and animals. In the video, the ethics of animal research is emphasized in segments presented by the IACUC Chairperson/Scientist: "We often say that animal experimentation is a privilege, it's not a right. And that privilege has to be earned. And it's earned through reduction, refinement and replacement. Scientists need to try to reduce the number of animals used in an experiment to the minimum necessary to answer the scientific questions. They need to refine their scientific techniques so that those techniques are the absolute best they can be. And they need to replace animals whenever possible with alternatives that will give them the same scientific answers." The script narrators reinforce these perspectives with additional comments: "In animal laboratory science, the bottom line is simple: the use of animals is a privilege, and a well-treated animal provides more reliable scientific results: If you do science, it's got to be done right. And if it involves animals, it's got to be done responsibly." The video may be viewed streaming from the AALAS

Foundation website, and DVD copies have been given away at many conference venues to animal research personnel, school teachers, and youths. In addition, DVD or VHS copies may be ordered for free from the AALAS Bookstore.

For students considering a career as a laboratory animal veterinarian, AALAS offers a free online course "Introduction to Laboratory Animal Medicine" on the AALAS Learning Library (AALAS, 2007i). This course summarizes the critical role veterinarians play in the field of laboratory animal medicine and scientific research.

Conclusion

AALAS continues to serve the research community and the public with the development and distribution of resources and programs aimed at advancing the humane and responsible care and use of animals in research. An important part of that effort is information about and implementation of the 3 R's principles in the alternatives to animal use in scientific research (Russell and Burch, 1959).

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