



CANADIAN ASSOCIATION FOR LABORATORY ANIMAL MEDICINE

L'ASSOCIATION CANADIENNE DE LA MÉDECINE DES ANIMAUX DE LABORATOIRE

CALAM/ACMAL STANDARDS OF VETERINARY CARE

Introduction

The Attending Veterinarian: Definition, Authority, and Relationships

Veterinary Licensure, Training, and Continuing Education

Primary Areas of Veterinary Responsibilities

- 1. Animal Ethics and Welfare Oversight**
- 2. Animal Husbandry and Care**
- 3. Health Management and Disease Surveillance**
- 4. Clinical Medicine, Surgery and Euthanasia**
- 5. Research Support and Regulatory Oversight**
- 6. Mentoring, Training and Education**
- 7. Other Responsibilities**

Conclusion

Introduction

The Canadian Association for Laboratory Animal Medicine/L'association canadienne pour la médecine des animaux de laboratoire (CALAM/ACMAL) represents licensed veterinarians across Canada working in the field of laboratory animal medicine. CALAM/ACMAL is registered as a not-for-profit entity under the *Canada Not-For-Profit Corporations Act*.

This document (referred to throughout as *Standards of Veterinary Care* or *Standards*) has been developed jointly by CALAM/ACMAL and the Canadian Council on Animal Care/Conseil canadien de protection des animaux (CCAC/CCPA) to establish standards of veterinary care for animal-based science programs in Canada. Animal-based science includes five general areas of work: fundamental studies, medical and clinical studies, regulatory testing, development of products and medical devices, and teaching and training. The *Standards* were developed to ensure that institutional programs of veterinary care meet national expectations. The CCAC/CCPA uses the CALAM/ACMAL *Standards of Veterinary Care* as a basis for assessment of the veterinary and animal health and welfare components of their Assessment and Certification program. The *Standards* provide a framework for expectations for veterinarians working in the field of laboratory animal medicine in Canada. The *Standards* also help increase public awareness of the roles, responsibilities, and functions of the laboratory animal veterinarian. Providing a comprehensive program for animal care and oversight in animal-based science involves a team of veterinary professionals. CALAM/ACMAL recognizes the roles of other licensed veterinary professionals, such as registered laboratory animal technicians (RLAT) and registered veterinary technicians (RVT), who assist veterinarians in meeting the *Standards*.

The professional judgement of a veterinarian trained and experienced in laboratory animal medicine is essential in the application of the *Standards* and adherence to guidelines, policies and relevant legislation established by other agencies and organizations is required. The *Standards* are written in accordance with federal and provincial legislation overseeing the humane treatment of animals (e.g., the Criminal Code of Canada and provincial animal welfare laws and regulations) and Canadian provincial and federal regulations overseeing the delivery of veterinary medicine including the professional conduct of veterinarians. CALAM/ACMAL recognizes that institutions may have additional internal policies and procedures that may direct the veterinarian in the execution of his/her duties and responsibilities.

The Attending Veterinarian: Definition, Authority, and Relationships

An animal ethics and care program is the responsibility of the institution's Senior Administrator (as defined in the *CCAC policy statement for: senior administrators responsible for animal care and use programs* (2008)), with support from the Animal Care Committee (ACC), and the Attending Veterinarian.

The **Attending Veterinarian*** (AV) should be designated by the Senior Administrator and must be a licensed veterinarian with authority and responsibility for supporting the overall institutional animal ethics and care program.

This includes oversight for all related activities that are occurring at institutional sites and in the field. The AV may delegate responsibilities to other individuals, including other veterinarians, who are qualified to perform those duties.

The Senior Administrator of the institution and its ACC(s) must acknowledge and define the responsibilities and authority of the AV, including:

- The AV or his/her designee is responsible for and has authority to ensure provision of a comprehensive veterinary care program that meets all regulatory and/or compliance requirements;
- The AV or his/her designee must have access to all sites, at all times, where animals are maintained and worked with, as well as access to animal use protocols and medical records; and
- The AV or his/her designee has the authority to treat, remove from a study or euthanize, if necessary, an animal based on their professional judgement.

*For institutions employing multiple laboratory animal veterinarians, the Attending Veterinarian is the individual with primary compliance responsibilities.

The AV should report directly to the Senior Administrator (or his/her designee) responsible for the animal ethics and care program at the institution (e.g., Vice-President Research, Chief/Director of Research). This is essential to ensure that the Senior Administrator can make informed decisions related to animal welfare. For complex animal ethics and care programs (e.g., institutions with several ACCs, multiple schools and campuses), the head of each entity (e.g., each campus or each site) should formally recognize the authority of the AV.

In organizations in which there are multiple veterinarians, it is preferable that veterinarians operating within the same group report to the AV. If there are multiple veterinarians reporting to different individuals there must be a written plan to facilitate coordination of the overall veterinary care program. In smaller institutions where there is a manager and/or a consulting veterinarian, these individuals must work together with the ACC Chair, and all should report to the Senior Administrator.

The complexity of the veterinary care program and its oversight will depend on several factors including the number of animals in the program, the type and variety of species, the nature of animal-based activities, and the organizational and financial structure of the institution (e.g., centralized or decentralized animal care units and budgets). The structure of the veterinary care program, including the number of veterinarians, their expertise, and specialized training must be appropriate to fulfill the program's needs and to provide care for the species housed at the

institution or studied in the field, to meet the requirements of the CALAM/ACMAL *Standards of Veterinary Care*.

Veterinarians may fill a number of key roles in animal-based science programs including facility director, regulatory veterinarian, clinical veterinarian, educator, compliance officer, and researcher. Veterinarians may find themselves in a position of real or perceived conflict of interest if they have both compliance or service and scientific or educator functions. This may occur when a veterinarian acts as a collaborator on an animal-based research project or instructor in a teaching course while providing clinical services to the same animals or is involved in post approval monitoring of these same animals. If there are sufficient veterinarians at the institution, veterinary roles should be structured to separate duties related to research or educational support from duties related to compliance oversight or clinical services. If there are not, the potential for a conflict of interest should be declared and discussed openly within the ACC.

Smaller animal ethics and care programs may employ consulting veterinarians on a part-time basis. Consulting veterinarians must be adequately trained or seek additional training to meet the requirements of the CALAM/ACMAL *Standards of Veterinary Care*. In situations in which the AV works on a part-time or consultative basis, there must be a formal written plan of veterinary care that outlines expectations for scheduled visits to the institution's animal facilities.

Veterinary Licensure, Training and Continuing Education

The AV must be a current licensed member in good standing of a provincial veterinary statutory body in [Canada](#) and should be qualified by virtue of training and experience in laboratory animal medicine. Post-veterinary training may include formal training programs (e.g., certificate, residency, DVSc, PhD) or on-the-job training within the workplace. The American College of Laboratory Animal Medicine (ACLAM) is a specialty College recognized by the American Board of Veterinary Specialties (ABVS) as the certifying organization for laboratory animal veterinary specialists in North America. Board certification in laboratory animal medicine is recognized within the veterinary medical profession in Canada and attainment of board certification represents one means of demonstrating a high level of competency in laboratory animal medicine.

Laboratory animal medicine is a rapidly evolving field and the institution must provide opportunities for annual veterinary professional development and continuing education, such as:

- Membership and participation in CALAM/ACMAL and Canadian Association for Laboratory Animal Science/Association canadienne pour la sciences des animaux de laboratoire (CALAS/ACSAL) activities and symposia;
- Attendance and participation at other laboratory animal medicine and science courses and meetings (e.g., Canadian Aquaculture Institute courses, Charles River Short Course, The Jackson Laboratory courses, American Association for Laboratory Animal Science (AALAS) National Meeting, CCAC/CCPA National Workshop, etc). (See Appendix VI of the *CCAC policy statement for: senior administrators responsible for animal care and use programs* (2008)); and
- Access to peer-reviewed literature, including laboratory animal science journals.

Primary Areas of Veterinary Responsibilities

1. Animal Ethics and Welfare Oversight

Animal ethics and welfare should be the primary focus of an institution's ACC and the institutional AV. Evaluating animal welfare includes consideration of physical, physiologic, social, and behavioural aspects of an animal's condition. Animals should have freedom to perform species-specific natural behaviours, postures, and movements; freedom from fear, pain, and distress; and provision of appropriate social interactions with conspecifics and human caregivers. Minimizing exposure to suboptimal environments and aversive stimuli, while promoting positive experiences and affective states, should be emphasized.

- A veterinarian should serve as an expert advisor and animal advocate to the ACC. Veterinary expertise on strategies to address the 3Rs (replacement, reduction, and refinement), animal ethics, health, welfare, husbandry, care and use can be used to help ACC members make informed ethical decisions. This includes advice on anesthesia and analgesia, creation and suitability of animal models, establishment of humane intervention points, and evaluation of zoonoses, biohazards, and occupational health and safety issues as they relate to an animal ethics and care program;
- A veterinarian must ensure the availability of veterinary services during and outside of regular working hours. Animal caregivers and research personnel must be able to report animal injury, ill health or death at any time, and a veterinarian must be available to treat the animal, investigate an unexpected death, and to advise on euthanasia;
- In terms of veterinary care, each animal must be treated with the same ethical consideration, the same high standards of care, and must have equal access to veterinary care within and out of hours to ensure good care;
- Evaluation of animal welfare must be performed by the veterinarian, in collaboration with animal care and research personnel. This evaluation should take into consideration physical appearance and behavioural indicators, animal behavioural management programs, housing conditions, husbandry practices, veterinary care, and type and number of experimental procedures performed on a single animal; and
- To ensure best practices are maintained in animal-based science programs, the veterinarian should advise on ongoing improvements to institutional standard operating procedures (SOPs) and policies, through discussions with the ACC, Senior Administrator, and research and animal care personnel.

2. Animal Husbandry and Care

Progressive husbandry and care practices are fundamental to a high-quality animal ethics and care program and the veterinarian must ensure appropriate species-specific practices are in place, including:

CALAM/ACMAL Standards of Veterinary Care

- Acclimation of newly arrived animals to the research environment and habituation and/or training of animals to procedures and personnel;
- Provision of appropriate housing for animals in a secure facility. The veterinarian should be consulted to determine the suitability of facilities for housing, husbandry, and experimental procedures prior to the arrival of animals. Deviations from current standards and best practices for housing and care should be validated to ensure that animals are not harmed by alternative approaches and approved by the ACC in consultation with the veterinarian;
- Review and implementation of current veterinary standards, guidelines, policies and regulations related to the housing and care of animals in science;
- Provision of advice on the design and equipment requirements for all new construction or renovations of facilities or institutional spaces in which animals will be housed or where procedures will be performed;
- Awareness of infrastructure and operational deficiencies and the effect they may have on animal care, and communication of these deficiencies to the ACC and the Senior Administrator for resolution (e.g., ensuring there is sufficient animal care staffing levels to support the program);
- Participation in the development, implementation, and review of institutional SOPs and policies for animal husbandry and care, including animal handling and restraint;
- Oversight of species-specific animal husbandry practices, including sanitation, animal welfare state, behavioural requirements, nutrition, genetics, breeding, and pest control;
- Seeking advice from subject matter experts (e.g., research personnel, external wildlife or zoo biologists or veterinarians) when specific expertise related to animal care, housing, husbandry or procedures is missing. Relevant species-specific guidelines should be consulted (e.g., taxon guidelines) and supplementary training should be provided to the veterinarian(s), where expertise is missing; and
- Provision of appropriate oversight of animal care during fieldwork studies. The veterinarian should be consulted regarding proposed interventions in the field (e.g., capture, transport, euthanasia, sample collection, identification, trap monitoring, and housing), and assist with developing proactive measures to ensure the well-being of animals. Institutions should establish a mechanism to ensure health issues and complications encountered in the field are communicated in an appropriate timeframe to the AV and the ACC. Institutions must ensure the veterinarian is competent to oversee fieldwork studies.

3. Health Management and Disease Surveillance

Healthy animals are more likely to produce high quality, reproducible research data. Veterinarians are essential in ensuring good health and well-being of individual animals and the health status of all animal facilities.

Veterinarians should provide oversight and assist with the development of procurement policies for animals and biological materials. This should include:

- Advocating that all animals entering the facility, as well as biological materials to be used within animals, be ethically and legally sourced. Animals should be obtained from a licensed commercial vendor or an approved non-commercial source such as an academic institution. Animals entering the program should not harbour infections that are hazardous to other animals and humans or detrimental to the scientific study;
- Reviewing the practices of the vendor, particularly in cases where animals are purchased from non-commercial vendors;
- Ensuring that appropriate quarantine facilities and workflow procedures are in place to ensure that the health status of newly arrived animals does not affect that of the existing population;
- Ensuring that appropriate policies are in place for testing of biological materials to be used in vivo; and
- Ensuring that the transportation of animals and biological materials used in vivo, between and within institutions, are approved by the ACC, and are conducted in compliance with external regulatory bodies and internal occupational health and safety policies.

A veterinarian must develop health monitoring and quality assurance programs to ensure that all animals maintained for science activities are free from confounding or unwanted disease. This oversight includes:

- Direct or indirect daily observation of animals for signs of disease or other adverse health states by competent personnel who are trained and under the oversight of the veterinarian. There must be a timely and accurate method for communication of health, behaviour, and welfare concerns to the veterinarian;
- Ensuring the maintenance of accurate medical records for routine preventative medicine programs and treatment of clinical cases. Records should include the date, animal identification, protocol number, preventative healthcare activities, clinical findings and assessment, diagnosis and treatment, clinical interventions, and resolutions. Records may be individual (e.g., dogs, primates) or grouped (e.g., rodents, fish), as appropriate;
- Establishing preventative health programs to support the size and scope of the animal ethics and care program. Programs may include environmental and/or sentinel monitoring programs for rodent populations, herd/flock health programs for livestock, tank

monitoring for aquatic species and species-specific preventive healthcare programs (e.g., parasite control, vaccinations, dental evaluations, surgical sterilization, etc.);

- Monitoring animals for the presence of infectious agents, including parasitic, bacterial and viral agents that may cause overt or inapparent disease. The occurrence of disease may impact research findings as well as animal health and welfare. The type and intensity of surveillance will depend upon the size the program, type of species, desired health status, experimental procedures, and number of animals;
- Coordinating the response when disease is detected, including having the authority to use the appropriate treatment, control measures and/or to euthanize an animal(s). When infectious agents are identified, appropriate measures must be implemented to minimize risk of transmission to other animals and humans;
- Providing prompt emergency treatment for diseased or injured animals. The veterinarian must have the authority to proceed with any necessary emergency measures, whether or not research personnel and the ACC Chair are available; and
- Accessing or providing diagnostic laboratory services to assist with surveillance, diagnosis and treatment of disease. Services should include necropsy, histopathology, microbiology, clinical pathology and parasitology as well as other specialized procedures such as genetic testing and radiology. External or internal diagnostic services may be sourced.

4. Clinical Medicine, Surgery and Euthanasia

Veterinarians, by virtue of their specialized medical training and experience, must oversee all aspects of anesthesia, surgery, analgesia, humane intervention point evaluation, and euthanasia. This should include:

- Provision of expert advice related to surgical, perioperative and experimental procedures that require anesthesia, analgesia and euthanasia. This includes animal handling and restraint, anesthesia and analgesia agent selection (e.g., agent, dosage, route, and schedule), substance administration and sample collection, aseptic surgical technique, animal monitoring and recovery, and maintenance of appropriate records. Recommendations for veterinary therapeutics must take into consideration both animal welfare and scientific objectives;
- Ensuring that facilities intended for animal surgery meet current veterinary standards as determined by guidelines, policies and other regulatory legislation, and that personnel are adequately trained and competent in the procedures they are expected to perform; and
- Ensuring compliance with all federal and provincial laws and regulations regarding human and veterinary therapeutics. In situations where research personnel hold their own drug licence(s) or exemptions to use controlled substances, it is their responsibility to adhere to relevant regulations and legislation.

5. Research Support and Regulatory Oversight

Veterinarians play a key role in animal-based science by facilitating activities using animals. Working with the ACC, through the development and implementation of institutional policies and SOPs, the veterinarian ensures that animal-based science activities are compliant with provincial and federal legislation, CCAC/CCPA guidelines and policies, and other relevant standards related to the humane treatment and care of animals. This can be accomplished by veterinary participation in:

- Review of all animal use protocols and providing advice on experimental design, animal model selection, experimental techniques, selection and application of humane intervention points, surgical manipulations, selection of anesthetics and analgesics, therapeutic agents, procedural monitoring, post-approval monitoring, record keeping, potential welfare concerns and euthanasia;
- Conducting regular visits to all animal facilities, the frequency of which depends on the size of the institution, the number of animals, and specialized program needs. At minimum, two site visits per year are required, preferably at six-month intervals, and animals should be present in the facility during the visits. Veterinary site visits, including recommendations should be documented in writing and submitted to facility management, the Senior Administrator, and the ACC, if not occurring as part of a regularly scheduled ACC visit. In larger institutions, veterinarian(s) must be on site regularly (e.g., daily, or weekly) to meet the requirements of the *CALAM/ACMAL Standards of Veterinary Care*, in which case formal reports may not be required for each visit; and
- Maintaining vigilance over experimental or other conditions that may lead to pain and distress for animals, and reporting concerns to the ACC and Senior Administrator, as necessary.

6. Mentoring, Training and Education

Veterinarians, as licensed professionals, have the knowledge, skills, attitudes, and behaviours needed to mentor and train others working with animals in science. The veterinarian should be involved with the development of an appropriately sized and resourced institutional animal ethics and care training program. The veterinarian's role is to:

- Oversee the development and delivery of didactic and hands-on animal-related training programs for all personnel working with animals and ensuring there is a framework to assess competency;
- Assure that the institutional animal ethics and care training program contains all required elements described in provincial and federal legislation, guidelines and policies;
- Promote and demonstrate the use of alternatives and replacements, where possible, when teaching manual skills;

CALAM/ACMAL Standards of Veterinary Care

- Ensure that all individuals providing training are competent in animal handling and procedures being taught; and
- Mentor and educate animal caregivers and research personnel in adopting up-to-date veterinary standards when working with animals.

7. Other Responsibilities

Animal-based science programs are unique and constantly evolving to meet the needs of various stakeholders. In addition to clinical care and oversight of animals, veterinarians may act as research administrators, provide expert opinions to institutional stakeholders, and manage large scale operations through financial and operational oversight. In these situations, the veterinarian's role may include:

- Participation in the recruitment process for prospective new research personnel or institutional faculty including providing guidance on animal procurement, housing, and care to ensure that resources are available to support new researchers;
- Liaising with institutional occupational health and safety and infection control program personnel in relation to animal use. This includes providing veterinary advice on biologic risk assessments, biohazardous agents, chemical hazards, zoonoses, laboratory animal allergy, radioactive materials, waste handling, and workplace ergonomics. The veterinarian should be consulted during development of institutional occupational health and safety policies and training programs related to animal use, design and operation of containment facilities, as well as other relevant committees;
- Financial and operational oversight of animal ethics and care programs, including rate setting, budget development, procurement of supplies, human resources, and general operations;
- Participation and collaboration in operational, infrastructure, and scientific grant proposals;
- Consultation with institutional media relations personnel to develop pro-active communication strategies to address concerns, criticisms, and successes related to the use of animals in science and education;
- Participation in teaching activities including undergraduate and graduate level (e.g., animal care, veterinary technician, and veterinary students).
- Assisting with development of institutional crisis management plans related to animals and animal facilities; in larger institutions, this would include individual animal facility site plans as well as over-arching institutional plans; and
- Participation, as a researcher, in peer-reviewed scientific activities.

Conclusion

Animal-based science plays an integral role in advancing human and animal health. High standards of veterinary care are an essential component of an institution's animal ethics and care program. The *CALAM/ACMAL Standards of Veterinary Care* assist institutions, Senior Administrators, ACCs, and veterinarians in developing, maintaining, and evaluating their programs of veterinary care to ensure that they meet national expectations. By describing the role and authority of the Attending Veterinarian and the primary areas of veterinary responsibilities, the *Standards* provide a framework for Senior Administrators to ensure their animal ethics and care programs are appropriately structured.

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