

**THE AMERICAN COLLEGE OF VETERINARY ANESTHESIA & ANALGESIA**

**RESIDENCY TRAINING STANDARDS**

**Drafted as guidelines in 2003,  
Updated and approved as standards in 2006,  
Updated, 2009  
Updated, 2014  
Updated 2015  
Updated 2017**

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## I. INTRODUCTION

In this document:

**Mentors** refers to the ACVAA or ECVAA Diplomates who directly supervise the anesthesia resident.

**Program Leader** refers to the ACVAA Diplomate primarily responsible for the design and implementation of the residency training program.

**Resident** refers to the veterinarian enrolled in the Anesthesiology Residency Training Program.

**Sponsor** may refer to any other individual closely involved in a particular resident's training program ( e.g. research project, other species management, etc.)

### A. Definition and Scope of Discipline

Anesthesiology is a health science discipline dedicated to the relief of pain and total care of the patient before, during and after surgery or any other procedure requiring general anesthesia or managed sedation.

Veterinary anesthesiology is a discipline within the practice of veterinary medicine, with special emphasis in the management of animals rendered unconscious or insensible to pain during surgical, diagnostic and therapeutic procedures. This involves evaluation and treatment of these animals and includes specialized care in pain management, cardiopulmonary resuscitation and support and management of critically ill and/or injured animals in special care units.

Veterinary anesthesiologists are veterinarians who have successfully completed advanced, formal training in anesthesiology. The training of veterinarians for the practice of veterinary anesthesiology includes education in basic sciences, training in cognitive and technical skills and development of clinical knowledge and clinical acumen.

The American College of Veterinary Anesthesia and Analgesia (ACVAA) is a specialty board recognized by the American Veterinary Medical Association with the sole authority to establish and maintain criteria for the training, knowledge and skill that is essential for the designation of an individual as a specialist in the clinical practice of veterinary anesthesiology and perioperative pain management. Veterinarians certified by the ACVAA are known as Diplomates of the ACVAA.

The ACVAA defines a Diplomate of the ACVAA as a veterinarian who:

1. Possesses knowledge, judgment, adaptability, clinical skills, technical facility and personal characteristics sufficient to carry out the entire scope of veterinary anesthesiology practice.
2. An ACVAA Board certified veterinary anesthesiologist is defined as a veterinarian who is certified as a Diplomate of the American College of Veterinary Anesthesia and Analgesia and
  - a. provides medical management and consultation for the anesthetic management of animals.
  - b. provides medical management and consultation on matters of pain prevention and therapy in animals.
  - c. provides medical management and consultation in veterinary critical care medicine.

- d. possesses knowledge, judgment, technical and other clinical skills, and personal characteristics sufficient to independently, effectively engage in the complete scope of veterinary anesthesiology.
3. Can serve as an expert in matters related to anesthesiology and pain management (in animals), deliberate with others and provide advice and defend opinions in all aspects of the specialty of veterinary anesthesiology.
4. Is able to function as the leader of a clinical anesthesiology service.
5. Applies scientific method to furthering veterinary anesthesiology.

Because of the nature of the role of the anesthesiologist, the ACVAA Diplomate must be able to deal with emergent life-threatening situations in a rational, independent and timely fashion and thereby assume individual responsibility for all aspects of anesthesia-related care. Freedom from the influence of or dependency on chemical substances that impair cognitive, physical, sensory or motor functions is an essential characteristic of the ACVAA-certified veterinary anesthesiologist.

## **B. Program Goals and Objectives**

The *goal of a residency training program* in veterinary anesthesiology is to prepare the individual to function as a qualified practitioner of veterinary anesthesiology and perioperative pain management at the highest level of performance that society expects of an individual identified as a specialist.

Upon completion of training, the individual should have:

1. A broad understanding of veterinary anesthesiology and pain management.
2. An understanding of the changes in physiology induced by diseases and abnormalities of various organ systems and their effects on anesthetic management and life support.
3. An expert's level of understanding in:
  - a. Species-specific anatomy relevant to anesthetic management (Job Task Analysis\*\* Domain 1)
  - b. Peri-operative monitoring of patients, including knowledge of normal values, signs of anesthetic depth, and interpretation of diagnostic test results (Job Task Analysis\*\* Domain 2)
  - c. Physiology and pathophysiology of all relevant organ systems (Job Task Analysis\*\* Domain 3)
  - d. Pharmacology of anesthetic agents, sedatives, analgesics, anti-inflammatory agents, drugs affecting cardiovascular and respiratory function, and drugs used to manage other medical conditions (Job Task Analysis\*\* Domain 4)
  - e. Anesthetic management of animal patients of all species for elective surgical and diagnostic procedures (Job/Task Analysis\*\* Domain 5)
  - f. Anesthetic management of animal patients for emergency procedures, critical patient care and resuscitation (Job Task Analysis\*\* Domains 5 & 7)
  - g. Perioperative pain management and analgesic modalities, local and regional anesthetic techniques and indications (Job Task Analysis\*\* Domain 5)
  - h. Management of fluid therapy, electrolyte and metabolic disturbances (Job Task Analysis\*\* Domains 4 & 5)

- i. Anesthetic and monitoring equipment (Job Task Analysis\*\* Domain 6)
- j. Ethical considerations and humane techniques for euthanasia (Job Task Analysis\*\* Domain 8)
- k. Basic physics relevant to anesthesia (Job Task Analysis\*\* Domain 9)
- l. Public safety relevant to anesthesia e.g. controlled substances management, waste gas scavenging, etc. (Job Task Analysis\*\* Domain 10)
- m. Professional Topics e.g. research methodology (Job Task Analysis\*\* Domain 11)

*\*\* In 2015 a Job Task survey was completed with the expert involvement of Prometric. Diplomates of the ACVAA voluntarily completed a job task analysis and a sub-group of diplomates from diverse backgrounds and levels of experience formulated the final Job Task Analysis from results of that survey, which resulted in these 11 general knowledge domains.*

***The objective of the program is to provide:***

1. Opportunity for residents to learn *in-depth* the fundamentals of basic science as applied to the practice of anesthesiology.
2. Experience in pre-anesthetic, peri-anesthetic and immediate post-anesthetic care for animals in areas that constitute the components of veterinary anesthesiology.
3. A suitable environment to facilitate training. Such an environment requires a commitment by Mentors, support staff and administration, appropriate resources and facilities, and appropriate animal caseload.

Clinical activity, undergraduate and graduate veterinary education, and other teaching activities and service commitments should not compromise the resident's training.

**C. Program Prerequisites**

1. Be a graduate of a college or school of veterinary medicine accredited or approved by the AVMA, or possess a certificate issued by the Educational Commission for Foreign Veterinary Graduates (ECFVG), or be legally qualified to practice veterinary medicine in some state, province, territory or possession of the United States, Canada, or other country.
2. Has completed one year of general clinical practice of veterinary medicine or an internship as specified in the **pre-residency checklist** prior to the start of an anesthesia residency program.

<https://acvaa.org/wp-content/uploads/2019/05/Pre-Residency-Checklist.pdf>

**D. Program requirements**

The standard residency training program has defined personnel, facilities, resources and program requirements that are outlined in section II of this document. The criteria for creation of an alternative residency training program are outlined in section III of this document.

For an ACVAA residency training program (Standard or Alternative Track) to be active the:

1. **Program Leader** must submit a program registration form (Appendix A) within 1 month of July 1<sup>st</sup> (or the date on which the residency training program initiates a new year) of each year to the executive secretary of the ACVAA.
2. All **residents** must submit the Registration of Individuals in Clinical Anesthesia Training Programs (Appendix C) at the start of their program to the executive secretary of the ACVAA.
3. All **residents** must submit a Case & Activities Log (Appendix D) to the executive secretary of the ACVAA within 1 month of the end of each year of their residency.

**Failure to comply with these requirements may result in the rejection of a resident’s application to take the certifying exam.**

## II. Standard Residency Training Program

### A. Program Personnel

#### 1. Program Leader

Each residency training program must have a Program Leader. The Program Leader refers to the ACVAA Diplomate primarily responsible for the design and implementation of the residency training program.

The Program Leader is responsible for the satisfactory conduct of a residency training program.

#### 2. Program Mentors

Supervising Mentors must be ACVAA or ECVAA Diplomates in good standing whose primary responsibility is to maintain a scholarly environment. They are responsible for the direction and execution of the program as well as didactic and clinical teaching.

- a. Number and Minimum Clinical Commitment of Mentors: It is recognized that a critical mass of discipline Mentors is necessary for a successful training program.

Two ACVAA or ECVAA certified Diplomates are the minimum staffing level for an approved residency program with a single resident in training. For each additional resident in the training program, the Mentor: resident ratio must be at least 1:1, however, a greater Mentor: resident ratio is encouraged. See table below.

Mentor to Resident Ratio (M:R)		
Number of Residents	Ideal	Minimum
1	2:1	2:1

2	3:2	2:2
3	4:3	3:3

Mentors must have a minimum of 10 weeks of full time effort per year committed to clinical anesthesia within the institution's veterinary health care facility. Mentor clinical commitment must be sufficient to provide 100% clinical supervision for all residents through their entire 94 weeks of clinical anesthesia requirement (see C, ii, a).

Locum coverage by ACVAA or ECVAA diplomates will be accepted as part of the 94 weeks, but will NOT be considered program mentors or contribute to the minimum staffing level of an approved residency program.

Circumstances that do not meet the recommendations listed above should be presented to the ACVAA Residency Training Committee for review prior to the development of such situation. Under some circumstances, such cases may be considered alternative training programs (see below).

- b. Supervision of cases managed by Residents: It is important to note that the ACVAA considers the Mentors engaged in this program as having a responsibility for the overall care of the individual animal managed by their trainee as well as for the supervision of the resident involved in the care of that animal. Supervision of residents must include;
  - i. Direct supervision during the 94 required clinical weeks. Residents shall keep a log of their cases that needs to be confirmed (signed) by the Mentors providing that supervision. Clinical supervision provided by board eligible or non-ACVAA/ ECVAA Diplomates will not count toward the required 94 weeks of clinical activity stipulated in the Residency Training Standards.
  - ii. During the first 6 months of training, Mentors must be available to assist in after-hours emergencies. Direct, in-person, assistance by a Mentor should be decided on a case-by-case basis, at the discretion of the Mentor, with consideration for the aptitude and skills of the Resident at that stage of training. It is the Mentor's responsibility to ensure anesthetic care that is in the best interest of the patient.
  - iii. During the entire course of training, a Resident must have access to Mentors by phone and/or by direct supervision as needed to assist in after-hours emergencies.
  - iv. The level of daytime and emergency supervision should be decided by the attending Mentors based on individual resident performance, clinical caseload, and the policies of the hospital within which the residency program resides.
- c. Resident Supervision of Clinical Service: Since one of the goals stated for ACVAA Diplomates is to be able to lead a clinical service, each Resident should be expected to

serve as Chief of Service for a minimum of 2 weeks (need not to be consecutive) in their final year of residency. Mentors must be available for consultation during that time.

- d. Training at another institution: If the program includes any period of training at another institution, a faculty member with appropriate expertise and qualifications must be designated at that institution to assume responsibility for day-to-day activities of the resident during training at that institution. Supervisors with board certification pertinent to the area or subject of training are preferred (e.g. ACZM, ACLAM), otherwise, supervisors should have their qualifications for resident training ascertained and verified by the resident's Program Leader. Anesthetic procedures carried under such supervision will be accepted towards the resident's case log. Weeks spent training at another institution will not count towards the 94 weeks of clinical coverage. Overall coordination of the program at all teaching sites remains the responsibility of the Program Leader as noted above.

### *3. Other Program personnel*

Programs must be provided with additional professional, technical and clerical personnel needed to support and sustain the educational quality of the program.

Non-veterinary personnel: The integration of non-veterinary personnel with special knowledge and skills into the training program is appropriate and usually strengthens the overall program. However, exclusive clinical instruction of residents by non-veterinarian or specialist physician personnel is not appropriate. It is also inappropriate to encourage supervision of junior residents by residents more senior in the program except when a senior resident is working as a Chief of Service.

## **B. Facilities and Resources**

Resident training programs should have sufficient physical facilities, equipment and breadth of anesthetic management opportunities within the framework of their institution to provide an adequate training program, as outlined below.

### *1. Space and Equipment*

Hospital resources (i.e., diagnostic and therapeutic) to satisfy appropriate resident training must be available and functioning. Clinical experiences in ambulatory care (e.g., associated with large animals, zoological species or wildlife) are appropriate.

Appropriate anesthetic delivery, monitoring and life-support equipment must be readily available and represent the current acceptable level of technology in veterinary anesthesia/critical animal care.

In addition to library access, internet access, space for teaching conferences, and facilities for basic science or clinical research are also necessary.

Clinical records that document animal care must be maintained and these records must be accessible to related personnel at all times; the guiding philosophy must be that such records facilitate a high level of animal care and resident education.

## *2. Ancillary Services*

Clinical laboratory, diagnostic imaging, electrophysiological recording capabilities and other diagnostic and therapeutic facilities pertinent to support the clinical practice of anesthesia, sedation, critical animal care and pain management in a broad range of animal species and clinical circumstances should be readily available.

## *3. Animal Population*

Program Leaders and Mentors have some discretion in regard to numbers of animal species and conditions managed by the resident, but in defining the limits of their program they must be guided by the principles given immediately below and the requirements listed in Appendix B:

- a. Experience and technical skill in a breadth of animal species and conditions (including disease) are essential for the specialist in veterinary anesthesiology.
- b. Animal species must be available in sufficient numbers for training purposes in operating room, intensive care, diagnostic, ambulatory and other settings. Anesthesia experience with birds, reptiles, fish, small mammals and other species should be represented in the resident's training experiences sufficient to fulfill the recommended objectives itemized in Appendix B. However, it is expected that the primary area of training will be with domestic mammals.
- c. The physical status and disease states of the animals managed should encompass the usual spectrum seen in clinical practice for the particular species in question.
- d. Over the course of the residency training period the volume and variety of a resident's experience must be such to ensure an education balanced by sufficient number and distribution of species and complexity of case management, including variety of drugs used for anesthetic management and analgesic techniques. Specific numbers of species and physical status/disease states personally managed (as opposed to those clinical circumstances in which the trainee supervised the management, see footnote) within the residency program time frame will receive emphasis in successful credentials review for ACVAA Diplomate status. A minimum of 250 "core" species and 50 "other" species are required for this aspect of successful credentials review. Core species constitute dogs, cats, horses, cattle, sheep and goats. Other species constitute all other mammalian or non-mammalian species (see Appendix B).

## *4. Library and other educational facilities*

Residents must have access to a major health science library either physically on site or via internet access. There must be access to an on-site or on-line collection of appropriate

textbooks and journals. This collection should be readily available during nights and weekends.

Computer support for teaching, learning, data analysis and manuscript preparation must be available. Residents must also have Internet services available to them to facilitate literature searches, and allow them access to various anesthesia servers and electronic resources.

#### *5. Evaluation of facilities and resources*

The Program Leader must periodically evaluate the resources available to the program; including the financial and administrative support, facilities and equipment, volume and diversity of animal experiences available to ensure a quality training program. These reviews should be done every year at the time of the program registration. Ideally, perceived deficits will be addressed by the Program Leader to eliminate the deficiencies that affect the standard of training.

#### *6. Fulfilling facility and resource deficits by training intervals at other institutions*

An institution that cannot provide sufficient resources and clinical experience within its own boundaries may make arrangements with other institutions to provide resources and experiences for the trainee. In these cases, the majority of the training should be at the sponsoring (primary) institution. All arrangements for training outside of the primary institutional facilities should be formally documented in writing and include a clear description of the duration of time the resident will spend at the affiliated institution, the intended experience gained during this time and the name of the individual responsible for supervising the resident and assuring that goals of the training experience will be met. If the primary institution's program deficits require resident training at other institutions in excess of a total of 12 weeks, the training program will be classified as an alternative program and the Program Leader must follow the appropriate application process for an alternative track residency training program.

### **C. Educational Program**

The residency should provide intensive training in veterinary anesthesiology primarily through animal care supplemented with complementary library study, didactic course work, seminars and journal article review, and laboratory or clinical investigation. Within the residency, the individual should have experience in the practice of anesthesia and the management of pain in various species including companion, food, sporting, laboratory, and zoo/wild animals. The individual should have managed anesthesia in such animals under a variety of conditions including different disease processes in various species.

#### *1. Training program duration*

Three contiguous years (156 weeks total) of training in veterinary anesthesiology (with or without a graduate academic degree) is considered the minimum amount of time required for acquisition of the necessary knowledge, technical skill and clinical judgement. Vacation will be taken in accordance to the rules and regulations of the institution/training program, but should be at least two weeks (10 working days) per year. There will be no more than two weeks of sick leave per year of training. Any absence from training in excess of those specified (vacation and sick: 4 weeks total/year) violates the definition of contiguous. In this case, the program should notify the Residency Training Committee to allow assessment of the situation. At minimum, the trainee's total training time will be lengthened to the extent of absence in excess of the 4 weeks.

The residency program will not extend over 5 years. If this is the case, the resident will be terminated and re-application to residency programs will be the most likely course of action if the candidate still wishes to pursue board certification.

## 2. *Training program design*

a. Minimum period of clinical anesthesia training: With the goal of preparing the individual to function as a qualified practitioner of veterinary anesthesiology (section B, above), the majority of residency training will be clinical. Thus, the clinical activity portion of an approved residency in veterinary anesthesia must include at least 60% of full-time effort in the anesthetic management of animals (i.e., a minimum of 94 weeks out of the total 156 week training period).

b. Related clinical training, research and study: The remaining time (50 – 62 weeks) required of a 3 year program, given 2 weeks of vacation and 2 weeks of sick leave if needed, as well as institutional policies for vacation, will be spent in *off-clinic activities*. Off clinic activities should be *dedicated weeks with no daytime clinical responsibilities within the anesthesia service of the institution*. These activities can be related clinical rotations (e.g. internal medicine, cardiology, emergency/critical care, veterinary pain service, zoo medicine work either at the institution or off-site), relevant outside clinical rotations (e.g. human anesthesiology, pain service), original investigative research (grant writing, data collection, data analysis, manuscript preparation), independent study, or attendance at relevant continuing education meetings (see 4.b below). Time taken out of a routinely scheduled clinical day for course work required of the institution (e.g. Master's degree) will not be considered off-clinic time.

The distribution of clinical and non-clinical activities within the 3 year veterinary anesthesia residency should be decided upon by the Program Leader and the individual resident according to the needs of the institution and resident and in keeping with the guidelines set forth in this document.

## 3. *Clinical component*

Anesthesiology encompasses the full spectrum from the theoretical background to the clinical management of animals. Accordingly, the program must be a balance between clinical care obligations and didactic education. There should be identifiable periods of time associated with basic anesthetic management of small and large animal species. The majority of basic anesthesia training emphasizing the fundamental aspects of anesthesia and species-specific anesthetic principles should occur prior to more advanced training which would include experience in more complex domestic animal cases and laboratory, zoological and free ranging animals. As appropriate to the development of each individual resident's knowledge and skills, a resident should engage in more advanced anesthesia training and supervisory roles in anesthetic management.

- a. *Minimum experience criteria* - Residents should have personally anesthetized at least 300 animals during their training program. Minimum required numbers of individual animals within the range of species categories are listed in Appendix B.
- b. *Anesthetic/animal management responsibility* – Training program emphasis must be to provide circumstances in which animals are directly, personally managed by the resident. Personally managed cases are those for which the resident has primary responsibility and manages anesthesia herself/himself. Responsibility for additional, simultaneous cases infers that the resident is supervising cases rather than personally managing them. Record keeping by another individual is acceptable for personally managed cases as long as the resident is continuously present and assumes responsibility for the case. Supervision of the resident by Mentors during this care is an inherent component of a training program. The degree of direct supervision by Faculty is circumstance-dependent and guided by animal and resident needs (see footnote). Circumstances in which residents supervise anesthetic care administered by others (e.g., undergraduate veterinary students, and technical staff) should be in addition to the required minimum numbers of animals personally managed.
- c. *Animal management case & activities log* – Residents must keep a log of the clinical and scholarly (see C. 4d below) activities in which they have participated. The cases included in this log should be cases primarily managed by the resident. The ACVAA Case & Activities Log Template and instructions are available on the ACVAA website, [www.acvaa.org](http://www.acvaa.org). Logs should be submitted to the Program Leader every 6 months, to the ACVAA Executive Secretary annually (at the end of the 1<sup>st</sup> and 2<sup>nd</sup> 12 month period of the residency) and with credential materials during application to Certifying Exam. For those residents applying to the Certifying Exam during the 3<sup>rd</sup> year, a final log must be submitted to the ACVAA Executive Secretary at completion of the training program before they are allowed pursue certification.
- d. *Participation in other specialty programs within the institution* – In addition to the 94 weeks of clinical anesthesia, the program should allow the Resident to work with and learn from specialty-trained individuals in areas such as internal medicine, pain management, critical care medicine, human anesthesia, cardiology, diagnostic imaging and laboratory, zoological and exotic animal clinical services (see C.2b above).

#### 4. *Scholarly Component*

The Resident's education should take place in an environment of inquiry and scholarship established by competent and committed scholarly Mentors (ACVAA as well as non-ACVAA/ECVAA) at that institution and the continual refinement and improvement of a strong teaching program. The Resident must participate in the development of new knowledge, learn general principles of "good science", learn to evaluate research findings and develop habits supporting a career of life-long learning and improvement.

*a. Didactic activities* - Didactic training during the residency program provides the resident with an organized forum for acquiring the foundation of knowledge required for diplomate status in the ACVAA. Didactic instruction should include the breadth of information relevant to the clinical anesthetic management of core animal species important to veterinary medicine, related areas of basic science such as anatomy, pharmacology, and physiology, and topics from other medical and surgical disciplines. The number and format of such teaching activities may vary among programs. However, there must be consistent and committed Mentor participation. It is highly desirable that this aspect of the training program be enriched by lectures and contact with individual medical professionals from other disciplines and institutions. It is recognized that for some programs to include such information concurrent participation in a formal graduate academic degree may facilitate this requirement. However, this is not to imply that formal concurrent participation in a graduate degree program is a required component of an approved clinical training program.

Organized meetings of Mentors and Residents, with or without veterinarians trained or training in other related specialties, must be held regularly. These should include regularly scheduled didactic conferences on information/review of basic science and applied sciences as noted above, morbidity and mortality conferences, journal reviews and research seminars. Residents should be actively involved with presentation at these conferences according to their stage of training. Attendance at multidisciplinary conferences is strongly encouraged.

*b. External Conferences and Meetings* - Residents should attend regional, national and/or international medical and/or veterinary medical meetings supporting advanced education in the art and science of Veterinary Anesthesiology, Pain Management or appropriately related fields. Specific details regarding the exact meetings selected, time away from clinical activities for attendance and funding sources are left to the discretion of the Program Leader. Residents should be encouraged to present their research data at such meetings.

*c. Laboratory or Clinical Research* - It is anticipated that scholarly activity will result in the formulation of a hypothesis driven research project in anesthesiology, pain medicine or critical care. Experimental, prospective or retrospective clinical studies will be suitable. The manuscript reporting new knowledge must be ACCEPTED for publication in a refereed biomedical journal before a date 8 weeks prior to board examination date. Submission of credentials with a manuscript under the status of

SUBMITTED will be considered for evaluation by the Credentials Committee but permission to sit for examination will depend on acceptance for publication. For example, if credentials are submitted to the Credentials Committee in the fall of 2017 (deadline is September 1st), a submitted manuscript must be accepted for publication prior to the date that is 8 weeks in advance (early March) to the 2018 ACVAA examination. Information regarding the manuscript along with the list of acceptable journals can be found on our website in the resident portal under 'Documents and Forms.'

d. *Activities log* - In conjunction with the aforementioned case management log (C. 3c), a record of non-clinical anesthesia activities must be maintained throughout the residency and submitted annually to the Executive Secretary, as well as upon application to the certifying exam.

## 5. Evaluation

a. *Resident* - Training programs should have clearly defined procedures for regular evaluation of resident's knowledge, skills and professional performance, including development of professional attitudes and ethics consistent with contemporary veterinary medical practice and societal expectations. These evaluations must be made and results communicated in a personal conference with the resident at least annually, but preferably on a semi-annual basis. Provision for periodic written and/or oral examinations of the resident's knowledge-based progress is also a highly desirable component of this process. Residents should be advanced to higher responsibility only after evidence of their satisfactory progressive scholarship and professional growth

b. *Mentors and other teaching personnel* - Residents should provide the local institution's residency committee (or an equivalent group/individual) with a written summary evaluation of the efforts and effectiveness of the anesthesia residency training Program Leader and Core Mentors. At a minimum, such a report should be filed at or near the conclusion of the resident's training period and should summarize the activity of the entire training period. Information should include the Resident's assessment of the teaching efforts and effectiveness of the core advisors, the advisors commitment to the training program, their clinical knowledge and their effectiveness as Mentors.

c. *Program* - The effectiveness of the training program should be evaluated in a systematic manner at least once every three years. It is highly desirable that these be by an institutional faculty review committee. Residents in their final year of training or prior to departure should also review the program. The evaluations should include a review of the effectiveness of the curriculum, the extent to which the goals of the program are being met and the professional quality and competence of the individuals who have completed their training. The performance of members of the Mentors and staff should be included in this review process. The program should be critically reviewed by the institution and anesthesia Mentors any time a trainee prematurely leaves or is asked to leave the program. It is recommended that these evaluations be

used as self-assessments to improve the quality of the training program. Evaluation of graduate Residents' performance on the ACVAA certifying examination should be included as a means of program assessment.

### **III. Alternative Residency Training Program**

An alternative method of training in veterinary anesthesiology will be considered by the ACVAA Credentials and Residency Training Committees. The program may include combined clinical training in veterinary anesthesiology and a traditional formal graduate degree or post doctoral research program. Offsite training in excess of 12 weeks qualifies as an alternative residency training program. ACVAA will evaluate these programs on a case-by-case basis. A written proposal outlining the Alternative Program must be submitted to the Executive Secretary of the ACVAA. Program approval is required prior to the start of the training program. The program must be completed in a period of time, preferably no less than 3 years and no more than 5 years, specified by the resident candidate and the program providing the alternative Residency Training Program. Yearly progress reports must be submitted to the ACVAA documenting the activities of the clinical trainee. The clinical training portion of this program must meet the minimum ACVAA residency requirements as defined in Part II of this document. The ACVAA will be guided by the criteria set out in the requirements of the Standard Residency Training Program as outlined above, in acting on considerations of alternative training programs.

The fundamental requirements of an acceptable alternative residency training program include:

1. Program prerequisites which are equivalent to the standard residency training program.
2. A detailed plan for completing the residency must be submitted to the Executive Secretary of the ACVAA prior to beginning the program. The program must be approved, in advance, by both the Residency Training Committee and the Credentials Committee.
3. A summary of the previous year including the case and activities log and the plan for the remaining program must be submitted to the executive secretary of the ACVAA each year. If at any time during the program, there is a substantive change in the program that impacts personnel, facility, or the ability to complete the program as outlined in the original plan, the executive secretary of the ACVAA should be notified.
4. Submitted credentials materials document training consistent with a standard residency training program.

### **IV. Acknowledgements**

The ACVAA gratefully acknowledges the cooperation of Fred Donini-Lenhoff, Editor, Medical Education Products of the American Medical Association, Judith Arm-Bruster, Executive Director, Resident Review Committee (Anesthesiology) of the Accreditation Council for Graduate Medical Education (ACGME), Frank L. Murphy, MD, Anesthesiology Program Director, Hospital of the University of Pennsylvania and Member, Resident Review Committee (Anesthesiology) of ACGME, and Donal A. Walsh, PhD, Professor, Department of Biological Chemistry, School of Medicine, University of California, Davis, and Editor, Journal of Veterinary Medical Education, and extends appreciation for encouragement, helpful advice and suggestions for the preparation of this document.

## **V. Appendices:**

- A. ACVAA Program Registration Form
- B. Expected Technical Proficiencies of ACVAA Board Eligible Candidates
- C. ACVAA Resident Registration Form
- D. ACVAA Resident Case and Activities Log (see accompanying Excel file)

### **Foot note:**

September 28, 2009

The Credentials Committee has considered what would constitute “personally-anesthetized” cases versus “supervised” cases for an ACVAA resident. The majority of our committee agrees that any case where the resident is actually sitting by the animal and recording data is obviously a personally-anesthetized case. In addition, if the resident is continuously next to the animal but a student is recording the data (i.e. simply used as an extra set of hands), it is also considered a personally-anesthetized case. The Mentor (s) would of course play a close advisory role in these situations. Any other situation where a resident is overseeing a technician or a student (who are primarily responsible for handling a case) and is simultaneously responsible for other cases is a supervised case. In these cases, residents would be walking in and out of the rooms. Using these criteria, we anticipate that most supervised cases should be completed during the second and third years of the residency. It was also suggested that the decision whether a case is personally-anesthetized or supervised should ultimately fall on the Mentors and some institutions actually have the Faculty Mentor sign off on each personally-anesthetized case completed by the resident.

## Appendix A

This form is to be submitted to the Executive Secretary annually or upon any significant change in program faculty, residents, facilities, caseload or other factor that might affect resident education.

### AMERICAN COLLEGE OF VETERINARY ANESTHESIA AND ANALGESIA RESIDENCY TRAINING PROGRAM REGISTRATION

#### PART A: GENERAL PROGRAM INFORMATION

Date :

Program Leader:

#### ACVAA Program Leader's Contact Information:

Work Phone:   
Fax:   
E-mail:   
Mailing Address:

Please list the residents currently participating in your training program, along with the beginning date of the program, and expected ending date of the program.

Resident Name	Length of Program	Start date (mm/dd/yyyy)	End Date (mm/dd/yyyy)

Location of Training Program:

Primary Site:

Secondary Site (If applicable):

Other Sites (Off-site, if applicable):

Does your training program consist of a minimum of 156 weeks?

Yes	No

Comments:

Is this registration for a standard \_\_\_\_\_ or alternative \_\_\_\_\_ program?

**PART B: PROGRAM PERSONNEL**

Residency Faculty Mentors at Primary Site: (Faculty mentors must be ACVAA or ECVAA diplomates; please specify)

name	weeks of clinical anesthesia/year

Are each of the Resident Advisors listed above familiar with current Residency Training Program requirements as outlined in the General Information Guide AND with the Pre-residency checklist?

Yes      No

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Comments:

Does your training program provide on-site residency training by the required number of supervisors per residency candidate? See table below.

Mentor to Resident Ratio (M:R)		
Number of Residents	Ideal	Minimum
1	2:1	2:1
2	3:2	2:2
3	4:3	3:3

Combined faculty clinical commitment should be sufficient to provide 100% clinical supervision for all residents through their entire 94 weeks of clinical anesthesia requirement. All faculty mentors must be ACVAA or ECVAA diplomates. The Program Leader should be an ACVAA diplomate.

If not, please provide a detailed explanation of the qualifications of other supervising anesthesiologists.

Yes      No

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Comments:

Supervisors at secondary sites:

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**NOTE:** A Supervising Diplomate must spend a minimum of 10 weeks of their full time effort committed to clinical anesthesia responsibilities within the institution's veterinary health care facility.

**NOTE:** Time spent at a secondary site must not exceed 12 weeks/year for a program to be considered a standard residency training program.

## PART C: FACILITY AND RESOURCES

Please indicate the availability of the following facilities or equipment. Indicate if these are available at the primary training site, or at a different location. (In the Location column, indicate on-site for primary location or the name of the facility where the equipment is located if off-site.)

	Available?		Location of equipment? (On-site or list site name)
	Yes	No	
Anesthetic delivery systems			
-small animals			
-large animals			
Monitoring equipment			
-EKG			
-direct blood pressure			
-doppler blood pressure monitor			
-oscillometric blood pressure monitor			
-capnography			
-inhalant agent analyzer			
-pulse oximetry			
-cardiac output monitor(Thermodilution, lithium dilution)			
-CVP measuring capacity			
-EEG			
-Neuromuscular blocking monitoring equipment			
Fluid administration devices (fluid pumps, syringe pumps)			
Ventilators			
-small animal anesthesia ventilators			
-large animal anesthesia ventilators			
-Critical care ventilator			
Tracheostomy kits (large and small animals)			
Defibrillator			
Ultrasonographic equipment			
Color flow/Doppler equipment			
Cardiac catheterization capability			
Endoscopy equipment			
GI equipment			
Bronchoscopy			
Clinical Pathology capabilities: (includes CBC, serum chemistries, blood gases, urinalysis, cytology, parasitology, microbiology, and endocrinology)			
Serum osmolality measurement			
Colloid oncotic pressure measurement			
Computed Tomography			
Magnetic Resonance Imaging			
Computerized Medical Records w/Searching Capabilities			

Veterinary Library w/Literature Searching Capabilities  
Medical Library w/Literature Searching Capabilities  
Intensive Care Facility – 24 hours


If any of the above equipment or facilities are available off-site, please explain how the resident can access them for case management, research, or study.

**PART D: EDUCATIONAL PROGRAM**

Does each resident in your program spend a minimum of 94 weeks on anesthesia clinical rotations?

Yes      No  
     

Comments:

Are formal conferences/seminars/rounds, such as journal club, morbidity/mortality rounds, or seminars held on a weekly basis?

Yes      No  
     

Comments:

Please provide a brief description of the standard rounds/meetings/conferences, etc., that are provided and the typical schedule.

Is each resident able to or expected to attend an anesthesia related conference during his/her training program?

Yes      No  
     

Comments:

Is each resident able to participate in an investigation suitable for publication in the field of anesthesia, pain management or critical care?

Yes	No
Comments: <span style="border: 1px solid black; display: inline-block; width: 600px; height: 20px; vertical-align: middle;"></span>	

Signature of Program Leader \_\_\_\_\_ Date \_\_\_\_\_

Signatures of Faculty Mentors:

\_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_

E - Signatures are acceptable

## APPENDIX B

### Expected Technical Proficiencies for ACVAA Board Eligible Candidates

#### Animal Experience

##### **Core Species (required minimum animal number = 250)**

Over the course of the training program, it is the responsibility of the Program Leader to ensure that the resident acquires a requisite depth of knowledge in the anesthetic management of animals of "core" species. **"Core" species are defined as domesticated dog, cat, horse and ruminant species.** Ruminant species include solely or any combination of goat, sheep and cattle. At least 5% of the minimum animal number (i.e. 13 animals) anesthetized must be represented in each of the core species categories listed above. In order to have a case log accepted by the Credentials Committee, the resident should demonstrate proficiency in the anesthetic management of animals within the following broad categories:

##### *Healthy Animal Management*

The resident should gain proficiency with sedation, anesthesia and pain management of a sufficient variety of healthy animals. This should include use of a variety of pre-anesthetic, induction, and maintenance anesthetic drugs. Familiarity should be gained with both injectable and inhalant techniques.

##### *Management of Animals with Specific Conditions or Diseases*

The resident should gain proficiency with sedation and anesthetic management of large and small animals with pre-existing disease. It is important that the resident have a thorough understanding of the pathophysiology and how this affects anesthetic management of the animal. The resident must be familiar with a variety of anesthetic and cardiovascular drugs used for each of the core species. Management of these animals should include expertise regarding analgesia and pain management, fluid and electrolyte therapy, blood gas and acid-base interpretation and management, and cardiopulmonary stabilization and resuscitation.

The resident should become proficient in the management of animals with specific conditions or diseases of the following systems:

- Cardiovascular (including preexisting cardiac disease, intraoperative hypotension, and other conditions involving cardiovascular instability)
- Respiratory (including airway obstruction, primary lung disease, and animals presenting for thoracotomy)
- Neurologic (including both brain and spinal cord disease)
- Ophthalmologic

Gastrointestinal  
Hepatic  
Renal  
Endocrine  
Orthopedic  
Obstetric/neonatal (including Caesarian section surgery)  
Pediatric  
Geriatric  
Emergency presentation (including GDV, hemoabdomen, diaphragmatic hernia, urinary obstruction, trauma, and colic)

**Other Species (required minimum animal number = 50)**

The acquisition of a certain breadth of knowledge and ability to extrapolate between species is also important in the training of a well-rounded veterinary anesthesiologist. Therefore, in addition to the “core” species, the resident should have experience with 2-3 species within each category below, and a minimum of **8 different species in all 3 categories combined**. This expectation is designed to ensure a minimum level of diversity in the clinical anesthetic experience. It is not intended to limit the residency training program or evoke any hardship on the training institution.

1. Other Food and Fiber Animals (pigs, camelids, birds)
2. Exotic Companion and Laboratory Animals (birds, reptiles, fish, rodents, guinea pigs, rabbits, ferrets, etc.)
3. Captive/Free-Ranging Wildlife (primates, amphibians, all zoo animals and wildlife)

**Procedural Experience**

The Program Leader should also confirm over the course of the training program that the resident is proficient in the following technical procedures in both small and large animals:

Endotracheal intubation  
Tracheotomy  
Arterial and venous catheterization  
Monitoring (depth of anesthesia, cardiopulmonary parameters)  
Neuromuscular blockade  
Local/Regional blocks (including segmental anesthesia and analgesia)  
Constant Rate Infusions (anesthetic agents, pressors and inotropes, antiarrhythmics)  
Management of the ventilated animal  
Use and maintenance of equipment for anesthesia and critical animal care  
    Anesthetic delivery equipment  
        Anesthetic machine  
        Infusion and syringe pumps  
        Ventilators

## Monitoring equipment

Development of these skills is relevant to the management of all animals, especially those with specific conditions and disease states described above.

**APPENDIX C**

**American College of Veterinary Anesthesia and Analgesia**

**Registration of Individuals in Clinical Anesthesia Training Programs**

(Regular and Alternative Training Tracks)

**Registration date:** \_\_\_\_\_

Registration in:    \_\_\_ regular residency training program  
                          \_\_\_ alternative clinical training program

**Individual information:**

Trainee name: \_\_\_\_\_

Trainee address: \_\_\_\_\_

\_\_\_\_\_

Telephone:   Home: \_\_\_\_\_

                  Cell \_\_\_\_\_

                  Work \_\_\_\_\_

e-mail address: \_\_\_\_\_

*(\*Please indicate preferred contact number for routine correspondence)*

Dates:    Program started: \_\_\_\_\_

                  Anticipated completion: \_\_\_\_\_

Will the trainee be completing an academic degree in conjunction with the clinical training program:  
Yes \_\_\_\_\_, No \_\_\_\_\_.

Degree anticipated: \_\_\_\_\_, or not applicable \_\_\_\_\_.

Major advisor of degree program \_\_\_\_\_

**Program information:**

University affiliation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ACVAA Program Leader: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone number: \_\_\_\_\_

e-mail address: \_\_\_\_\_

**Individual's prior training:**

Professional degree: \_\_\_\_\_ Date: \_\_\_\_\_

Degree received from: \_\_\_\_\_

Additional degree(s) \_\_\_\_\_  
\_\_\_\_\_

Professional license(s): \_\_\_\_\_  
\_\_\_\_\_

**Please submit a recently updated Curriculum vitae to this application**

\_\_\_\_\_  
Signature  
May be an e-signature

\_\_\_\_\_  
Date

Upon completion, please submit this document, preferably as a pdf file to the Executive Secretary of the ACVAA at [execdir@acvaa.org](mailto:execdir@acvaa.org)

## APPENDIX D.

### **ACVAA Case & Activities Log - Instructions**

The log is to be submitted as an annual report of residency training on the anniversary of the start of the training program and on application to take the certifying exam

This Excel log has been formatted to record the anesthesia cases for which you have been primarily responsible. In the Summary Data sheet, formulae have been entered in specific cells to automatically generate totals for the various species worksheets; these formulae are designed to look for and count specific forms of data within specific ranges of cells. If a space or extraneous character is entered in the species data sheet before or after the letter, the formula will not count the data. The Summary Data sheet collects data from ranges of cells numbered 6 through 250. This means that if you have more than 244 cases (ie, cases extend past row # 250) for any given species, then you must enter the number of cases you have done manually on the Summary Data sheet.

On the Summary Data sheet, for Activity, the days should be business/week days (n=260/year), weekends are not included.

On the Weekly Schedule sheet, fill out the activity most associated with that week (or the activity for which you were scheduled), the mentor during that time, and the mentor's Diplomate status, if any, e.g. DACVAA, DECVAA, DACVIM-cardiology etc.

A sample file exists with data that have been entered in the Canine sheet so that you may see how cases should be presented.

Do not forget to enter all non-clinical, scholastic activities on the "Courses & Meetings" worksheet and sketch out the future of your residency as best you can in the "Plans for the Remainder of the 2nd & 3rd year" worksheets.

If you have any questions, do not hesitate to email the executive secretary at [execdir@acvaa.org](mailto:execdir@acvaa.org).