



Commission on Accreditation of Allied Health Education Programs

Standards and Guidelines for the Accreditation of Educational Programs for the Anesthesiologist Assistant

***Essentials/Standards initially adopted June 1987; revised in 2000, 2001, 2004,
2009***

Adopted by the American Academy of Anesthesiologist Assistants American Society of Anesthesiologists Commission on Accreditation of Allied Health Education Programs

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) accredits programs upon the recommendation of the Accreditation Review Committee for the Anesthesiologist Assistant (ARC-AA).

These accreditation **Standards and Guidelines** are the minimum standards of quality used in accrediting programs that prepare individuals to enter the Anesthesiologist Assistant profession. Standards are the minimum requirements to which an accredited program is held accountable. Guidelines are descriptions, examples, or recommendations that elaborate on the Standards. Guidelines are not required, but can assist with interpretation of the Standards.

Standards are printed in regular typeface in outline form. *Guidelines* are printed in italic typeface in narrative form.

Preamble

The Commission on Accreditation of Allied Health Education Programs (CAAHEP), the American Academy of Anesthesiologist Assistants (AAAA), and the American Society of Anesthesiologists (ASA) cooperate to establish, maintain and promote appropriate standards of quality for educational programs for Anesthesiologist Assistants and to provide recognition of educational programs that meet or exceed the minimum standards outlined in these accreditation **Standards and Guidelines**. Lists of accredited programs are published for the information of students, employers, educational institutions and agencies, and the public.

These **Standards and Guidelines** are to be used for the development, evaluation and self-analysis of Anesthesiologist Assistant programs. On-site review teams assist in the evaluation of the program's relative compliance with the accreditation **Standards**.

Description of the Profession

The Anesthesiologist Assistant (AA) is a skilled person qualified by advanced academic and clinical education to provide anesthetic care under the direction of a qualified anesthesiologist. The anesthesiologist who is responsible for the AA is available to prescribe and direct particular therapeutic interventions in the operating room and the intensive care setting.

By virtue of the basic science education and clinical practice experience, the AA is skilled in the use of contemporary state-of-the-art patient monitoring techniques in anesthesia care environments. The AA performs complementary and supplementary anesthetic care and monitoring tasks that allow the directing anesthesiologist to use his or her own skills more efficiently and effectively.

The Anesthesiologist Assistant is prepared to gather patient data, to assist in the evaluation of patients' physical and mental status, to record the surgical procedures planned, and to help the directing anesthesiologist administer the therapeutic plan that has been formulated for the anesthetic care of the patient. The tasks performed by AAs reflect regional variations in anesthesia practice and state regulatory factors.

Under the direction of a qualified anesthesiologist, in agreement with the ASA Statement on the Anesthesia Care Team (ACT) and in accordance with the AAAA Statement on the ACT, the Anesthesiologist Assistant's functions include, but are not limited to, the following:

- a. Obtain an appropriate and accurate preanesthetic health history; perform an appropriate physical examination and record pertinent data in an organized and legible manner.
- b. Conduct diagnostic laboratory and related studies as appropriate, such as drawing arterial and venous blood samples.
- c. Establish non-invasive and invasive routine monitoring modalities, as delegated by the supervising anesthesiologist.
- d. Administer induction agents, maintain and alter anesthesia levels, administer adjunctive treatment and provide continuity of anesthetic care into and during the post-operative recovery period.
- e. Apply and interpret advanced monitoring techniques, such as pulmonary artery catheterization, electroencephalographic spectral analysis, echocardiography, and evoked potentials.
- f. Use advanced life support techniques, such as high frequency ventilation and intraarterial cardiovascular assist devices.
- g. Make post-anesthesia patient rounds by recording patient progress notes, compiling and recording case summaries, and by transcribing standing and specific orders.
- h. Evaluate and treat life-threatening situations, such as cardiopulmonary resuscitation, on the basis of established protocols (BLS, ACLS, and PALS).
- i. Perform duties in intensive care units, pain clinics, and other settings, as appropriate.
- j. Train and supervise personnel in the calibration, troubleshooting, and use of patient monitors.
- k. Delegate administrative duties in an anesthesiology practice or anesthesiology department in such functions as the management of personnel, supplies and devices.
- l. Participate in the clinical instruction of others.
- m. Perform and monitor regional anesthesia to include, but not limited to, spinal, epidural, IV regional, and other special techniques such as local infiltration and nerve blocks.

I. Sponsorship

A. Sponsoring Education Institution

A sponsoring institution must be a post-secondary academic institution accredited by an institutional accrediting agency that is recognized by the U.S. Department of Education, and must be authorized under applicable law or other acceptable authority to provide a post-secondary program, which awards a minimum of a master's degree at the completion of the program.

The AA program must be supported by an anesthesiology department of a medical school that is accredited by the Liaison Committee on Medical Education or its equivalent. The anesthesiology department must have the educational resources internally or through educational affiliates that would qualify it to meet the criteria of the Accreditation Council for Graduate Medical Education (ACGME), or its equivalent for sponsorship of an anesthesiology residency program.

B. Consortium Sponsor

1. A consortium sponsor is an entity consisting of two or more members that exists for the purpose of operating an educational program. In such instances, at least one of the members of the consortium must meet the requirements of a sponsoring educational institution as described in 1.A.

2. The responsibilities of each member of the consortium must be clearly documented in a formal affiliation agreement or memorandum of understanding, which includes governance and lines of authority.

C. Responsibilities of Sponsor

The Sponsor must ensure that the provisions of these **Standards and Guidelines** are met.

II. Program Goals

A. Program Goals and Outcomes

There must be a written statement of the program's goals and learning domains consistent with and responsive to the demonstrated needs and expectations of the various communities of interest served by the educational program. The communities of interest that are served by the program must include, but are not limited to, students, graduates, faculty, sponsor administration, employers, physicians, and the public.

Program-specific statements of goals and learning domains provide the basis for program planning, implementation, and evaluation. Such goals and learning domains must be compatible with both the mission of the sponsoring institution(s), the expectations of the communities of interest, and nationally accepted standards of roles and functions. Goals and learning domains are based upon the substantiated needs of health care providers and employers, and the educational needs of the students served by the educational program.

B. Appropriateness of Goals and Learning Domains

The program must regularly assess its goals and learning domains. Program personnel must identify and respond to changes in the needs and/or expectations of its communities of interest.

An advisory committee, which is representative of these communities of interest named in these **Standards**, must be designated and charged with the responsibility of meeting at least annually, to assist program and sponsor personnel in formulating and periodically revising appropriate goals and learning domains, monitoring needs and expectations, and ensuring program responsiveness to change.

C. Minimum Expectations

The program must have the following goal defining minimum expectations: "To prepare competent entry-level Anesthesiologist Assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains."

Programs adopting educational goals beyond entry-level competence must clearly delineate this intent and provide evidence that all students have achieved the basic competencies prior to entry into the field.

Nothing in this standard restricts programs from formulating goals beyond entry-level competence.

III. Resources

A. Type and Amount

Program resources must be sufficient to ensure the achievement of the program's goals and outcomes. Resources must include but are not limited to: faculty, clerical and support staff, curriculum, finances, offices, classroom, laboratory and ancillary student facilities, clinical affiliates, equipment; supplies, computer resources, instructional reference materials, and faculty/staff continuing education.

B. Personnel

The sponsor must appoint sufficient faculty and staff with the necessary qualifications to perform the functions identified in documented job descriptions and to achieve the program's stated goals and outcomes.

The program director and the medical director must hold an academic appointment with the sponsoring institution.

1. Program Director

a. Responsibilities

The program director must:

- (1) Supervise those activities of the faculty and administrative staff that are in direct support of the Anesthesiologist Assistant program;
- (2) Organize, administer, continuously review, plan, and develop processes that ensure general effectiveness of didactic education in the program;
- (3) Have regular contact with all entities that participate in the education of the students;
- (4) Ensure that continuous and competent medical guidance for the clinically related program components is provided, so that:
 - (a) Supervised clinical instruction meets current standards of acceptable practice;
 - (b) Anesthesiologist assistant students learn, develop, and practice the knowledge and skills essential to successful professional interactions with physicians in the medical workplace;
- (5) Ensure that continuous and competent educational guidance is provided, so that the didactic demands placed by the clinical educational environment are adequately addressed by classroom curriculum design.

b. Qualifications

The program director must

- (1) be an Anesthesiologist Assistant certified by the NCCAA or its successor;
- (2) hold a graduate degree in education, administration, medicine, or the medical basic sciences;
- (3) have the requisite knowledge and skills to administer the classroom/academic aspects of the program; and,
- (4) have the requisite knowledge and skills to administer the operation of the overall program.

2. Medical Director

a. Responsibilities

The medical director must:

- (1) Organize, administer, continuously review, plan, and develop processes that ensure general effectiveness of clinical education in the program;
- (2) Have regular contact with all entities that participate in the education of the students;
- (3) Ensure that continuous and competent medical guidance for the clinically related program components is provided, so that:
 - (a) Supervised clinical instruction meets current standards of acceptable practice;
 - (b) Anesthesiologist assistant students learn, develop, and practice the knowledge and skills essential to successful professional interactions with physicians in the medical workplace;
- (4) Ensure that continuous and competent educational guidance is provided, so that the didactic demands placed by the clinical educational environment are adequately addressed by classroom curriculum design.

b. Qualifications

The medical director must:

- (1) be an anesthesiologist certified by the American Board of Anesthesiology, the American Osteopathic Board of Anesthesiology or a successor;
- (2) hold a graduate degree in education, administration, medicine, or the medical basic sciences, and
- (3) have the requisite knowledge and skills to administer the clinical/academic aspects of the program.

The program director and the medical director should be individuals who are directly involved in the total educational effort and serve as the principal source of information about the AA program.

The required designated title of program director does not prevent a delegated division of duties or the involvement of educational or operational professionals. Delegated areas of responsibility, as defined by the program director should exist in a clear organizational structure that facilitates timely review of problems, refinement of processes, and overall advancement of the educational mission of the program.

2. Faculty and Instructional Staff

a. Responsibilities

The instructional staff must be responsible for providing instruction, for evaluating students and reporting progress as required by the institution, and for periodically reviewing and updating course materials.

In each location where a student is assigned for didactic or supervised practice instruction, there must be a qualified individual designated to provide that supervision and related frequent assessments of the student's progress in achieving acceptable program requirements.

b. Qualifications

Faculty must be individually qualified by education and experience and must be effective in teaching the subjects assigned. Faculty for the supervised clinical practice portion of the educational program must include physicians and Anesthesiologist Assistants.

Basic science courses are ideally provided by the basic science faculty of the medical school. Other faculty may include basic scientists and allied health practitioners such as respiratory therapists and physician assistants. It is encouraged that clinically oriented engineers, education specialists and computer scientists participate in the teaching of advanced monitoring and research techniques.

Resident physicians may contribute to clinical or didactic instruction. However, the physician faculty roster should be composed predominantly of fully trained and licensed anesthesiologists.

When external rotations are included as part of the curriculum, selection criteria for preceptors should include evidence of interest in teaching and an understanding of the use of Anesthesiologist Assistants.

C. Curriculum

The curriculum must ensure the achievement of program goals and learning domains. Instruction must be an appropriate sequence of classroom, laboratory, and clinical activities. Instruction must be based on clearly written course syllabi that include course description, course objectives, methods of evaluation, topic outline, and competencies required for promotion and graduation.

General content areas must include:

1. Those basic medical sciences that are needed as a foundation for the clinical role of the Anesthesiologist Assistant. In particular, the basic science curriculum must include appropriate content in anatomy, biochemistry, physiology, and pharmacology, with particular emphasis on the cardiovascular, respiratory, renal, nervous and neuromuscular systems.
2. Appropriate study components of other basic medical sciences, such as microbiology, pathology, and immunology.
3. Medical biophysics appropriate to anesthesia practice, including and emphasizing the principles underlying the function of the devices used in anesthesia delivery systems, in life support systems such as ventilators, and in basic and advanced patient monitors.
4. The principles of medical instrumentation, emphasizing the design, function, operation and calibration of patient monitoring devices.
5. The function, calibration, and use of the equipment used in associated clinical laboratories, for example, blood gas analyzers.
6. The concepts of data analysis as related to the collection, processing, and presentation of basic science and clinical data in medical literature emphasizing methods that support an understanding of clinical decision-making.
7. Patient assessment, including techniques of interviewing to elicit a health history and performing a physical examination at the level appropriate for preoperative, intraoperative, and postoperative anesthetic evaluations.
8. Extensive instruction in the clinical practice of anesthesia and patient monitoring, principally in an operating room setting but also in preoperative areas, postoperative recovery areas, intensive care units, pain clinics, affiliated clinical laboratories and other supporting services
9. Clinical quality assurance conferences and literature reviews
10. The curriculum must include the competencies in emergency preparedness consistent with professional standards.

The program should demonstrate that the content and competencies included in the program's curriculum meet or exceed those stated in Appendix B.

Students should have introductory operating room knowledge and/or skills either as part of the curriculum or through previous operating room experience or credential specific to operating room practice.

Related subjects may be selected from courses or course components in health care and general science that could enhance the professional ability of the Anesthesiologist Assistant. These might include content in professionalism, technical writing, research techniques, interpersonal relationships, and evidence-based medicine.

The curriculum should provide an early integration of clinical and didactic instruction with supervised clinical practice.

Clinical rotations should afford students a variety of patient care experiences as well as a consistency of learning opportunities among individual students. External rotations at affiliated sites should be planned based on the desired educational outcomes set by the program.

D. Resource Assessment

The program must, at least annually, assess the appropriateness and effectiveness of the resources described in these **Standards**. The results of resource assessment must be the basis for ongoing planning and appropriate change. An action plan must be developed when deficiencies are identified in the program resources. Implementation of the action plan must be documented and results measured by ongoing resource assessment.

Where reliance is placed upon monies such as grants, there should be documented assurances of the sponsor's commitment to support the program until current students are graduated. The program's sponsor should be responsible for the continued availability of adequate operational funds and should provide program official's recourse to the appropriate institutional authorities if problems arise.

IV. Student and Graduate Evaluation/Assessment

A. Student Evaluation

1. Frequency and Purpose

Evaluation of students must be conducted on a recurrent basis and with sufficient frequency to provide both the students and program faculty with valid and timely indications of the students' progress toward and achievement of the competencies and learning domains stated in the curriculum.

2. Documentation

Records of student evaluations must be maintained in sufficient detail to document learning progress and achievements.

B. Outcomes

1. Outcomes Assessment

The program must periodically assess its effectiveness in achieving its stated goals and learning domains. The results of this evaluation must be reflected in the review and timely revision of the program.

Outcomes assessments must include, but are not limited to: national credentialing examination(s) performance, programmatic retention/attrition, graduate satisfaction, employer satisfaction, job (positive) placement, and programmatic summative measures. The program must meet the outcomes assessment thresholds.

"Positive placement" means that the graduate is employed full or part-time in a related field; and/or continuing his/her education; and/or serving in the military.

2. Outcomes Reporting

The program must periodically submit to the ARC-AA the program goal(s), learning domains, evaluation systems (including type, cut score, and appropriateness), outcomes; its analysis of the outcomes, and an appropriate action plan based on the analysis.

Programs not meeting the established thresholds must begin a dialogue with the ARC-AA to develop an appropriate plan of action to respond to the identified shortcomings.

V. Fair Practices

A. Publications and Disclosure

1. Announcements, catalogs, publications, and advertising must accurately reflect the program offered.
2. At least the following must be made known to all applicants and students; the sponsor's institutional and programmatic accreditation status as well as the name, mailing address, web site address, and phone number of the accrediting agencies; admissions policies and practices, including technical standards (when used); policies on advanced placement, transfer of credits, and credits for experiential learning; number of credits required for completion of the program; tuition/fees and other costs required to complete the program; policies and processes for withdrawal and for refunds of tuition/fees.

3. At least the following must be made known to all students: academic calendar, student grievance procedure, criteria for successful completion of each segment of the curriculum and graduation, and policies and processes by which students may perform clinical work while enrolled in the program.
4. The sponsor must maintain, and make available to the public, current and consistent summary information about student/graduate achievement that includes the results of one or more of the outcomes assessments required in these **Standards**.

The sponsor should develop a suitable means of communicating to the communities of interest the achievement of students/graduates (e.g. through a website or electronic or printed documents).

B. Lawful and Non-discriminatory Practices

All activities associated with the program, including student and faculty recruitment, student admission, and faculty employment practices, must be non-discriminatory and in accord with federal and state statutes, rules and regulations. There must be a faculty grievance procedure made known to all paid faculty.

In the application review and admissions process, consideration should be given to the use of standardized test scores, such as Medical College Admissions test (MCAT) and/or Graduate Record Examination (GRE).

Students should be recruited from a variety of backgrounds to facilitate the availability of complementary and supplementary skills within the field of anesthesia. Typical desirable undergraduate majors include biology, chemistry, physics, computer science, engineering, and such allied health professionals as those of the physician assistant, surgeon's assistant, respiratory therapist, nurse and medical technologist.

The role of the AA demands intelligence, sound judgment, intellectual honesty, an ability to relate well with people, and the capacity to react to emergencies in a calm and reasoned manner. Essential attributes include respect for one's self and others, adherence to confidentiality in communicating with patients and other professionals, and a commitment to the care of the patient.

C. Safeguards

The health and safety of patients, students, and faculty associated with the educational activities of the students must be adequately safeguarded.

All activities required in the program must be educational and students must not be substituted for staff.

Anesthesiologist assistant students must be readily identifiable to patients and clinical co-workers as AA students.

The intent of the students' patient management experiences must always be focused on patient safety while maximizing the educational experience. Students must undertake patient care duties commensurate with their level of competency. The students must at no time be considered the anesthesia providers of record. When students are assigned to any patient care duty, an Anesthesiologist, Anesthesiologist Assistant, anesthesiologist residents, or other certified non-physician anesthesia provider must be immediately available to assist in care of the patient.

D. Student Records

Satisfactory records must be maintained for student admission, advisement, counseling, and evaluation. Grades and credits for courses must be recorded on the student transcript and permanently maintained by the sponsor in a safe and accessible location.

E. Substantive Change

The sponsor must report substantive change(s) as described in Appendix A to CAAHEP/ARC-AA in a timely manner. Additional substantive changes to be reported to ARC-AA within the time limits prescribed include

1. Change in relationship with medical school.
2. Change in relationship with Department of Anesthesiology affiliations.

F. Agreements

There must be a formal affiliation agreement or memorandum of understanding between the sponsor(s) and all other entities that participate in the education of the students describing the relationship, role, and responsibilities between the sponsor and that entity.

APPENDIX A

Application, Maintenance and Administration of Accreditation

A. Program and Sponsor Responsibilities

1. Applying for Initial Accreditation

- a. The chief executive officer or an officially designated representative of the sponsor completes a “Request for Accreditation Services” form and returns it electronically or by mail to:

ARC-AA
2027 Burnside Dr
Allen, TX 75013

The “Request for Accreditation Services” form can be obtained from the CAAHEP website at www.caahep.org/Content.aspx?ID=11.

Note: There is **no** CAAHEP fee when applying for accreditation services; however, individual committees on accreditation may have an application fee.

- b. The program undergoes a comprehensive review, which includes a written self-study report and an on-site review.

The self-study instructions and report form are available from the [committee on accreditation]. The on-site review will be scheduled in cooperation with the program and [committee on accreditation] once the self-study report has been completed, submitted, and accepted by the [committee on accreditation].

2. Applying for Continuing Accreditation

- a. Upon written notice from the ARC-AA, the chief executive officer or an officially designated representative of the sponsor completes a “Request for Accreditation Services” form, and returns it electronically or by mail to:

ARC-AA
2027 Burnside Dr
Allen, TX 75013
arcaamember@gmail.com

The “Request for Accreditation Services” form can be obtained from the CAAHEP website at www.caahep.org/Content.aspx?ID=11.

- b. The program may undergo a comprehensive review in accordance with the policies and procedures of the ARC-AA.

If it is determined that there were significant concerns with the conduct of the on-site review, the sponsor may request a second site visit with a different team.

After the on-site review team submits a report of its findings, the sponsor is provided the opportunity to comment in writing and to correct factual errors prior to the [committee on accreditation] forwarding a recommendation to CAAHEP.

3. Administrative Requirements for Maintaining Accreditation

- a. The program must inform the ARC-AA and CAAHEP within a reasonable period of time (as defined by the committee on accreditation and CAAHEP policies) of changes in chief executive officer, dean of health professions or equivalent position, and required program personnel (Refer to Standard III.B.).
- b. The sponsor must inform CAAHEP and the ARC-AA of its intent to transfer program sponsorship. To begin the process for a Transfer of Sponsorship, the current sponsor must submit a letter (signed by the CEO or designated individual) to CAAHEP and the ARC-AA that it is relinquishing its sponsorship of the program. Additionally, the new sponsor must submit a "Request for Transfer of Sponsorship Services" form. The ARC-AA has the discretion of requesting a new self-study report with or without an on-site review. Applying for a transfer of sponsorship does not guarantee that the transfer of accreditation will be granted.
- c. The sponsor must promptly inform CAAHEP and the ARC-AA of any adverse decision affecting its accreditation by recognized institutional accrediting agencies and/or state agencies (or their equivalent).
- d. Comprehensive reviews are scheduled by the ARC-AA in accordance with its policies and procedures. The time between comprehensive reviews is determined by the ARC-AA and based on the program's on-going compliance with the Standards, however, all programs must undergo a comprehensive review at least once every ten years.
- e. The program and the sponsor must pay ARC-AA and CAAHEP fees within a reasonable period of time, as determined by the ARC-AA and CAAHEP respectively.
- f. The sponsor must file all reports in a timely manner (self-study report, progress reports, probation reports, annual reports, etc.) in accordance with ARC-AA policy.
- g. The sponsor must agree to a reasonable on-site review date that provides sufficient time for CAAHEP to act on an ARC-AA accreditation recommendation prior to the "next comprehensive review" period, which was designated by CAAHEP at the time of its last accreditation action, or a reasonable date otherwise designated by the ARC-AA.

Failure to meet any of the aforementioned administrative requirements may lead to administrative probation and ultimately to the withdrawal of accreditation. CAAHEP will immediately rescind administrative probation once all administrative deficiencies have been rectified.

4. Voluntary Withdrawal of a CAAHEP- Accredited Program

Notification of voluntary withdrawal of accreditation from CAAHEP must be made by the Chief Executive Officer or an officially designated representative of the sponsor by writing to CAAHEP indicating: the desired effective date of the voluntary withdrawal, and the location where all records will be kept for students who have completed the program.

5. Requesting Inactive Status of a CAAHEP- Accredited Program

Inactive status for any accredited program other than one holding Initial Accreditation may be requested from CAAHEP at any time by the Chief Executive Officer or an officially designated representative of the sponsor writing to CAAHEP indicating the desired date to become inactive. No students can be enrolled or matriculated in the program at any time during the time period in which the program is on inactive status. The maximum period for inactive status is two years. The sponsor must continue to pay all required fees to the ARC-AA and CAAHEP to maintain its accreditation status.

To reactivate the program the Chief Executive Officer or an officially designated representative of the sponsor must provide notice of its intent to do so in writing to both CAAHEP and the ARC-AA. The sponsor will be notified by the ARC-AA of additional requirements, if any, that must be met to restore active status.

If the sponsor has not notified CAAHEP of its intent to re-activate a program by the end of the two-year period, CAAHEP will consider this a "Voluntary Withdrawal of Accreditation."

B. CAAHEP and Committee on Accreditation Responsibilities – Accreditation Recommendation Process

1. After a program has had the opportunity to comment in writing and to correct factual errors on the on-site review report, the ARC-AA forwards a status of public recognition recommendation to the CAAHEP Board of Directors. The recommendation may be for any of the following statuses: initial accreditation, continuing accreditation, transfer of sponsorship, probationary accreditation, withhold of accreditation, or withdrawal of accreditation.

The decision of the CAAHEP Board of Directors is provided in writing to the sponsor immediately following the CAAHEP meeting at which the program was reviewed and voted upon.

2. Before the ARC-AA allows the Initial Accreditation of a program to expire, the sponsor must have the opportunity to request reconsideration of that decision or to request voluntary withdrawal of accreditation. The ARC-AA's decision is final and CAAHEP will not entertain any appeal on behalf of the program. CAAHEP will notify the sponsor in writing of the [committee on accreditation's] decision.
3. Before the ARC-AA forwards a recommendation to CAAHEP that a program be placed on probationary accreditation, the sponsor must have the opportunity to request reconsideration of that recommendation or to request voluntary withdrawal of accreditation. The ARC-AA's reconsideration of a recommendation for probationary accreditation must be based on conditions existing both when the committee arrived at its recommendation as well as on subsequent documented evidence of corrected deficiencies provided by the sponsor.

The CAAHEP Board of Directors' decision to confer probationary accreditation is not subject to appeal.

4. Before the ARC-AA forwards a recommendation to CAAHEP that a program's accreditation be withdrawn or that accreditation be withheld, the sponsor must have the opportunity to request reconsideration of the recommendation, or to request voluntary withdrawal of accreditation or withdrawal of the accreditation application, whichever is applicable. The [committee on accreditation's] reconsideration of a recommendation of withdraw or withhold accreditation must be based on conditions existing both when the ARC-AA arrived at its recommendation as well as on subsequent documented evidence of corrected deficiencies provided by the sponsor.

The CAAHEP Board of Directors' decision to withdraw or withhold accreditation may be appealed. A copy of the CAAHEP "Appeal of Adverse Accreditation Actions" is enclosed with the CAAHEP letter notifying the sponsor of either of these actions.

At the completion of due process, when accreditation is withheld or withdrawn, the sponsor's Chief Executive Officer is provided with a statement of each deficiency. Programs are eligible to re-apply for accreditation once the sponsor believes that the program is in compliance with the accreditation Standards.

Note: Any student who completes a program that was accredited by CAAHEP at any time during his/her matriculation is deemed by CAAHEP to be a graduate of a CAAHEP-accredited program.

APPENDIX B

DIDACTIC CONTENT OUTLINE

A. PHYSIOLOGY (Applied and General)

1. *Cell and general physiology*
 - a. *Organization of the cell*
 - b. *Cell Membranes*
 - c. *Genetic Control of cell function*
2. *Neuromuscular physiology*
 - a. *Physiology of the neuron*
 - b. *Anatomy of the neuromuscular junction*
 - c. *Membrane and action potentials*
 - d. *Excitation and contraction of the smooth muscle*
 - e. *Neuromuscular blockade and transmission*
 - f. *Malignant hyperthermia*
3. *The Nervous System*
 - a. *Organization of the nervous system*
 - i. *Peripheral and central nervous system*
 - ii. *Physiology of neurons and synapses*
 - iii. *Characteristics of synaptic transmission*
 - iv. *Sensory receptors*
 - v. *Nerve fibers that transmit different types of signals and their physiologic classification*
 - vi. *Spatial and temporal summation.*
4. *Peripheral nervous system*
 - a. *Sympathetic nervous system*
 - i. *Anatomy of the sympathetic nervous system*
 - ii. *Sympathetic neurotransmission and catecholamine physiology*
 - iii. *Adrenergic receptors*
 - b. *Parasympathetic nervous system*
 - i. *Anatomy of the parasympathetic nervous system*
 - ii. *Parasympathetic neurotransmission*
 - iii. *Cholinergic receptors*
5. *Central nervous system*
 - a. *Neuroanatomy of spine and spinal cord*
 - i. *Cranial nerves*
 - ii. *Motor functions of the spinal cord and cord reflexes*
 - iii. *Cerebrospinal fluid*
 - a. *Cerebral blood flow and metabolism*
 - iv. *Intracranial pressure*
 - a. *Head trauma, psychiatric illness, and cerebrovascular disorders*
6. *Cardiac physiology*
 - a. *Electrophysiology and conduction pathways*
 - i. *Mechanisms of heart rate control and ventricular action potentials*
 - ii. *Specialized excitatory and conductive systems*
 - iii. *Control of excitation and conduction*
 - iv. *Electrocardiographic interpretation*
 - b. *Determinants of cardiac output and systemic arterial blood pressure*
 - i. *Preload, afterload, and contractility*
 - ii. *Cardiac output, venous return and their regulation*
 - iii. *Frank – Starling Mechanism*
 - c. *Left ventricular pressure-volume relationships*
 - d. *Ventricular function curves*

- e. *Treatment of intra-operative ischemia and coronary artery disease*
- f. *Subvalvular Aortic Stenosis*
- g. *Cardiac arrhythmias*
- 7. *Circulatory physiology*
 - a. *Microcirculation, lymphatics, capillary fluid exchange, interstitial fluid*
 - b. *Local and humoral control of blood flow by the tissues.*
 - c. *Nervous regulation of the circulation*
- 8. *Blood and Hemostasis*
 - a. *Platelet aggregation and coagulation cascade*
 - b. *Fibrinolysis, plasmin, and coagulation tests*
 - c. *Disorders of coagulation*
- 9. *Respiratory physiology*
 - a. *Anatomy of the larynx*
 - b. *Gas diffusion and partial pressures*
 - c. *Oxygen and carbon dioxide carriage by blood*
 - i. *Oxygen dissociation curves and abnormalities*
 - d. *Control of ventilation*
 - ii. *Respiratory centers and sensory pathways*
 - e. *Pulmonary mechanics*
 - iii. *Ventilation:perfusion relationships*
 - iv. *Hypoxic pulmonary vasoconstriction and one-lung ventilation*
 - f. *Pulmonary function tests*
 - v. *Flow volume loops*
 - vi. *Airway closure and closing capacity*
 - g. *Chronic and acute respiratory pathophysiology*
- 10. *Body Fluid, Electrolytes and the Kidney*
 - a. *Fluid Compartments*
 - b. *Fluid Management*
 - c. *Anatomy of the nephron and vascular supply*
 - d. *Physiology of urine formation*
 - e. *Renal control of glucose*
 - f. *Regulation of fluid volume and osmolality*
 - g. *Intra- and extra-cellular fluids*
 - h. *Renal tubular control of electrolyte balance*
 - i. *Renal failure and fluid-electrolyte disturbances*
 - j. *Acid-base balance and disturbances*
 - k. *Blood gas physiology*
- 11. *Endocrine physiology*
 - a. *Thyroid and adrenal physiology*
 - b. *Insulin, glucagon and somatostatin*
 - c. *Parathyroid hormone and Calcitonin*
 - d. *Endocrine disorders*
- 12. *Hepatic physiology*
 - a. *Hepatic anatomy and vascular supply*
 - b. *Hepatic disease*
- 13. *Pregnancy*
 - a. *Changes in the cardiopulmonary systems*
 - b. *The uterus and the placenta*
 - c. *Parturition*
- 14. *Fetal and Neonatal Physiology*
 - a. *The cardiopulmonary system*
 - b. *Fluid balance*
 - c. *Renal and hepatic function*

B. PHARMACOLOGY

1. *Pharmacokinetics and pharmacodynamics*
 - a. *Absorption, distribution, metabolism, and excretion*
 - b. *Drug-receptor interactions*
 - c. *Weak acids and weak bases*
2. *Inhalational anesthetics*
3. *Intravenous anesthetics*
 - a. *General anesthetics and benzodiazepines*
4. *Opioids*
 - a. *Pharmacology of opioid agonist and antagonists*
 - b. *Central and peripheral administration of opioids*
 - c. *Pain pathways*
 - i. *Peripheral afferents and pain conduction*
 - ii. *Classification of pain*
 - iii. *Mechanism of analgesia*
 - iv. *Modulation of pain*
 - v. *Spinal and supraspinal analgesia*
5. *Neuromuscular relaxing agents*
 - a. *Depolarizing and non-depolarizing agents*
 - b. *Interactions with neuromuscular blockers*
 - c. *Timing of reversal of non-depolarizing neuromuscular blockade*
6. *Drugs acting on the sympathetic nervous system*
 - a. *Clinical use of catecholamines and synthetic non-catecholamines*
 - b. *Effects of adrenergic agonists and antagonists*
 - c. *Centrally and peripherally acting sympathetic nervous system agents*
7. *Drugs acting on the parasympathetic nervous system*
 - a. *Cholinergic agonists and antagonists*
8. *Local anesthetics*
 - a. *Structure activity relationships*
 - b. *Mechanics of toxicity and metabolism*
9. *Calcium Channel blockers*
10. *Cardiac antidysrhythmic drugs*
11. *Digitalis and related drugs*
12. *Antihypertensives and vasoactive agents*
13. *Antihistaminergic drugs and autacoids*
14. *Antimicrobial pharmacology*
 - a. *Basic infectious microbiology*
15. *Steroids, NSAIDs, and hormone adjunct agents*
16. *Hemostatic agents*
 - a. *Anticoagulants, antifibrinolytics, and thrombin inhibitors*
17. *Diuretics*
 - a. *Mechanisms of action and side effects*
18. *Gastrointestinal pharmacology*
 - a. *Anatacids and gastrointestinal prokinetics*
19. *Insulin and oral hypoglycemic agents*
20. *Antiepileptic drugs*
21. *Math for calculating concentrations*

C. ANESTHESIA EQUIPMENT

1. *Anesthesia delivery systems*
2. *Gases, gas containers, and piping systems*
3. *Anatomy of the anesthesia machine*
4. *Vaporizing liquid anesthetic agents*

5. *Breathing circuits*
 - a. *Carbon dioxide absorption*
6. *Anesthesia ventilators*
7. *Scavenging waste gases and controlling pollution*
8. *Oxygen delivery and ventilation during MAC, Transport and MRI*

D. INSTRUMENTATION & MONITORING

1. *Monitoring the ECG*
2. *Electrocardiogram interpretations*
 - a. *ECG in relation to mechanical and electrical events of the heart*
 - b. *Intervals and QRS nomenclature*
 - c. *Atrial and ventricular arrhythmias and conduction abnormalities*
3. *Non-invasive monitoring*
 - a. *blood pressure*
 - b. *Transesophageal echocardiography*
 - c. *Doppler and ultrasonic imaging*
 - d. *Cardiac Output*
4. *Oxygen monitoring, oximetry and plethysmography*
5. *Capnography*
 - a. *Respiratory gas analysis*
6. *Monitoring the neuromuscular junction*
 - a. *Receptor blockade and nerve stimulation patterns*
 - b. *Characteristics of depolarizing and non-depolarizing neuromuscular blockade*
7. *Invasive monitoring principles and techniques*
 - a. *Peripheral arterial pressure waveforms and monitoring*
 - b. *Pulmonary artery pressure and monitoring*
 - c. *Central venous pressure and monitoring*
 - d. *Intracranial pressure monitoring*
 - e. *Cardiac output measurement*
8. *Temperature control and monitoring*
9. *Fetal Monitoring*
10. *Arterial blood gas analysis*
11. *EEG, processed EEGs, and evoked potentials)*
12. *Cardiovascular support devices*
 - a. *Pacemakers and AICDs*
 - b. *Ventricular assist devices and cardiopulmonary bypass*

E. PHYSICS

1. *Units of measurement, dimensional analysis review of special functions, physical concepts and mathematical tools*
2. *Pressure, tension, and vacuum*
3. *Flow, resistance, power and work*
4. *Partial pressures and solubility*
5. *Diffusion and osmosis*
6. *Gas laws, cylinders, and transport processes*
7. *Vaporization and humidification*
8. *Physiologic signals and electrical analogs*
9. *Electrical Circuits and physiologic analogs*
 - a. *Pressure/voltage, flow/current, resistance*
 - b. *Direct and alternating current sources*
 - c. *Series, parallel and series-parallel circuits*

- d. *Capacitors and inductors – time constants*
 - e. *Impedance*
 - f. *Transformers*
10. *Principles of lasers, Fires, explosions and radiation*

F. AIRWAY MANAGEMENT

- 1. *Airway anatomy and physiology*
- 2. *Airway management equipment*
- 3. *Evaluation of the airway*
- 4. *Techniques for intubation & extubation*
- 5. *The Difficult Airway*
- 6. *Pediatric and advanced airway management*

G. METHODS OF ANESTHESIA

- 1. *Regional anesthesia*
 - a. *Neuraxial blockade*
 - b. *Peripheral nerve blockade*
 - c. *Intravenous regional anesthesia*
 - d. *Complications and techniques*
- 2. *Positioning*
 - a. *Nerve injuries of the extremities*
- 3. *Obstetric anesthesia*
 - a. *Physiologic changes of the parturient*
 - b. *Fetal circulation and placental physiology/pharmacology*
 - c. *General and regional anesthesia during pregnancy*
- 4. *Drug regimens for epidural and spinal anesthetics*
 - a. *Stages of labor and pain pathways*
 - b. *Management of the complicated pregnancy*
- 5. *Pediatric anesthesia*
 - a. *Pediatric physiology and anatomy*
 - b. *Pediatric congenital anomalies (cardiovascular and developmental)*
 - c. *Pharmacodynamics and kinetics of the pediatric patient*
 - d. *Airway management of the pediatric patient*
 - e. *Geriatric anesthesia*
- 6. *Physiologic and pharmacologic changes of aging*
- 7. *Neurosurgical anesthesia*
- 8. *Cardiac anesthesia*
- 9. *Trauma anesthesia*

CLINICAL CONTENT OUTLINE

Total Anesthesia Cases	600
Total Hours Clinical Anesthesia	2000

Patient ASA Class III & IV	150
Emergent (ASA Class E)	30
Trauma Cases	5
Ambulatory	100

Patient Population	
<i>Geriatric (65 + years)</i>	100
<i>Pediatric (0 - 18)*</i>	50

Anatomical Location Surgery	
<i>Intra-abdominal</i>	75
<i>Intracranial</i>	5
<i>Head & Neck</i>	20
<i>Intrathoracic</i>	20
<i>Heart</i>	10
<i>Lung</i>	10
<i>Obstetrical Cases :</i>	35
<i>(Inc Deliveries, C-Sect & Procedures)</i>	
<i>Vascular</i>	15

Methods of Anesthesia	
<i>General Anesthesia</i>	400
<i>Induction, Maintenance & Emergence</i>	
<i>Mask Induction</i>	35
<i>Mask Management</i>	30
<i>Supraglottic Airway Device</i>	35
<i>Tracheal Intubation</i>	255
<i>Oral</i>	250
<i>Nasal</i>	5
<i>Total Intravenous Anesthesia</i>	10
<i>Emergence from Anesthesia</i>	250
<i>Regional Techniques</i>	
<i>Management/Administration</i>	40
<i>Monitored Anesthesia Care</i>	30

Other Anesthetic Management	
<i>Alternative Airway Management</i>	
<i>Fiberoptic Intubation, Light Wand, etc. (all airway techniques other than direct laryngoscopy and supraglottic airway device)</i>	10
<i>Arterial Technique</i>	
<i>Arterial Puncture/Catheter Insertion</i>	25
<i>Intra-arterial BP monitoring</i>	30
<i>Central Venous Pressure Catheter</i>	
<i>Placement</i>	5
<i>Monitoring</i>	15

Other	
<i>Intravenous Catheter Placement</i>	125
<i>Gastric Tube Placement</i>	5
<i>Placement of One Lung Isolation Device</i>	5