



ACGME International

**Advanced Specialty Program Requirements for
Graduate Medical Education
in Anesthesiology**

Revised: 7/21/2017, effective: 7/1/2017

Revised: 12/12/15, effective: 7/1/2016

Initial approval: 6/12/2014

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I. Introduction

I.A. Definition and Scope of Specialty

The hospital-based ancillary specialty of anesthesiology includes the assessment of, consultation for, and preparation of patients for anesthesia; relief and prevention of pain during and following surgical, obstetric, therapeutic, and diagnostic procedures; monitoring and maintenance of normal physiology during the peri-operative period; management of critically-ill patients; diagnosis and treatment of acute, chronic, and cancer-related pain; clinical management and teaching of cardiac and pulmonary resuscitation; evaluation of respiratory function and application of respiratory therapy; conducting of clinical and basic science research; and, supervision, teaching, and evaluation of performance of personnel, both medical and paramedical, involved in peri-operative care.

I.B. Duration of Education

I.B.1. The education in anesthesiology must be 36 or 48 months in length.

I.B.1.a) The program may include an additional 12 months of education in fundamental clinical skills of medicine.

II. Institutions

II.A. Sponsoring Institution

See International Foundational Requirements, Section I.A.

II.B. Participating Sites

See International Foundational Requirements, Section I.B.

III. Program Personnel and Resources

III.A. Program Director

III.A.1. The program director must ensure that the residency program has a written policy and an educational program regarding substance abuse as it relates to physician well-being that specifically address the needs of anesthesiology.

III.B. Faculty

III.B.1. The faculty must include individuals who have specialized expertise in the subspecialties of anesthesiology, which include critical care, obstetric

anesthesia, pediatric anesthesia, neuroanesthesia, cardiothoracic anesthesia, and pain medicine.

III.C. Other Program Personnel

See International Foundational Requirements, Section II.C.

III.D. Resources

III.D.1. The institution sponsoring an accredited program in anesthesiology must also sponsor ACGME-I-accredited residencies in at least the specialties of general surgery and internal medicine.

III.D.2. The participating site(s) must have a wide spectrum of disease processes and surgical procedures available to provide each resident with broad exposure to different types of anesthetic management within the program.

IV. Resident Appointments

IV.A. Eligibility Criteria

IV.A.1. Residents must have successfully completed 12 months of a broad-based clinical program (PGY-1) that is:

IV.A.1.a) accredited by the ACGME International (ACGME-I), the ACGME, or the Royal College of Physicians and Surgeons of Canada in preliminary general surgery, preliminary internal medicine, or the transitional year; or,

IV.A.1.b) at the discretion of the Review Committee-International, a program where a governmental or regulatory body is responsible for the maintenance of a curriculum providing clinical and didactic experiences to develop competency in the fundamental clinical skills of medicine; or,

IV.A.1.b).(1) A categorical residency that accept candidates from these programs must complete an evaluation of each resident's fundamental clinical skills within six weeks of matriculation, and must provide remediation to residents as needed.

IV.A.1.c) integrated into the residency where the program director must oversee and ensure the quality of didactic and clinical education.

IV.A.2. The PGY-1 must be completed in a structured program in which residents are educated in high-quality medical care based on scientific knowledge, evidence-based medicine, and sound teaching by qualified educators.

- IV.A.3. With appropriate supervision, residents must have first-contact responsibility for evaluation and management for all types and acuity levels of patients.
- IV.A.4. Residents must have responsibility for decision-making and direct patient care in all settings, to include the writing of orders, progress notes, and relevant records.
- IV.A.5. Residents must develop competency in the following fundamental clinical skills during the PGY-1:
- IV.A.5.a) obtaining a comprehensive medical history;
 - IV.A.5.b) performing a comprehensive physical examination;
 - IV.A.5.c) assessing a patient's medical condition;
 - IV.A.5.d) making appropriate use of diagnostic studies and tests;
 - IV.A.5.e) integrating information to develop a differential diagnosis; and,
 - IV.A.5.f) developing, implementing, and evaluating a treatment plan.

IV.B. Number of Residents

See International Foundational Requirements, Section III.B.

V. Specialty-Specific Educational Program

V.A. Regularly Scheduled Didactic Sessions

- V.A.1. If it includes an integrated PGY-1, the educational program must contain regularly scheduled didactic sessions that enhance and correspond to the residents' fundamental clinical skills education.
- V.A.2. There must be instruction in managing the specific needs of patients undergoing diagnostic or therapeutic procedures outside of the surgical suites.
- V.A.3. There must be instruction in managing the specific needs of the ambulatory surgical patient.
- V.A.4. There must be instruction in managing the problems of the geriatric population.
- V.A.5. There should be instruction that encompasses clinical anesthesiology and related areas of basic science, as well as pertinent topics from other medical and surgical disciplines.

V.B. Clinical Experiences

- V.B.1. If the program includes an integrated PGY-1, this experience must include a minimum of 11 months of direct patient care.
- V.B.1.a) During the integrated PGY-1 each resident's experiences must include responsibility for patient care commensurate with his or her ability.
- V.B.1.a).(1) Residents must have responsibility for decision-making and direct patient care in all settings, subject to review and approval by senior-level residents and/or attending physicians, to include the planning of care and the writing of orders, progress notes, and relevant records.
- V.B.1.b) At a minimum, 28 weeks must be in rotations provided by a discipline or disciplines that offer fundamental clinical skills in the primary specialties, such as emergency medicine, family medicine, general surgery, internal medicine, obstetrics and gynecology, or pediatrics.
- V.B.1.b).(1) Subspecialty experiences, with the exception of critical care unit experiences, must not be used to meet fundamental clinical skills curriculum requirements.
- V.B.1.b).(2) Each experience must be at minimum a four-week continuous block.
- V.B.1.c) At a minimum, residents must have 140 hours of experience in ambulatory care provided in family medicine or primary care internal medicine, general surgery, obstetrics and gynecology, or pediatrics.
- V.B.1.d) Residents must have a maximum of 20 weeks of elective experiences.
- V.B.1.d).(1) Elective rotations should be determined by the educational needs of the individual resident.
- V.B.2. The educational program in anesthesiology must consist of experiences in:
 - V.B.2.a) basic and advanced anesthesia that includes all aspects of peri-operative care; and,
 - V.B.2.b) evaluation and management during the pre-operative, intra-operative, and post-operative periods.
- V.B.3. The program must provide initial rotations in surgical anesthesia, critical care medicine, and pain medicine.

- V.B.3.a) Experience in these rotations must emphasize the fundamental aspects of anesthesia, pre-operative evaluation and immediate post-operative care of surgical patients, and assessment and treatment of critically-ill patients and those with acute and chronic pain.
- V.B.3.b) These clinical experiences should also be distributed throughout the curriculum in order to provide progressive responsibility to residents in the later stages of the curriculum.
- V.B.4. Residents must have a minimum of:
- V.B.4.a) four months of distinct progressive rotations in critical care medicine;
- V.B.4.a).(1) During at least two of the required four months of critical care medicine, faculty anesthesiologists experienced in the practice and teaching of critical care must be actively involved in the care of the critically-ill patients and the educational activities of the residents.
- V.B.4.a).(2) No more than two months of critical care medicine must occur during the PGY-1.
- V.B.4.a).(3) Overall, these experiences must take place in units providing care for both men and women in which the majority of patients have multisystem disease.
- V.B.4.a).(4) Each critical care medicine rotation should be at least one month in duration, with progressive patient care responsibility in advanced rotations.
- V.B.4.b) three months in pain medicine, to include:
- V.B.4.b).(1) at least one month in an acute peri-operative pain management rotation;
- V.B.4.b).(2) at least one month in a rotation for the assessment and treatment of inpatients and outpatients with chronic pain problems; and,
- V.B.4.b).(3) at least one month of regional analgesia experience in pain medicine.
- V.B.4.c) two identifiable one-month rotations each in obstetric anesthesia, pediatric anesthesia, neuroanesthesia, and cardiothoracic anesthesia;

- V.B.4.d) one month in a pre-operative evaluation clinic for evaluation prior to elective surgical procedures;
- V.B.4.e) one half-month caring for patients immediately after anesthesia in the post-anesthesia care unit with responsibilities for management of pain, hemodynamic changes, and emergencies related to the unit; and,
- V.B.5. Each resident must maintain current certification as a provider for advanced cardiac life support (ACLS).
- V.B.6. Each resident must have the following minimum clinical experiences:
 - V.B.6.a) patients undergoing vaginal delivery;
 - V.B.6.a).(1) There must be evidence of direct resident involvement in some cases involving high-risk obstetrics.
 - V.B.6.b) patients undergoing Cesarean sections;
 - V.B.6.c) pediatric patients younger than 12 years of age undergoing surgery or other procedures requiring anesthetics, including;
 - V.B.6.c).(1) patients younger than three years of age, and
 - V.B.6.c).(2) patients younger than three months of age.
 - V.B.6.d) patients undergoing cardiac surgery;
 - V.B.6.d).(1) The majority of these cardiac procedures must involve the use of cardiopulmonary bypass.
 - V.B.6.e) patients undergoing open or endovascular procedures on major vessels, including carotid surgery, intrathoracic vascular surgery, intra-abdominal vascular surgery, or peripheral vascular surgery;
 - V.B.6.e).(1) These patients must not include surgery for vascular access or repair of vascular access;
 - V.B.6.f) patients undergoing non-cardiac intrathoracic surgery, including pulmonary surgery and surgery of the great vessels, esophagus, and mediastinum and its structures;
 - V.B.6.g) patients undergoing intracerebral procedures;
 - V.B.6.g).(1) These patients must include those undergoing intracerebral endovascular procedures.
 - V.B.6.g).(2) The majority of these procedures must involve an open cranium.

- V.B.6.h) patients undergoing surgical procedures, including Cesarean sections, in which epidural anesthetics are used as part of the anesthetic technique or epidural catheters are placed for peri-operative analgesia;
- V.B.6.h).(1) Use of a combined spinal/epidural technique should be counted as both a spinal and an epidural procedure.
- V.B.6.i) patients undergoing procedures for complex, life-threatening injuries, including;
- V.B.6.i).(1) trauma associated with car crashes, falls from high places, penetrating wounds, industrial and farm accidents, and assaults; and,
- V.B.6.i).(2) burns covering more than 20 percent of body surface area.
- V.B.6.j) patients undergoing surgical procedures for whom peripheral nerve blocks are used as part of the anesthetic technique or peri-operative analgesic management; and,
- V.B.6.k) new patients being evaluated for management of acute, chronic, or cancer-related pain disorders.
- V.B.6.k).(1) Residents should have familiarity with the breadth of pain management, including clinical experience with interventional pain procedures.
- V.B.7. Residents must have experience with:
 - V.B.7.a) a broad spectrum of airway management techniques, such as performance of fiberoptic intubation, and lung isolation techniques, such as double lumen endotracheal tube placement and endobronchial blockers;
 - V.B.7.b) central vein catheter placement and ultrasound-guided placement of vascular catheters; and,
 - V.B.7.c) placement of pulmonary artery catheter or other cardiac output monitoring devices.
- V.B.8. Residents must either participate in cases in which transesophageal echocardiography is actively used, or have adequate didactic instruction to ensure familiarity with echocardiography techniques and interpretation.
- V.B.9. Residents must either personally participate in cases in which electroencephalography (EEG), processed EEG, or evoke potential monitoring is actively used as part of the procedure, or have adequate

didactic instruction to ensure familiarity with electrophysiologic monitoring and interpretation.

- V.B.10. Residents must document pre- and post-operative anesthesia assessment in the patient's medical record.

V.C. Residents' Scholarly Activities

- V.C.1. Each resident must complete an academic project, including,
- V.C.1.a) grand rounds presentations;
 - V.C.1.b) preparation and publication of review articles;
 - V.C.1.c) book chapters;
 - V.C.1.d) manuals for teaching or clinical practice; and,
 - V.C.1.e) performing or participating in one or more clinical or laboratory investigations.
- V.C.2. The project must be suitable for presentation at local, regional, or national scientific meetings.
- V.C.2.a) The project should result in peer-reviewed abstracts or manuscripts.
- V.C.3. A faculty supervisor must be in charge of each project and investigation.

V.D. Duty Hour and Work Limitations

- V.D.1. Supervision must not vary substantially with the time of day or day of the week.
- V.D.2. In the clinical setting, faculty members should not supervise anesthesia at more than two anesthetizing locations simultaneously.

VI. ACGME-I Competencies

VI.A. Patient Care

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents must demonstrate proficiency in:

- VI.A.1. independent clinical decision-making and patient care that exhibits sound clinical judgment in a wide variety of clinical situations;
- VI.A.2. functioning as a leader of peri-operative care teams;

- VI.A.3. the key aspects of anesthesia, pre-operative evaluation and immediate post-operative care of surgical patients, and assessment and treatment of critically-ill patients and those with acute and chronic pain;
- VI.A.4. managing acute post-operative pain, including familiarity with patient-controlled intravenous techniques, neuraxial blockade, and other pain-control modalities;
- VI.A.5. managing the specific needs of patients undergoing diagnostic or therapeutic procedures outside of the surgical suites;
- VI.A.6. managing problems of the geriatric population; and,
- VI.A.7. maintaining a comprehensive anesthesia record for each patient as an ongoing reflection of the drugs administered, the monitoring employed, the techniques used, the physiologic variations observed, the therapy provided as required, and the fluids administered.

VI.B. Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents must demonstrate proficiency in knowledge of:

- VI.B.1. planning and administering anesthesia care for patients with more severe and complicated diseases, as well as patients who undergo more complex surgical procedures;
- VI.B.2. complex technology and equipment associated with these practices;
- VI.B.3. clinical anesthesiology and related areas of basic science, as well as pertinent topics from other medical and surgical disciplines;
- VI.B.4. practice management that addresses issues such as operating room management, types of practice, job acquisition, financial planning, contract negotiations, billing arrangements, professional liability, and legislative and regulatory issues;
- VI.B.5. management of the problems of the geriatric population; and,
- VI.B.6. management of the specific needs of the ambulatory surgical patient.

VI.C. Practice-based Learning and Improvement

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:

- VI.C.1. identify strengths, deficiencies, and limits in one's knowledge and expertise;
- VI.C.2. set learning and improvement goals;
- VI.C.3. identify and perform appropriate learning activities;
- VI.C.4. systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement;
- VI.C.5. incorporate formative evaluation feedback into daily practice;
- VI.C.6. locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems;
- VI.C.7. use information technology to optimize learning; and,
- VI.C.8. participate in the education of patients, families, students, residents, and other health professionals.

VI.D. Interpersonal and Communication Skills

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Residents must:

- VI.D.1. communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;
- VI.D.2. communicate effectively with physicians, other health professionals, and health-related agencies;
- VI.D.3. work effectively as a member or leader of a health care team or other professional group;
- VI.D.4. act in a consultative role to other physicians and health professionals; and,
- VI.D.5. maintain comprehensive, timely, and legible medical records, if applicable.

VI.E. Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents must demonstrate:

- VI.E.1. compassion, integrity, and respect for others;

- VI.E.2. responsiveness to patient needs that supersedes self-interest;
- VI.E.3. respect for patient privacy and autonomy;
- VI.E.4. accountability to patients, society and the profession; and,
- VI.E.5. sensitivity and responsiveness to a diverse patient population, including to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

VI.F. Systems-based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents must:

- VI.F.1. work effectively in various health care delivery settings and systems relevant to their clinical specialty;
- VI.F.2. coordinate patient care within the health care system relevant to their clinical specialty;
- VI.F.3. incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate;
- VI.F.4. advocate for quality patient care and optimal patient care systems;
- VI.F.5. work in interprofessional teams to enhance patient safety and improve patient care quality; and,
- VI.F.6. participate in identifying system errors and implementing potential systems solutions.