



ACGME International

**Advanced Specialty Program Requirements for
Graduate Medical Education in
Obstetric Anesthesiology
(Anesthesiology)**

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Int. Introduction

Background and Intent: Programs must achieve and maintain Foundational Accreditation according to the ACGME-I Foundational Requirements prior to receiving Advanced Specialty Accreditation. The Advanced Specialty Requirements noted below complement the ACGME-I Foundational Requirements. For each section, the Advanced Specialty Requirements should be considered together with the Foundational Requirements.

Int. I. Definition and Scope of the Specialty

Obstetric anesthesiology is the subspecialty of anesthesiology devoted to the comprehensive anesthetic management of women during pregnancy and the puerperium.

Int. II. Duration of Education

Int. II.A. The educational program in obstetric anesthesiology must be 12 or 24 months in length.

I. Institution

I.A. Sponsoring Institution

I.A.1. A fellowship in obstetric anesthesiology must function as an integral part of an ACGME-I-accredited residency in anesthesiology.

I.A.2. The Sponsoring Institution must also sponsor an ACGME-I-accredited residency program in obstetrics and gynecology.

I.A.3. There must be interaction between the anesthesiology residency and the fellowship that results in coordination of educational, clinical, and investigative activities.

I.B. Participating Sites

See International Foundational Requirements, Section I.B.

II. Program Personnel and Resources

II.A. Program Director

II.A.1. Qualifications of the program director must include:

II.A.1.a) completion of an obstetric anesthesiology fellowship, or at least three years' participation in a clinical obstetric anesthesiology fellowship as a faculty member;

- II.A.1.b) at least three years of post-residency experience in clinical obstetric anesthesiology;
- II.A.1.c) current appointment as a member of the anesthesiology faculty; and,
- II.A.1.d) demonstrated ongoing academic achievements appropriate to the subspecialty, including at least one of the following: publications; development of educational programs; or conduct of research.
- II.A.2. The program director must:
 - II.A.2.a) devote at least 50 percent of the program director's professional effort to the anesthetic care of pregnant women; and,
 - II.A.2.b) together with the core residency program director, prepare and implement a supervision policy that specifies the lines of responsibility for the anesthesiology residents and fellows.
- II.A.3. The program director must be based at the primary clinical site.

II.B. Faculty

- II.B.1. Physician faculty members must have fellowship education or post-residency experience in clinical obstetric anesthesiology.
- II.B.2. Faculty members, including those with expertise in obstetrics and gynecology, maternal-fetal medicine, and neonatology, must be available for consultations and the collaborative management of peripartum patients, as well as instruction and supervision of fellows.
- II.B.3. Faculty members with expertise in adult critical care must be available for consultation and collaborative management of peripartum women with critical care needs.

II.C. Other Program Personnel

- II.C.1. There must be specialized nursing staff members for the care of the critically ill newborn.
- II.C.2. There must be allied health staff members and other support personnel necessary for the comprehensive care of women during pregnancy.

II.D. Resources

- II.D.1. Clinical facilities must include:
 - II.D.1.a) a clinical laboratory that provides prompt and readily available diagnostic and laboratory measurements pertinent to the care of obstetric patients;

- II.D.1.b) a designated area for labor and delivery that includes labor rooms and Cesarean/operative delivery rooms;
- II.D.1.c) a post-anesthesia care unit (PACU) or labor-delivery-postpartum rooms designed and equipped for the collaborative management of post-operative obstetric patients by anesthesiologists and obstetrician-gynecologists; and,
- II.D.1.d) maternal and fetal monitoring and advanced life support equipment.
- II.D.2. The patient population must include high-risk obstetric patients.
- II.D.3. There must be an active maternal-fetal medicine and neonatology service that are regularly involved in multidisciplinary care.
- II.D.4. There must be facilities and space for the education of fellows, including meeting space, conference space, and space for academic activities, as well as access to computers.

III. Fellow Appointment

III.A. Eligibility Criteria

- III.A.1. Prior to appointment in the program, fellows should have completed an ACGME-I-accredited residency program in anesthesiology, or an anesthesiology residency program acceptable to the Sponsoring Institution's Graduate Medical Education Committee.

III.B. Number of Fellows

See International Foundational Requirements, Section III.B.

IV. Specialty-Specific Educational Program

IV.A. ACGME-I Competencies

- IV.A.1. The program must integrate the following ACGME-I Competencies into the curriculum.
 - IV.A.1.a) Professionalism
 - IV.A.1.a).(1) Fellows must demonstrate a commitment to professionalism and an adherence to ethical principles. Fellows must demonstrate:
 - IV.A.1.a).(1).(a) the ability to work in a multidisciplinary environment, and particularly the ability to have collegial and effective interactions with other members of the perinatal care team.

IV.A.1.b)	Patient Care and Procedural Skills
IV.A.1.b).(1)	Fellows must provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Fellows must demonstrate competence in:
IV.A.1.b).(1).(a)	the comprehensive analgesic/anesthetic management of deliveries, including:
IV.A.1.b).(1).(a).(i)	planned vaginal deliveries with a high-risk maternal co-morbidity;
IV.A.1.b).(1).(a).(i).(a)	This must include obtaining the appropriate diagnostic testing and consultation, and communication with the multi-disciplinary team.
IV.A.1.b).(1).(a).(ii)	planned vaginal deliveries with high-risk fetal conditions;
IV.A.1.b).(1).(a).(ii).(a)	This must include appropriate interpretation of fetal surveillance and consultation with maternal-fetal medicine specialists and neonatologists as to the appropriate obstetric interventions and their timing.
IV.A.1.b).(1).(a).(iii)	Cesarean deliveries with a high-risk maternal co-morbidity, including:
IV.A.1.b).(1).(a).(iii).(a)	application of broad anesthetic principles and techniques in creating a comprehensive anesthetic care plan; and,
IV.A.1.b).(1).(a).(iii).(b)	collaborative management between anesthesiologists and obstetricians of women with abnormal placentation.
IV.A.1.b).(1).(a).(iv)	Cesarean deliveries with a high-risk fetal condition, including:
IV.A.1.b).(1).(a).(iv).(a)	interpretation of fetal surveillance and consultation with maternal-fetal medicine specialists and neonatologists as to the appropriate obstetric interventions and their timing.

- IV.A.1.b).(1).(b) the management of anesthesia during the first, second, and third trimester of pregnancy, other than for Cesarean delivery, including ante-partum procedures involving prenatal diagnosis and fetal treatment, maternal cardioversion, or electroconvulsive therapy, including:
- IV.A.1.b).(1).(b).(i) assessment of fetal status and possible maternal co-morbidity;
- IV.A.1.b).(1).(b).(ii) collaboration between anesthesiologists and obstetricians in the development of a plan to prevent pre-term birth;
- IV.A.1.b).(1).(b).(iii) development of an anesthesia care plan that is integrated with the surgical and obstetric care plan and that includes provision for peri-operative fetal monitoring;
- IV.A.1.b).(1).(b).(iv) development of a plan for possible emergency Cesarean delivery if appropriate; and,
- IV.A.1.b).(1).(b).(v) provision for post-operative analgesia.
- IV.A.1.b).(1).(c) the management of general anesthesia for Cesarean delivery, including:
- IV.A.1.b).(1).(c).(i) recognizing indications for general anesthesia;
- IV.A.1.b).(1).(c).(ii) efficiently and quickly allaying the anxiety of the mother and communicating the anesthetic care plan;
- IV.A.1.b).(1).(c).(iii) appropriately assessing the airway;
- IV.A.1.b).(1).(c).(iv) rapidly assessing the clinical scenario and its urgency in concert with the obstetric specialist; and,
- IV.A.1.b).(1).(c).(v) making the clinical judgment to initiate general anesthesia after considering the maternal and fetal risks.
- IV.A.1.b).(1).(d) preparing for and providing care, including developing a care plan that acknowledges the patient's birth plan goals; and,
- IV.A.1.b).(1).(e) the anesthetic critical care of women during the puerperium.

- IV.A.1.b).(2) Fellows must have successfully completed a recognized course in neonatal resuscitation prior to completion of the fellowship.
- IV.A.1.c) Medical Knowledge
- IV.A.1.c).(1) Fellows 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. Fellows must demonstrate knowledge of:
- IV.A.1.c).(1).(a) the impact of interventions on the mother and fetus/neonate, and the care of the high-risk pregnant patient, with specific emphasis on the anesthetic implications of the altered maternal physiologic state, in the following areas:
- IV.A.1.c).(1).(a).(i) advanced maternal physiology, biochemistry (nitric oxide, prostaglandins), genetic predispositions, and polymorphisms;
- IV.A.1.c).(1).(a).(ii) embryology and teratogenicity, including laboratory models and use of databases;
- IV.A.1.c).(1).(a).(iii) fetal and placental physiology and pathophysiology, models of uteroplacental perfusion, and pharmacokinetics of placental transfer;
- IV.A.1.c).(1).(a).(iv) neonatal physiology and advanced neonatal resuscitation;
- IV.A.1.c).(1).(a).(v) medical disease and pregnancy, including hypertensive disorders, morbid obesity, respiratory disorders, cardiac disorders, gastrointestinal diseases, endocrine disorders, autoimmune disorders, hematologic and coagulation disorders, neurologic disorders, substance abuse, human immunodeficiency virus (HIV) infection, acquired immune deficiency syndrome (AIDS), and psychiatric diseases;
- IV.A.1.c).(1).(a).(vi) obstetric management of abnormal labor, management of urgent and emergent delivery, and trial of labor;

IV.A.1.c).(1).(a).(vii)	tocolytic therapy, the effects of genetics on pre-term labor and response to tocolytics, and methods of tocolysis;
IV.A.1.c).(1).(a).(viii)	labor pain, including pain pathways, experimental models for studying pain of labor, biochemical mechanisms of labor pain, and modalities for treating labor pain;
IV.A.1.c).(1).(a).(ix)	local anesthetic use in obstetrics, including pregnancy-related effects on pharmacodynamics and pharmacokinetics; recognition and treatment of complications; lipid rescue of local anesthetic cardiotoxicity; effects on the fetus in different settings, including prematurity, asphyxia, fetal cardiovascular and neurological effects; and fetal drug disposition;
IV.A.1.c).(1).(a).(x)	neuraxial opioid use in obstetrics, including prevention, recognition, and treatment of complications; effects on the fetus; and fetal/neonatal drug disposition;
IV.A.1.c).(1).(a).(xi)	regional anesthetic techniques, including recognition and treatment of complications, effects of genetic variations, and polymorphisms;
IV.A.1.c).(1).(a).(xii)	general anesthesia use in obstetrics, including recognition and treatment of complications, alternatives for securing the airway in pregnant women (anticipated/unanticipated difficult airway), consequences on utero-placental perfusion, and opposing maternal-fetal considerations regarding the use of general anesthesia;
IV.A.1.c).(1).(a).(xiii)	anesthetic and obstetric management of obstetric complications and emergencies, including invasive placenta, placental abruption, placenta previa, vasa previa, uterine rupture, uterine atony, amniotic fluid embolism, and umbilical cord prolapse;

- IV.A.1.c).(1).(a).(xiv) anesthetic and obstetric management of preeclampsia, including laboratory models for study of preeclampsia; etiology and epidemiology; pathophysiology; biomolecular and genetic changes; and post-partum care;
- IV.A.1.c).(1).(a).(xv) cardiopulmonary resuscitation (CPR) and advanced cardiac life support of the pregnant woman;
- IV.A.1.c).(1).(a).(xvi) post-partum tubal ligation and timing, including global policies to ensure availability, regulatory and consent issues, ethics, obstetric considerations, counseling, and alternatives;
- IV.A.1.c).(1).(a).(xvii) post-partum pain management in the parturient, including consequences of post-Cesarean delivery pain;
- IV.A.1.c).(1).(a).(xviii) non-obstetric surgery during pregnancy, including laparoscopy and cardiorespiratory effects on the mother and fetus;
- IV.A.1.c).(1).(a).(xix) effects of maternal medications on breastfeeding, particularly effects of labor analgesia and post-partum analgesia;
- IV.A.1.c).(1).(a).(xx) ante-partum and intra-partum fetal monitoring, including the application of ultrasonography, biophysical profile, electronic fetal heart monitoring, assessment of uterine contraction pattern and labor, and acid-base status of the fetus;
- IV.A.1.c).(1).(a).(xxi) effects of general anesthesia on the mother and fetus, and the effects of fetal circulation and placental transfer on newborn adaptation;
- IV.A.1.c).(1).(a).(xxii) related disciplines, particularly involving obstetrics, maternal and fetal medicine, and neonatology;
- IV.A.1.c).(1).(a).(xxiii) anesthetic management of ex-utero intra-partum treatment (EXIT) procedures with and without neonatal transfer to extracorporeal membrane oxygenation (ECMO) and anesthesia for fetal surgery;

IV.A.1.c).(1).(a).(xxiv)	transport and monitoring of critically ill pregnant women within one hospital and between hospitals;
IV.A.1.c).(1).(a).(xxv)	organization and management of an obstetric anesthesia service, including health care delivery models, reimbursement, building a service, and regulatory agencies with jurisdiction;
IV.A.1.c).(1).(a).(xxvi)	legal and ethical issues during pregnancy;
IV.A.1.c).(1).(a).(xxvii)	social issues, including domestic violence; discrimination; substance abuse; homelessness; and cultural, ethnic, and economic barriers to safe anesthesia care, to include strategies to mobilize system resources for disadvantaged women in those situations;
IV.A.1.c).(1).(a).(xxviii)	medical economics and public health issues of women during reproductive years as these apply to obstetric anesthesiology, including availability of obstetric analgesia and Cesarean delivery rates;
IV.A.1.c).(1).(a).(xxix)	maternal morbidity and mortality; and,
IV.A.1.c).(1).(a).(xxx)	policies and procedures governing the labor and delivery unit, obstetric operating rooms, and the obstetric PACU, including the potential effects of societal, institutional, and governmental factors, as applicable.
IV.A.1.c).(1).(b)	principles and ethics of research on pregnant women, their fetuses, and neonates, including:
IV.A.1.c).(1).(b).(i)	processes involved in designing and implementing clinical trials; and,
IV.A.1.c).(1).(b).(ii)	research funding, to include:
IV.A.1.c).(1).(b).(ii).(a)	applicable funding agencies or sources;
IV.A.1.c).(1).(b).(ii).(b)	components of a research budget, including direct and indirect costs; and,
IV.A.1.c).(1).(b).(ii).(c)	funding procurement mechanisms.

- IV.A.1.d) Practice-based Learning and Improvement
- IV.A.1.d).(1) Fellows 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 lifelong learning. Fellows must demonstrate:
- IV.A.1.d).(1).(a) the ability to use literature from perinatal medicine and pediatrics in addition to anesthesiology;
- IV.A.1.d).(1).(b) competence in practice-based improvement by completing a project with at least one of the following goals:
- IV.A.1.d).(1).(b).(i) enhancing the fellow's engagement in multidisciplinary care of obstetric patients;
or,
- IV.A.1.d).(1).(b).(ii) improving patient safety as it applies to the fellow's practice of obstetric anesthesiology.
- IV.A.1.e) Interpersonal and Communication Skills
- IV.A.1.e).(1) Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Fellows must demonstrate the following communication skills in a multidisciplinary setting:
- IV.A.1.e).(1).(a) effectively communicating with the perinatal health care team;
- IV.A.1.e).(1).(b) effectively collaborating with all health care providers in all settings relevant to the comprehensive care of the pregnant woman, including the outpatient clinic, ante-partum consultation, labor and delivery, operating rooms, the PACU, intensive care units, and the emergency department;
- IV.A.1.e).(1).(c) effectively leading the anesthesia care team; and,
- IV.A.1.e).(1).(d) effectively teaching and supervising clinical trainees, including medical students and residents, and providing constructive feedback.
- IV.A.1.f) Systems-based Practice

- IV.A.1.f).(1) Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, including the social determinates of health, as well as the ability to call effectively on other resources in the system to produce optimal care. Fellows must:
- IV.A.1.f).(1).(a) demonstrate competence in recognizing barriers and limitations in access to care for some patient populations and developing strategies to meet patient needs;
- IV.A.1.f).(1).(b) demonstrate the ability to provide cost-effective care that incorporates best practices;
- IV.A.1.f).(1).(c) demonstrate competence in developing policies, guidelines, standards, practice parameters, and quality management tools to ensure the public health of pregnant women; and,
- IV.A.1.f).(1).(d) participate in a system improvement based on the literature, quality improvement data, and patient and family satisfaction data.

IV.B. Regularly Scheduled Educational Activities

- IV.B.1. A didactic curriculum must be provided through lectures, conferences, facilitated self-learning, workshops, or simulation that supplements clinical experience.
- IV.B.1.a) The didactic curriculum must include all topics listed as expected medical knowledge outcomes.
- IV.B.1.b) Additional didactic topics must include:
- IV.B.1.b).(1) the impact of different anesthetic and analgesic techniques on health care resources, including room allocation, staffing, and patient throughput; and,
- IV.B.1.b).(2) sound business practices and the direct and indirect costs of different obstetric analgesic and anesthetic techniques.
- IV.B.1.c) Faculty members should be conference leaders in the majority of the sessions.

IV.C. Clinical Experiences

- IV.C.1. The curriculum must be structured to include:
- IV.C.1.a) interpretation of fetal heart rate monitoring and the opportunity for fellows to demonstrate competence in interpreting fetal heart rate within the first three months of the program;

- IV.C.1.b) a minimum of seven months in a 12-month program, or 14 months in a 24-month program, devoted to operating room and labor and delivery clinical activity;
 - IV.C.1.c) at least one contiguous two-week rotation in a 12-month program, or one contiguous two-week rotation during the first year and one contiguous two-week rotation during the second year in a 24-month program, devoted to maternal-fetal medicine, to include clinical experience in blood banking, ante-partum fetal testing, and high-risk ante-partum care;
 - IV.C.1.d) at least one contiguous two-week rotation in a 12-month program, or a one-month rotation in a 24-month program, devoted to neonatology during which fellows provide routine neonatal evaluation and care; and,
 - IV.C.1.e) at least three months in a 12-month program, or at least six months in a 24-month program, designated for research or other well-defined scholarly activity, depending on the program and the goals of each fellow.
- IV.C.2. The curriculum must be structured to provide opportunity for fellows to develop competence in all medical, diagnostic, and surgical procedures essential to the practice of obstetric anesthesiology, including:
- IV.C.2.a) high-risk maternal co-morbidity vaginal deliveries;
 - IV.C.2.b) high-risk fetal condition vaginal deliveries;
 - IV.C.2.c) high-risk maternal co-morbidity Cesarean deliveries;
 - IV.C.2.d) high-risk fetal condition Cesarean deliveries; and,
 - IV.C.2.e) antenatal procedures.

IV.D. Scholarly Activity

- IV.D.1. Fellows' Scholarly Activities
 - IV.D.1.a) Each fellow should conduct or be substantially involved in a scholarly project related to the subspecialty that leads to both presentation at a national meeting and publication.
 - IV.D.1.a).(1) Fellows must have a faculty mentor overseeing the project.
- IV.D.2. Faculty Scholarly Activity

IV.D.2.a)

Physician faculty members must demonstrate ongoing academic achievements appropriate to the subspecialty, including at least one of the following: publications; development of educational programs; or conduct of research.

V. Evaluation

See International Foundational Requirements, Section V.

VI. The Learning and Working Environment

See International Foundational Requirements, Section VI.