



## **ACGME International**

### **Advanced Specialty Program Requirements for Graduate Medical Education in Pediatric Critical Care Medicine (Pediatrics)**

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## **ACGME International Program Requirements for Graduate Medical Education in Pediatric Critical Care Medicine (Pediatrics)**

### **I. Introduction**

#### **I.A. Definition and Scope of Specialty**

Specialists in pediatric critical care medicine provide care to infants, children, adolescents, and young adults during periods of critical illness. When providing care, specialists in pediatric critical care medicine use an understanding of the biology of acute, life-threatening disease and injury and of the emotional aspects of providing end-of-life care, as well as the necessary cognitive and technical skills to serve as skilled clinicians, competent educators, and scholars who contribute to scientific advances in the field.

#### **I.B. Duration of Education**

- I.B.1. The educational program in pediatric critical care must be 36 or 48 months in length.

### **II. Institutions**

#### **II.A. Sponsoring Institution**

- II.A.1. A fellowship in pediatric critical care medicine must function as an integral part of an ACGME-I-accredited residency program in pediatrics.

- II.A.1.a) The pediatric critical care program should be geographically proximate to the core pediatrics residency program.

- II.A.2. The educational program in pediatric critical care medicine must not negatively affect the education of residents in the affiliated pediatrics residency program.

#### **II.B. Participating Sites**

See International Subspecialty Foundational Requirements, Section I.B.

### **III. Program Personnel and Resources**

#### **III.A. Program Director**

- III.A.1. The program director must demonstrate a record of ongoing involvement in scholarly activity.

- III.A.2. The program director must demonstrate a record of mentoring or guiding fellows in the acquisition of competence in the clinical, teaching, research, quality improvement, and advocacy skills pertinent to the discipline.

- III.A.3. The program director must ensure that each fellow:
- III.A.3.a) is provided with mentorship in development of the necessary clinical, educational, scholarship, and administrative skills; and,
  - III.A.3.b) documents experience in procedures.
- III.A.3.b).(1) The program director must ensure that such documentation is available for review.
- III.A.4. The program director must coordinate, with the core residency and other related subspecialty program directors, the incorporation of the Competencies into fellowship education to foster consistent expectations for fellows' achievement and faculty members' evaluation processes.
- III.A.5. Meetings with the program directors of the core residency program and all pediatric subspecialties should take place at least semiannually.
- III.A.5.a) There must be documentation of the meetings.
  - III.A.5.b) The meetings should address a departmental approach to common educational issues and concerns that may include core curriculum, the Competencies, and evaluation.
- III.A.6. The program director must have the authority and responsibility to set and adjust the clinical responsibilities and ensure that fellows have appropriate clinical responsibilities and an appropriate patient load.

### **III.B. Faculty**

- III.B.1. To ensure the quality of the education and scholarly activity of the program, and to provide adequate supervision of fellows, there must be at least four faculty members, including the program director.
- III.B.2. Faculty members must encourage and support fellows in scholarly activities.
- III.B.2.a) This must include mentoring fellows in the application of scientific principles, epidemiology, biostatistics, and evidence-based medicine to the clinical care of patients.
  - III.B.2.b) Scholarly activities must be in basic science, clinical care, health services, health policy, quality improvement, or education with implications for the field of pediatric critical care medicine.
  - III.B.2.c) Qualified faculty members in the following pediatric subspecialties should be available for the education of fellows:
  - III.B.2.d) neonatal-perinatal medicine;

- III.B.2.e) pediatric cardiology;
- III.B.2.f) pediatric emergency medicine;
- III.B.2.g) pediatric endocrinology;
- III.B.2.h) pediatric gastroenterology;
- III.B.2.i) pediatric hematology-oncology;
- III.B.2.j) pediatric infectious disease;
- III.B.2.k) pediatric nephrology; and,
- III.B.2.l) pediatric neurology.

III.B.3. The faculty should also include the following specialists with substantial experience in treating pediatric problems:

- III.B.3.a) allergist-immunologist(s);
- III.B.3.b) anesthesiologist(s);
- III.B.3.c) child abuse pediatrician(s);
- III.B.3.d) child and adolescent psychiatrist(s);
- III.B.3.e) congenital cardiac surgeon(s);
- III.B.3.f) medical geneticist(s);
- III.B.3.g) neurological surgeon(s);
- III.B.3.h) neuroradiologist(s);
- III.B.3.i) orthopaedic surgeon(s);
- III.B.3.j) otolaryngologist(s);
- III.B.3.k) pediatric surgeon(s); and,
- III.B.3.l) physiatrist(s).

**III.C. Other Program Personnel**

III.C.1. To ensure multidisciplinary and interprofessional practice in pediatric critical care medicine, the following personnel with pediatric focus and experience should be available:

- III.C.1.a) child life therapist(s);

- III.C.1.b) critical care nurse(s);
- III.C.1.c) dietitian(s);
- III.C.1.d) hospice and palliative medicine professional(s);
- III.C.1.e) pharmacist(s);
- III.C.1.f) physical and occupational therapist(s);
- III.C.1.g) respiratory therapist(s);
- III.C.1.h) social worker(s); and,
- III.C.1.i) speech and language therapist(s).

**III.D. Resources**

- III.D.1. The program must be based in a specifically designed pediatric intensive care unit (PICU), at the primary clinical site.
- III.D.1.a) Facilities and equipment in and related to that unit must be those of a modern PICU, be available on a 24-hour-a-day basis, be appropriately staffed and equipped to meet the educational needs of the program, and include:
  - III.D.1.a).(1) availability of continuous renal replacement therapy and acute hemodialysis;
  - III.D.1.a).(2) laboratories that provide complete and prompt evaluation and support;
  - III.D.1.a).(3) a pediatric cardiac catheterization facility;
  - III.D.1.a).(4) timely bedside pediatric imaging; and,
  - III.D.1.a).(5) electroencephalogram (EEG) services for patients.
- III.D.2. Facilities and services, including comprehensive laboratory, pathology, and imaging, must be available.
  - III.D.2.a) The program must have access to laboratories that perform testing specific to pediatric critical care medicine.
- III.D.3. An adequate number and variety of PICU patients ranging in age from newborn through young adulthood must be available to provide a broad experience for fellows.
- III.D.4. A sufficient number of patients must be available in inpatient settings to meet the educational needs of the program.

- III.D.4.a) There should be a minimum of 700 admissions annually to the PICU at the primary clinical site.
- III.D.4.a).(1) A program with fewer admissions must demonstrate that it is able to provide the breadth of experience required for the number of fellows in the program.
- III.D.4.b) The number of patients requiring mechanical ventilation and with single or multi-system organ failure, severe trauma, and major neurologic or neurosurgical problems must be sufficient to provide each fellow with adequate opportunity to become skilled in their management.
- III.D.4.c) There must be sufficient exposure to the use of invasive and non-invasive hemodynamic and intracranial monitoring to ensure fellows' understanding of their uses and limitations.
- III.D.4.d) The program must be associated with a clinical site in which at least 100 pediatric cardiac surgeries are performed per year.

#### **IV. Fellow Appointments**

##### **IV.A. Eligibility Criteria**

- IV.A.1. Prior to appointment in the program, fellows should have completed an Accreditation Council for Graduate Medical Education (ACGME)- or ACGME-I-accredited residency program in pediatrics, or a pediatric residency acceptable to the Sponsoring Institution's Graduate Medical Education Committee.

##### **IV.B. Number of Fellows**

See International Subspecialty Foundational Requirements, Section III.B.

#### **V. Specialty-Specific Educational Program**

##### **V.A. Regularly Scheduled Didactic Sessions**

- V.A.1. Fellows must have a formally-structured educational program in the clinical and basic sciences related to pediatric critical care medicine.
- V.A.1.a) The program must utilize didactic experiences, such as lectures, seminars, case discussions, journal clubs, and clinical experience.
- V.A.1.b) Pediatric critical care medicine conferences must occur regularly, and must involve active participation by the fellows in planning and implementation.
- V.A.1.c) Fellow education must include instruction in:

- V.A.1.c).(1) basic and fundamental disciplines, as appropriate to pediatric critical care medicine, such as anatomy, physiology, biochemistry, embryology, pathology, microbiology, pharmacology, immunology, genetics, and nutrition/metabolism;
- V.A.1.c).(2) pathophysiology of disease, reviews of recent advances in clinical medicine and biomedical research, and conferences dealing with bioethics, complications, end-of-life care, palliation and death, and the scientific, ethical, and legal implications of confidentiality and informed consent; and,
- V.A.1.c).(2).(a) This should include relationships between physicians and with patients, families, allied health professionals, and society at large.
- V.A.1.c).(3) the economics of health care and current health care management issues, such as cost-effective patient care, practice management, preventive care, population health, quality improvement, resource allocation, and clinical outcomes.

**V.B. Clinical Experience**

- V.B.1. Fellows' clinical experience in critical care settings other than the PICU, such as a burn, medical, or neonatal intensive care unit (ICU), must be no more than four months in duration, except when all of the post-operative cardiovascular care is provided for in a pediatric cardiac surgical ICU separate from the PICU.
  - V.B.1.a) For programs that are 36 months in length and where there is a separate pediatric cardiac ICU, no more than six months must be spent on rotations other than the PICU.
  - V.B.1.b) For programs that are 48 months in length and where there is a separate pediatric cardiac ICU, no more than eight months must be spent on rotations other than the PICU.

**V.C. Fellows' Scholarly Activities**

- V.C.1. The program must have a core curriculum in research and scholarship.
  - V.C.1.a) Where appropriate, the curriculum should be a collaborative effort involving all pediatric subspecialty programs at the institution.
- V.C.2. Each fellow must design and conduct a scholarly project in the area of pediatric critical care medicine with guidance from the fellowship director and a designated mentor. The designated mentor must
  - V.C.2.a) be approved by the scholarship oversight committee; and,

- V.C.2.b) have expertise in the fellow's area of scholarly interest, either as a faculty member in pediatric critical care or through collaboration with other departments or divisions.
- V.C.3. The program must provide a scholarship oversight committee for each fellow to oversee and evaluate his or her progress as related to scholarly activity.
  - V.C.3.a) Where applicable, the fellow scholarship oversight committee should be a collaborative effort involving other pediatric subspecialty programs or other experts.
- V.C.4. Fellows' scholarly experience must begin in the first year and continue for the entire length of the educational program.
  - V.C.4.a) The experience must be structured to allow development of requisite skills in research and scholarship, and provide sufficient time for project completion, and presentation of results to the scholarship oversight committee.

**V.D. Duty Hour and Work Limitations**

See International Subspecialty Foundational Requirements, Sections VI.I. and VI. J.

**VI. ACGME-I Competencies**

**VI.A. Patient Care**

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

- VI.A.1. the clinical skills necessary in pediatric critical care medicine, including:
  - VI.A.1.a) providing consultation, performing a history and physical examination, making informed diagnostic and therapeutic decisions that result in optimal clinical judgement, and developing and carrying out management plans;
  - VI.A.1.b) providing transfer of care that ensures seamless transitions, counseling patients and families, using information technology to optimize patient care, and providing appropriate role modeling and supervision;
  - VI.A.1.c) providing or coordinating care for patients with complex and chronic diseases with the appropriate physician and/or agency;
  - VI.A.1.d) diagnosing and managing patients with acute life-threatening problems;
  - VI.A.1.e) providing compassionate end-of-life care and performing an accurate brain death examination;

- VI.A.1.f) providing safe transport for a critically-ill patient; and,
- VI.A.1.g) participating in team-based care of critically-ill patients whose primary problem is surgical.
- VI.A.1.g).(1) To meet these objectives, there must be coordination of care and collegial relationships among pediatric surgeons, neonatologists, and critical care intensivists concerning the management of medical problems in complex, critically-ill patients.
- VI.A.2. Fellows must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the practice of pediatric critical care medicine. Fellows must:
  - VI.A.2.a) competently use and interpret the results of laboratory tests and imaging;
  - VI.A.2.b) acquire the necessary procedural skills and develop an understanding of their indications, contraindications, risks, and limitations; and,
  - VI.A.2.c) demonstrate competence in the performance and interpretation of:
    - VI.A.2.c).(1) central arterial and venous catheterization;
    - VI.A.2.c).(2) endotracheal intubation;
    - VI.A.2.c).(3) peripheral arterial and venous catheterization;
    - VI.A.2.c).(4) procedural sedation;
    - VI.A.2.c).(5) resuscitation; and,
    - VI.A.2.c).(6) thoracostomy tube placement.

**VI.B. Medical Knowledge**

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:

- VI.B.1. biostatistics, bioethics, clinical and laboratory research methodology, study design, preparation of applications for funding and/or approval of clinical research protocols, critical literature review, principles of evidence-based medicine, ethical principles involving clinical research, and teaching methods;
- VI.B.2. pharmacologic principles and the application of these principles to the critically-ill patient; and,

VI.B.3. life-sustaining therapies.

**VI.C. Practice-based Learning and Improvement**

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.

**VI.D. Interpersonal and Communication Skills**

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

VI.D.1. Fellows must demonstrate skill in teaching both individuals and groups of learners in clinical settings, classrooms, lectures, and seminars, as well as by electronic and print modalities.

VI.D.2. Fellows must demonstrate skill in providing feedback to learners and assessing educational outcomes.

**VI.E. Professionalism**

Fellows must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles, including:

VI.E.1. trustworthiness that makes colleagues feel secure when the fellow is responsible for the care of patients;

VI.E.2. leadership skills that enhance team function, the learning environment, and/or the health care delivery system/environment to improve patient care; and,

VI.E.3. the capacity to recognize that ambiguity is part of clinical medicine and to respond by utilizing appropriate resources in dealing with uncertainty.

**VI.F. Systems-based Practice**

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care in the country or region in which they practice, as well as the ability to call effectively on other resources in the system to provide optimal health care.