



## **ACGME International**

### **Advanced Specialty Program Requirements for Graduate Medical Education in Pediatric Pulmonology (Pediatrics)**

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# **ACGME International Program Requirements for Graduate Medical Education in Pediatric Pulmonology (Pediatrics)**

## **I. Introduction**

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

Specialists in pediatric pulmonology provide care to infants, children, adolescents, and young adults with acute and chronic pulmonary disorders. When providing care, specialists in pediatric pulmonology use an understanding of pathophysiology and clinical diagnosis and management as well as knowledge of the emotional aspects of providing care to children and their families.

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

The educational program in pediatric pulmonology must be 36 or 48 months in length.

## **II. Institutions**

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

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

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

II.A.2. The educational program in pediatric pulmonology 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, and 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 two faculty members, inclusive of 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 pulmonology.
- III.B.3. Qualified faculty members in the following pediatric subspecialties should be available for the education of fellows:
- III.B.3.a) neonatal-perinatal medicine;
- III.B.3.b) pediatric cardiology;
- III.B.3.c) pediatric critical care medicine;
- III.B.3.d) pediatric emergency medicine;
- III.B.3.e) pediatric endocrinology;
- III.B.3.f) pediatric gastroenterology; and,
- III.B.3.g) pediatric infectious disease.

- III.B.4. The faculty should also include the following specialists with substantial experience in treating pediatric problems:
- III.B.4.a) allergist-immunologist(s);
  - III.B.4.b) anesthesiologist(s);
  - III.B.4.c) cardiothoracic surgeon(s);
  - III.B.4.d) child and adolescent psychiatrist(s);
  - III.B.4.e) child neurologist(s);
  - III.B.4.f) medical geneticist(s);
  - III.B.4.g) otolaryngologist(s);
  - III.B.4.h) pathologist(s);
  - III.B.4.i) pediatric surgeon(s); and,
  - III.B.4.j) radiologist(s).
- III.B.5. Consultants with expertise in adult pulmonology should be available for transition care of young adults.

**III.C. Other Program Personnel**

- III.C.1. To ensure multidisciplinary and interprofessional practice in pediatric pulmonology, the following personnel with pediatric focus and experience should be available:
- III.C.1.a) child life therapist(s);
  - III.C.1.b) dietitian(s);
  - III.C.1.c) mental health professional(s);
  - III.C.1.d) nurse(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) school and special education liaison(s);
  - III.C.1.i) social worker(s); and,
  - III.C.1.j) speech and language therapist(s).

### **III.D. Resources**

- III.D.1. Facilities and services, including comprehensive laboratory, pathology, and imaging, must be available, including:
  - III.D.1.a) a pediatric pulmonary function laboratory capable of performing bronchoprovocation studies and measuring flows, gas exchange, and lung volumes, to include the use of body plethysmography;
  - III.D.1.b) facilities for pediatric polysomnography; and,
  - III.D.1.c) facilities in which flexible bronchoscopy examinations in child and adolescent patients can be performed.
- III.D.2. An adequate number and variety of pulmonology patients ranging in age from newborn through young adulthood must be available to provide a broad experience for fellows.
- III.D.3. A sufficient number of patients must be available in inpatient and outpatient settings to meet the educational needs of the program.

### **IV. Fellow Appointments**

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

- IV.A.1. Prior to appointment in the program, fellows should have completed an 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 pulmonology.
  - 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 pulmonology 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 pulmonology, 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 attention to physician-patient, physician-family, physician-physician/allied health professional, and physician-society relationships.
- 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.A.2. Fellow education must include courses, seminars, workshops, and/or laboratory experience to provide background in basic and fundamental principles related to the lung.

**V.B. Clinical Experience**

V.B.1. Fellows must have responsibility for providing longitudinal care to a panel of patients throughout their educational program that is supervised by one or more members of the pediatric pulmonology faculty.

V.B.1.a) This must include longitudinal care for outpatients.

V.B.1.b) The panel of patients must be representative of the types of pulmonary disorders fellows are likely to encounter once they complete their educational program.

**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 pulmonology 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 pulmonology 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 pulmonology, 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 for or coordinating care for patients with complex and chronic diseases with the appropriate physician and/or agency;
  - VI.A.1.d) facilitating the transition of patients with pulmonary disorders from pediatrics to adult health care settings;
  - VI.A.1.e) providing continuing care of patients with chronic pulmonary problems, to include:
    - VI.A.1.e).(1) aspiration syndromes;

- VI.A.1.e).(2) asthma and allergic disorders affecting the respiratory system;
- VI.A.1.e).(3) chronic lung disease of infancy;
- VI.A.1.e).(4) chronic suppurative lung disease;
- VI.A.1.e).(5) chronic ventilator assistance, including home mechanical ventilation, bi-level positive airway pressure ventilation, and tracheostomy management;
- VI.A.1.e).(6) congenital and acquired upper airway obstruction;
- VI.A.1.e).(7) congenital anomalies of the respiratory system;
- VI.A.1.e).(8) cystic fibrosis;
- VI.A.1.e).(9) lower respiratory tract infections;
- VI.A.1.e).(10) newborn respiratory diseases;
- VI.A.1.e).(11) other diseases such as pulmonary hypertension, interstitial lung disease, hemosiderosis, and acute lung injuries;
- VI.A.1.e).(12) pre- and post-operative management of children with respiratory disorders;
- VI.A.1.e).(13) respiratory infections in the immunocompromised host; and,
- VI.A.1.e).(14) sleep disordered breathing, such as apnea.
- VI.A.1.f) interpreting a variety of diagnostic tests, to include diagnostic imaging;
- VI.A.1.g) managing patients requiring supplementary respiratory equipment, to include oxygen, chronic mechanical ventilation, non-invasive ventilation, and airway clearance devices;
- VI.A.1.h) understanding the techniques of airway clearance and pulmonary rehabilitation; and,
- VI.A.1.i) understanding how a patient's critical respiratory problems affect other organ systems.
- VI.A.2. Fellows must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the practice of pediatric pulmonology. Fellows must:
  - VI.A.2.a) competently use and interpret the results of laboratory tests and imaging;
  - VI.A.2.b) perform flexible bronchoscopy and interpret results; and,

- VI.A.2.c) demonstrate competence in the techniques, indications, contraindications, complications, and interpretation of tests of pulmonary function, including spirometry, lung volume measurement, diffusing capacity of the lung, tests of bronchoprovocation, bronchoscopy, bronchoalveolar lavage, mucosal biopsies, and polysomnography.

## **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 proficiency in their 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; and,
- VI.B.2. the psychosocial aspects of chronic pulmonary disease as they affect the pediatric patient and his or her family.

## **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.D.3. Fellows must demonstrate the ability to communicate the diagnosis of a life altering disease to patients and families.

## **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.