ACGME International

Advanced Specialty Program Requirements for Graduate Medical Education in Pulmonary Disease and Critical Care Medicine (Internal Medicine)

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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

Pulmonary disease medicine focuses on the etiology, diagnosis, prevention, and treatment of diseases affecting the ~~lungs and related organs~~respiratory system. Critical care medicine~~includes~~ is concerned with the diagnosis, management, and prevention of complications in patients who are severely ill and who usually require intensive monitoring and/or organ system support. Pulmonary disease and critical care medicine fellowships provide advanced education to allow the fellow to acquire competence in these areas.~~with sufficient expertise to act as an independent consultant.~~

Int. II. Duration of Education

Int. II.A. The educational program in pulmonary disease and critical care medicine must be 36 or 48 months in length.

I. Institution

I.A. Sponsoring Institution

I.A.1. A fellowship in pulmonary disease and critical care medicine must function as an integral part of an ACGME-I-accredited residency in internal medicine.

I.A.2. ~~The primary clinical site should have at least three ACGME-I-accredited internal medicine subspecialty programs from the following disciplines: cardiovascular disease; gastroenterology; infectious diseases; nephrology; or pulmonary disease~~.

~~I.A.3. The Sponsoring Institution must:~~

~~I.A.3.a) establish the fellowship within a department of internal medicine or an administrative unit whose primary mission is the advancement of internal medicine subspecialty education and patient care; and,~~

~~I.A.3.b) provide the program director with adequate support for the administrative activities of the fellowship.~~

~~I.A.4. The Sponsoring Institution and participating sites must share appropriate inpatient and outpatient faculty performance data with the program director.~~

I.B. Participating Sites

See International Foundational Requirements, Section I.B.

II. Program Personnel and Resources

II.A. Program Director

See International Foundational Requirements, Section II.A.

~~II.A.1. The program director must:~~

~~II.A.1.a) monitor fellow stress, including mental or emotional conditions inhibiting performance or learning, and drug- or alcohol-related dysfunction;~~

~~II.A.1.b) provide access to timely confidential counseling and psychological support services to fellows;~~

~~II.A.1.c) evaluate and modify situations that demand excessive service or consistently produce undesirable stress on fellows;~~

~~II.A.1.d) ensure that fellows' service responsibilities are limited to patients for whom the teaching service has diagnostic and therapeutic responsibility; and,~~

~~II.A.1.e) participate in academic societies and educational programs designed to enhance educational and administrative skills.~~

II.B. Faculty

II.B.1. In addition to the program director, there must be at least three core faculty members.

~~II.B.1.a) For programs with more than nine fellows, there must be at least one core faculty member for every 1.5 fellows.~~

~~II.B.2. Core faculty members must be active clinicians with knowledge of, experience in, and commitment to pulmonary disease and/or critical care medicine as a specialty.~~

~~II.B.3. Core faculty members must assist the program director in planning, implementing, monitoring, and evaluating fellows' clinical and research education.~~

~~II.B.3.a) At least one core faculty member must be knowledgeable in evaluation and assessment of the ACGME-I Competencies and devote significant time to evaluating fellows, including through direct observation.~~

II.B.2. Clinical faculty members with certification and/or expertise in cardiology, gastroenterology, hematology, infectious disease, nephrology, and

oncology must regularly participate in the program.

II.B.3. Clinical faculty members from anesthesiology, cardiovascular surgery, emergency medicine, general surgery, neurological surgery, neurology, obstetrics and gynecology, orthopaedic surgery, thoracic surgery, urology, and vascular surgery must be available to participate in the program.

II.C. Other Program Personnel

~~II.C.2. There must be services available from other health care professionals, including dietitians, language interpreters, nurses, occupational therapists, physical therapists, and social workers.~~

II.C.1. Personnel must include nurses and technicians skilled in critical care instrumentation, respiratory function, and laboratory medicine.

~~II.C.2. There must be appropriate and timely consultation from other specialties.~~

II.D. Resources

II.D.1. ~~Inpatient and outpatient systems must be in place to prevent fellows from performing routine clerical functions, such as scheduling tests and appointments and retrieving records and letters.~~ The following must be available at the primary clinical site:

II.D.1.a) timely bedside imaging services, including portable chest x-ray~~(CXR),~~ bedside ultrasound, and echocardiogram for patients in the critical care units; and,

II.D.1.b) computed tomography (CT) imaging, including CT angiography.

II.D.2. Critical care unit(s) must be located in a designated area within the hospital and be constructed and designed specifically for the care of critically ill patients.

II.D.2.a) Whether operating in separate locations or as combined facilities, the program must provide the equivalent of a medical intensive care unit (MICU), a surgical intensive care unit (SICU), and a coronary intensive care unit (CICU).

II.D.2.a).(1) The MICU or its equivalent must be at the primary clinical site.

II.D.2.a).(2) The MICU should be the focus of a teaching service.

II.D.2.b) ~~A sufficient number of patients of each gender and a broad range of ages must be available to allow each fellow to achieve the required educational outcomes.~~There must be an average daily census of at least five patients per fellow during assignments to critical care units.

II.D.3. There must be facilities to care for patients with acute myocardial infarction, severe trauma, shock, recent open-heart surgery, recent major

thoracic or abdominal surgery, and severe neurologic and neurosurgical conditions.

II.D.4. Laboratory and imaging services must be available at the primary clinical site or at participating sites, including:

II.D.4.a) a bronchoscopy suite, to include appropriate space and staffing for pulmonary procedures;

II.D.4.b) a pulmonary function testing laboratory;

II.D.4.c) timely bedside imaging services for patients in the critical care units; and,

II.D.4.d) a supporting laboratory that provides complete and prompt laboratory evaluation that allows for reliable and timely return of laboratory tests.~~computed tomography (CT) imaging, to include CT angiography;~~

II.D.5. Support services must be available, including:

II.D.5.a) an active emergency service;

II.D.5.b) an active open-heart surgery program;

II.D.5.c) ~~general surgical support;~~

II.D.6.c) nutritional support services;

II.D.6.d) ~~otolaryngology service;~~

II.D.6.d) pathology services, to include exfoliative cytology;

II.D.6.e) post-operative care and respiratory care services;

II.D.6.f) a thoracic surgery service; and,

II.D.6.g) equipment, expertise, and personnel to provide both continuous and intermittent renal replacement therapy in the critical care units.

II.D.7.d) ~~The program must provide opportunities to manage adult patients with a wide variety of serious illnesses and injuries requiring treatment in a critical care setting~~.

II.D.7. Other services should be available for consultation and the education of fellows, including anesthesiology, immunology, laboratory medicine, microbiology, occupational medicine, otolaryngology, pathology, physical medicine and rehabilitation, and radiology.

III. Fellow Appointment

III.D. Eligibility Criteria

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

III.E. 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.

IV.A.1.a).(1).(a) Fellows must demonstrate high standards of ethical behavior, including maintaining appropriate professional boundaries and relationships with other physicians and other health care team members, and avoiding conflicts of interest.

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 managing the care of patients:

IV.A.1.b).(1).(a) in a variety of health care settings, including inpatient and ambulatory settings; ~~the practice of health promotion, disease prevention, diagnosis, care, and treatment of patients of each gender, from adolescence to old age, during health and all stages of illness~~

IV.A.1.b).(1).(b) using critical thinking and evidence-based tools;

IV.A.1.b).(1).(c) using population-based data; and,

IV.A.1.b).(1).(d) with whom they have limited or no physical contact, through the use of telemedicine.

IV.A.1.b).(2) Fellows must demonstrate competence in the ~~prevention,~~ evaluation and management of both inpatients and outpatients with the following:

IV.A.1.b).(2).(a) acute lung injury, including radiation, inhalation, and trauma;

IV.A.1.b).(2).(b) acute metabolic disturbances, including overdosages and intoxication syndromes;

IV.A.1.b).(2).(c) anaphylaxis and acute allergic reactions in the critical care unit;

IV.A.1.b).(2).(d) cardiovascular disease in the critical care unit;

IV.A.1.b).(2).(e) circulatory failure;

IV.A.1.b).(2).(f) detection and prevention of iatrogenic and nosocomial problems in critical care medicine;

IV.A.1.b).(2).(g) diffuse interstitial lung disease;

IV.A.1.b).(2).(h) disorders of the pleura and the mediastinum;

IV.A.1.b).(2).(i) end-of-life issues and palliative care;

IV.A.1.b).(2).(j) hypertensive emergencies;

IV.A.1.b).(2).(k) iatrogenic respiratory diseases, including drug-induced disease;

IV.A.1.b).(2).(l) immunosuppressed conditions in the critical care unit;

IV.A.1.b).(2).(m) metabolic, nutritional, and endocrine effects of critical illness, and hematologic and coagulation disorders associated with critical illness;

IV.A.1.b).(2).(n) multi-organ system failure;

IV.A.1.b).(2).(o) obstructive lung diseases, including asthma, bronchitis, emphysema, and bronchiectasis;

IV.A.1.b).(2).(p) occupational and environmental lung diseases;

IV.A.1.b).(2).(q) peri-operative critically ill patients, including hemodynamic and ventilator support;

IV.A.1.b).(2).(r) psychosocial and emotional effects of critical illness on patients and ~~their~~ patients' families;

IV.A.1.b).(2).(s) pulmonary embolism and pulmonary embolic disease;

IV.A.1.b).(2).(t) pulmonary infections, including tuberculous, fundal, and infections in the immunocompromised host, such as human immunodeficiency virus~~(HIV)~~ infection-

related infections;

IV.A.1.b).(2).(u) pulmonary malignancy, both primary and metastatic;

IV.A.1.b).(2).(v) pulmonary manifestations of systemic diseases, including collagen vascular disease and diseases that are primary in other organs;

IV.A.1.b).(2).(w) pulmonary vascular disease, including ~~primary and secondary~~pulmonary hypertension and the vasculitis and pulmonary hemorrhage syndromes;

IV.A.1.b).(2).(x) renal disorders in the critical care unit, including electrolyte and acid-base disturbance and acute renal failure;

IV.A.1.b).(2).(y) respiratory failure, including the acute respiratory distress syndrome, acute and chronic respiratory failure in obstructive lung diseases, and neuromuscular respiratory drive disorders;

IV.A.1.b).(2).(z) sepsis and~~sepsis syndrome~~ septic shock;

IV.A.1.b).(2).(aa) severe organ dysfunction resulting in critical illness, including disorders of the gastrointestinal, neurologic, endocrine, hematologic, musculoskeletal, and immune systems, as well as infections and malignancies;

IV.A.1.b).(2).(bb) shock syndromes; and,

IV.A.1.b).(2).(cc) sleep-disordered breathing.

IV.A.1.b).(3) Fellows must be able to perform all medical, diagnostic, and surgical procedures considered essential to the subspecialty, including~~Fellows must demonstrate competence in~~:

IV.A.1.b).(3).(a) ~~procedural and technical skills, including:~~performing diagnostic and therapeutic procedures relevant to their individual specific planned career path, to include:

IV.A.1.b).(3).(a).(i) airway management;

IV.A.1.b).(3).(a).(ii) diagnostic and therapeutic procedures, to include paracentesis, lumbar puncture, thoracentesis, endotracheal intubation, and related procedures;

IV.A.1.b).(3).(a).(iii) emergency cardioversion;

IV.A.1.b).(3).(a).(iv) flexible fiber-optic bronchoscopy procedures, including those~~where~~ in which endobronchial and transbronchial biopsies, and transbronchial needle aspiration are performed;

~~IV.A.1.b).(2).(a).(iv).(a)~~ ~~Each fellow must perform a minimum of 100 such procedures~~.

IV.A.1.b).(3).(a).(v) insertion of arterial, central venous, and pulmonary balloon flotation catheters;

IV.A.1.b).(3).(a).(vi) operation of bedside hemodynamic monitoring systems;

IV.A.1.b).(3).(a).(vii) ~~use~~placement and management of chest tubes and drainage systems;

IV.A.1.b).(3).(a).(viii) those skills essential to critical care ultrasound, including image acquisition, image interpretation at the point of care, and use of ultrasound to place intravascular and intracavitary tubes and catheters;~~use of ultrasound techniques to perform thoracentesis and place intravascular and intracavitary tubes and catheters~~

IV.A.1.b).(3).(a).(ix) ~~the~~ use of a variety of positive pressure ventilator modes, including:

IV.A.1.b).(3).(a).(ix).(a) initiation and maintenance of ventilator support;

IV.A.1.b).(3).(a).(ix).(b) respiratory care techniques; and,

IV.A.1.b).(3).(a).(ix).(c) withdrawal of mechanical ventilator support.

IV.A.1.b).(3).(a).(x) ~~the~~use of reservoir masks and continuous positive airway pressure masks for delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry.

IV.A.1.b).(3).(b) treating their patients' conditions with practices that are patient-centered, safe, scientifically based, effective, timely, and cost-effective, to include use of:

IV.A.1.b).(3).(b).(i) nutritional support;

IV.A.1.b).(3).(b).(ii) paralytic agents and sedative and analgesic drugs in the critical care unit; and,

IV.A.1.b).(3).(b).(iii) transcutaneous pacemakers.

IV.A.1.b).(3).(c) using diagnostic and/or imaging studies relevant to the care of the patient, to include:

IV.A.1.b).(3).(c).(i) interpreting data derived from various bedside devices commonly employed to monitor patients, and from laboratory studies related to sputum, bronchopulmonary secretions, pleural fluid;

IV.A.1.b).(3).(c).(ii) interpretation of intracranial pressure monitoring; and,

IV.A.1.b).(3).(c).(iii) pulmonary function tests to assess respiratory mechanics and gas exchange, including spirometry, flow volume studies, lung volumes, diffusing capacity, arterial blood gas analysis, exercise studies, and interpretation of the results of bronchoprovocation testing using methacholine or histamine.

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 scientific method of problem solving and evidence-based decision-making;

IV.A.1.c).(1).(b) the indications, contraindications, and complications of placement of:

IV.A.1.c).(1).(b).(i) arterial, central venous, and pulmonary artery balloon flotation catheters; and

IV.A.1.c).(1).(b).(ii) percutaneous tracheostomies.

IV.A.1.c).(1).(c) basic sciences, with particular emphasis on:

IV.A.1.c).(1).(c).(i) developmental biology;

IV.A.1.c).(1).(c).(ii) genetics and molecular biology as they relate to pulmonary diseases; and,

IV.A.1.c).(1).(c).(iii) pulmonary physiology, to include cell and molecular biology and immunology, as they relate to pulmonary disease.

IV.A.1.c).(1).(d) biochemistry and physiology, including cell and molecular biology and immunology, as they relate to pulmonary disease;

IV.A.1.c).(1).(e) ethical, economic, and legal aspects of critical illness;

IV.A.1.c).(1).(f) imaging techniques commonly employed in the evaluation of patients with pulmonary disease or critical illness, including the ~~use of ultrasound~~ technical and procedural use of ultrasound and interpretation of ultrasound images at the point of care for medical decision-making;

IV.A.1.c).(1).(g) indications, complications, and outcomes of lung transplantation;

IV.A.1.c).(1).(h) monitoring and supervising special services, including:

IV.A.1.c).(1).(h).(i) proficiency standards;

IV.A.1.c).(1).(h).(ii) pulmonary function laboratories, to include quality control, quality assurance; respiratory care techniques and service;. and,

IV.A.1.c).(1).(h).(iii) respiratory care units.

IV.A.1.c).(1).(i) percutaneous needle biopsies;

IV.A.1.c).(1).(j) pericardiocentesis;

IV.A.1.c).(1).(k) pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness renal replacement therapy;

IV.A.1.c).(1).(l) principles and techniques of administration and management of a MICU

IV.A.1.c).(1).(m) recognition and management of the critically ill from disasters, including those caused by chemical and biological agents; and,

IV.A.1.c).(1).(n) the psychosocial and emotional effects of critical illness on patients and ~~their~~patients' families

IV.A.1.c).(2) Fellows must demonstrate sufficient knowledge specific to the subspecialty of pulmonary disease and critical care medicine, including application of technology appropriate for the clinical context, to include evolving technologies.

~~IV.A.1.c).(2).(c)~~ ~~indications, contraindications, limitations, complications, techniques, and interpretation of results~~

~~of those diagnostic and therapeutic procedures integral to the discipline, including the appropriate indication for and use of screening tests/procedures, including:~~

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.

~~IV.A.1.d).(1).(a) Fellows must obtain procedure-specific informed consent by competently educating patients about the rationale, techniques, and complications of procedures.~~

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, patients' families, and health professionals.

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.

IV.B. Regularly Scheduled Educational Activities

IV.B.1. The ~~core curriculum~~educational program must include ~~a~~ didactic ~~program~~ instruction based on the core knowledge content in pulmonary disease and critical care medicine.

IV.B.1.b) The program must ensure that ~~afford each~~ fellows have an opportunity to review ~~topics~~ all knowledge content ~~covered in~~ from conferences that ~~the fellow was unable to~~ they could not attend.

IV.B.2 Fellows must receive instruction in practice management relevant to pulmonary disease and critical care medicine.

~~IV.B.4. Fellows must participate in clinical case conferences, journal clubs, research conferences, and morbidity and mortality or quality improvement conferences.~~

IV.C. Clinical Experiences

IV.C.1. Assignment of rotations must be structured to minimize the frequency of

rotational transitions, and rotations must be of sufficient length to provide a quality educational experience, defined by continuity of patient care, ongoing supervision, longitudinal relationships with faculty members, and meaningful assessment and feedback.

IV.C.2. Rotations must be structured to allow fellows to function as a part of an effective interprofessional team that works together toward the shared goals of patient safety and quality improvement.

IV.C.3. Rotations must be structured to minimize conflicting inpatient responsibilities.

IV.C.4. The program must provide opportunities for fellows to manage adult patients with a wide variety of serious illnesses and injuries requiring treatment in a critical care setting.

IV.C.5. Fellows must have at least 18 months of clinical experience, including:

IV.C.5.a) at least nine months of patient care responsibility for inpatients and outpatients with a wide variety of pulmonary diseases, with an educational emphasis on pulmonary physiology and its correlation with clinical disorders;

IV.C.5.b) at least nine months in critical care medicine, of which at least six months must be devoted to the care of critically ill medical patients (MICU/CICU or equivalent); and,

IV.C.5.c) at least three months devoted to the care of critically ill non-medical patients (SICU, burn unit, transplant unit, neurointensive care unit, or equivalent).

IV.C.5.c).(1) This experience should consist of at least one month of direct patient care activity, with the remainder being fulfilled ~~with~~ by either consultative activities or with direct care of such patients.

IV.C.6. Programs that are 36 months in length must have no more than 15 months of required intensive care unit experiences.

IV.C.7. Programs that are 48 months in length must have no more than 20 months of required intensive care unit experiences.

IV.C.8. Fellows must have experience in the role of a pulmonary disease consultant in both the inpatient and outpatient settings and as a critical care medicine consultant in the inpatient setting.

IV.C.9. Fellow experiences must include:

IV.C.9.a) continuing responsibility for both acutely and chronically ill pulmonary patients to learn both the natural history of pulmonary disease and the effectiveness of therapeutic programs;

IV.C.9.b) managing adult patients with a wide variety of serious illnesses

and injuries requiring treatment in a critical care setting;

IV.C.9.c) clinical experience in examination and interpretation of lung tissue for infectious agents, cytology, and histopathology; and,

IV.C.9.d) clinical experience in patient evaluation and management, including for patients:

IV.C.9.d).(1) after discharge from the critical care unit;

IV.C.9.d).(2) undergoing pulmonary rehabilitation;

IV.C.9.d).(3) with critical obstetric and gynecologic disorders;

IV.C.9.d).(4) with genetic and developmental disorders of the respiratory system, to include cystic fibrosis;

IV.C.9.d).(5) with neurosurgical emergencies; and,

IV.C.9.d).(6) with trauma.

IV.C.10. Fellows must have clinical experience ~~should include the~~ in managing patients with~~placement of percutaneous~~ tracheostomies, including their specific complications.

IV.C.11. The program must provide educational experiences that allow fellows to interact with and learn from other health care professionals.

IV.C.12. The educational program must provide fellows with elective experiences relevant to their future practice or to further skill/competence development.

IV.C.13. Fellows must participate in training using simulation.

IV.C.14. Fellows should have a structured continuity ambulatory clinic experience for the duration of the program that exposes them to the breadth and depth of pulmonary critical care medicine.

~~IV.C.14.a) This should include an appropriate distribution of patients of each gender and a diversity of ages.~~

IV.C.14.a) This experience should average one half-day each week throughout the educational program.

IV.C.14.a).(1) Up to six months may be exempted from ambulatory experiences during MICU rotations, other time-intensive rotations, or vacation.

~~IV.C.14.a).(2) Each fellow should be responsible, on average, for four to eight patients during each half-day session.~~

IV.C.15. Fellows should be informed of the status of their continuity patients when such patients are hospitalized, as clinically appropriate.

IV.D. Scholarly Activity

IV.D.1. Fellows' Scholarly Activity

IV.D.1.a) While in the program, each fellow must complete at least one of the following scholarly activities: participation in grand rounds; poster presentations; workshops; quality improvement presentations; podium presentations; grant leadership; non-peer-reviewed print/electronic resources; articles or publications; book chapters; textbooks; webinars; service on professional committees; or service as a journal reviewer, journal editorial board member, or editor.

IV.D.2. Faculty Scholarly Activity

See International Foundational Requirements, Section V.

V. Evaluation

See International Foundational Requirements, Section V.

VI. The Learning and Working Environment

VI.A. Principles

See International Foundational Requirements, Section VI.A.

VI.B. Patient Safety

See International Foundational Requirements, Section VI.B.

VI.C. Quality Improvement

See International Foundational Requirements, Section VI.C.

VI.D. Supervision and Accountability

VI.D.1. Direct supervision of procedures performed by each fellow must occur until competence has been acquired and documented by the program director.

VI.E. Professionalism

See International Foundational Requirements, Section VI.E.

VI.F. Well-Being

See International Foundational Requirements, Section VI.F.

VI.G. Fatigue

See International Foundational Requirements, Section VI.G.

VI.H. Transitions of Care

See International Foundational Requirements, Section VI.H.

VI.I. Clinical Experience and Education

See International Foundational Requirements, Section VI.I.

VI.J. On-Call Activities

See International Foundational Requirements, Section VI.J.