

## **Program Requirements for Residency Education in Anesthesiology Critical Care Medicine**

In addition to complying with the Program Requirements for Residency Education in the Subspecialties of Anesthesiology, programs must comply with the following requirements, which in some cases exceed the common requirements.

### **I. SCOPE AND DURATION OF TRAINING**

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

Anesthesiology critical care medicine (ACCM) is a subspecialty of anesthesiology devoted to the acute and long-term care of critically ill patients with multiple organ system derangements.

#### **B. Duration of Training**

Subspecialty training in ACCM shall consist of 12 months of full-time training, beginning after satisfactory completion of a core anesthesiology residency program. At least nine of the twelve months of training in ACCM must be spent in the care of critically ill patients in intensive care units (ICUs). The remainder may be in clinical activities or research relevant to critical care.

#### **C. Objectives**

The subspecialty program in ACCM must be structured to provide resources necessary to assure optimal patient care while providing its trainees the opportunity to develop skills in clinical care and judgment, teaching, administration and research.

Exposure should be provided to a wide variety of clinical problems in adult and pediatric patients necessary for the development of broad clinical skills required for a subspecialist in CCM.

### **II. INSTITUTIONAL ORGANIZATION**

#### **A. Relationship to Core Program**

Accreditation of a subspecialty training program in ACCM will be granted only when the program is in direct association with a core residency program in anesthesiology accredited by the Accreditation Council for Graduate Medical Education (ACGME). Therefore, subspecialty training in ACCM can occur only in an institution in which there is an ACGME-accredited residency program in anesthesiology, or in an institution related by formal integration agreement to the core program.

If the subspecialty program is not conducted within the institution that sponsors the core residency program, there must be an integration agreement between the core program institution and the facility in which the ACCM program is conducted. Rotations outside the institution in which the ACCM program is based should not exceed four months. (Refer to the Program Requirements for Resident Education in Anesthesiology for the definitions governing affiliated and integrated institutions.)

The subspecialty program must function in conjunction with the core program in anesthesiology. The lines of responsibility between resident staffs in both the core program and the subspecialty program must be clearly delineated.

In addition, there must be ACGME-accredited core residencies in general surgery and internal medicine.

B. Institutional Policy: Resources

There should be an institutional policy governing the educational resources committed to critical care programs assuring cooperation of all involved disciplines. Where more than one critical care program exists in an institution, it will be the responsibility of the institution to coordinate interdisciplinary requirements.

III. Program Director/Faculty

A. Program Director

The program director of subspecialty training in ACCM must be an anesthesiologist who is certified in critical care medicine (CCM) by the American Board of Anesthesiology, or who possesses qualifications judged to be acceptable by the RRC. The subspecialty program director has responsibility for the teaching program in ACCM subject to the approval of the director of the core residency training program in anesthesiology.

B. Medical Director

The director of the critical care program must be the medical director or co-medical director of one or more of the critical care units in which the majority of the clinical training of the critical care program is required to take place, and s/he must be personally involved in clinical supervision and teaching of anesthesiology critical care residents in that unit.

C. Faculty

There must be evidence of active participation by qualified anesthesiologists with a continuous and meaningful role in the subspecialty training program. Faculty involved in teaching subspecialty trainees in ACCM must possess expertise in the care of critically ill patients. It is recognized that such expertise will often cross

specialty boundaries emphasizing the importance of collegial relationships and consultation between the CCM program director and faculty from other disciplines including, but not limited to, surgery and its subspecialties, internal medicine and its subspecialties, pediatrics, obstetrics and gynecology, pathology and radiology. Where appropriate, supervision and teaching by faculty in these disciplines should be integrated into the teaching program for subspecialty trainees in ACCM.

Anesthesiology faculty with expertise in critical care must be involved in teaching ACCM residents and these should equal two or more full-time equivalents. A ratio of one full-time equivalent faculty member to two subspecialty residents shall be maintained.

#### IV. FACILITIES AND RESOURCES

##### A. ICUs

Subspecialty training in ACCM will occur principally in areas of the hospital commonly characterized as ICUs. Such ICUs are capable of providing acute and long-term life support of patients with multiple organ system derangements. Examples of ICUs include, but are not limited to, multidiscipline, surgical, medical, neonatal and pediatric, high-risk pregnancy, neurosurgical, trauma and burn units. An ICU must be located in a designated area within the hospital and designed specifically for care of critically ill patients.

##### B. Patient Population

In order to provide sufficient range of exposure, an ICU that averages a census of at least five patients for each subspecialty trainee in ACCM is recommended.

##### C. Support Services

1. Adequate numbers of specially trained nurses plus technicians with expertise in biomedical engineering and respiratory therapy must be available.
2. There should be readily available, at all times, facilities to provide laboratory measurements pertinent to care of critically ill patients with multiple organ system derangements. These include, but are not limited to, measurement of blood chemistries, blood gases and pH, culture and sensitivity, toxicology, and analysis of plasma drug concentrations.
3. Facilities for special radiologic imaging procedures and echocardiography are essential.
4. Appropriate monitoring and life-support equipment must be readily available and representative of current levels of technology.

D. Library

Conveniently located library facilities, and space for research and teaching conferences in CCM are essential. There must be a departmental library with adequate material relevant to critical care. This may be supplemented but not replaced by private faculty book collections and hospital and institutional libraries.

E. Space

Space for research and teaching conferences in critical care must be available.

V. EDUCATIONAL PROGRAM

A. Clinical Components

The subspecialty trainee in ACCM must gain clinical experience in the following areas:

1. Airway maintenance and management
2. Mechanical ventilation
3. Devices which supply supplemental oxygen
4. Indications of and techniques for emergency and therapeutic treatment of conditions requiring thoracentesis and/or tube thoracotomy
5. Emergency and therapeutic fiberoptic Laryngotracheobronchoscopy
6. Assessment and evaluation of pulmonary function
7. Cardiopulmonary resuscitation. Residents must be certified in ACLS and ATLS prior to completion of their ACCM training. The program must provide access to this training
8. Placement and management of arterial, central venous and pulmonary arterial catheters
9. Emergency and therapeutic placement of pacemakers
10. Pharmacologic and mechanical support of circulation
11. Evaluation and management of central nervous system dysfunction
12. Recognition and treatment of hepatic and renal dysfunction
13. Diagnosis and treatment of sepsis

14. Fluid resuscitation and management of massive blood loss
15. Enteral and total parenteral nutrition
16. Bioengineering and monitoring
17. Interpretation of laboratory results
18. Psychiatric effects of critical illness
19. Transesophageal echocardiography (TEE)
20. Ethical aspects of critical care

B. Didactic Components

The teaching curriculum for the subspecialty trainee in ACCM must include the following areas:

1. Resuscitation
2. Cardiovascular physiology, pathology, pathophysiology and therapy
3. Respiratory physiology, pathology, pathophysiology and therapy
4. Renal physiology, pathology, pathophysiology and therapy
5. Central nervous system physiology, pathology, pathophysiology and therapy
6. Pain management of critically ill patients
7. Metabolic and endocrine effects of critical illness
8. Infectious disease physiology, pathology, pathophysiology and therapy
9. Hematologic disorders secondary to critical illness
10. Gastrointestinal, genitourinary, and obstetric-gynecologic acute disorders
11. Trauma, including burns
12. Monitoring, bioengineering, biostatistics
13. Life-threatening pediatric conditions
14. End of life care

15. Pharmacokinetics and dynamics; drug metabolism and excretion in critical illness
16. Transport of critically ill patients
17. Administrative and management principles and techniques
18. Medical Informatics
19. Cost effective care
20. Ethical and legal aspects
21. Effective interpersonal and communication skills with patients, family members, and other health care providers

C. Consultation

In preparation for roles as consultants to other specialists, the subspecialty trainee in ACCM must have the opportunity to provide consultation under the direction of faculty responsible for teaching in the ACCM program.

D. ICU Administration

Subspecialty trainees in ACCM should gain experience in the administration of an ICU as related to appointment and training of nonphysician personnel, establishment of policies regulating functioning of the ICU, and coordination of the activities of the ICU with other in-hospital units.

E. Conferences

Subspecialty conferences, including mortality and morbidity conferences, journal reviews and research seminars, must be regularly scheduled. Active participation of the subspecialty trainee in ACCM in the planning and production of these conferences is essential. Attendance at multidisciplinary conferences is encouraged, with particular attention given to those conferences relevant to CCM.

## VI. RESIDENT DUTY HOURS AND THE WORKING ENVIRONMENT

Providing residents with a sound academic and clinical education must be carefully planned and balanced with concerns for patient safety and resident well-being. Each program must ensure that the learning objectives of the program are not compromised by excessive reliance on residents to fulfill service obligations. Didactic and clinical education must have priority in the allotment of residents' time and energies. Duty hour assignments must recognize that faculty and residents collectively have responsibility for the safety and welfare of patients.

A. Supervision of Residents

1. All patient care must be supervised by qualified faculty. The program director must ensure, direct, and document adequate supervision of residents at all times. Residents must be provided with rapid, reliable systems for communicating with supervising faculty.
2. Faculty schedules must be structured to provide residents with continuous supervision and consultation.
3. Faculty and residents must be educated to recognize the signs of fatigue and adopt and apply policies to prevent and counteract the potential negative effects.

#### B. Duty Hours

1. Duty hours are defined as all clinical and academic activities related to the residency program, ie, patient care (both inpatient and outpatient), administrative duties related to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled academic activities such as conferences. Duty hours do not include reading and preparation time spent away from the duty site.
2. Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.
3. Residents must be provided with 1 day in 7 free from all educational and clinical responsibilities, averaged over a 4-week period, inclusive of call. One day is defined as one continuous 24-hour period free from all clinical, educational, and administrative activities.
4. A 10-hour time period for rest and personal activities must be provided between all daily duty periods, and after in-house call.

#### C. On-Call Activities

The objective of on-call activities is to provide residents with continuity of patient care experiences throughout a 24-hour period. In-house call is defined as those duty hours beyond the normal work day when residents are required to be immediately available in the assigned institution.

1. In-house call must occur no more frequently than every third night, averaged over a four-week period.
2. Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Residents may remain on duty for up to 6 additional hours to participate in didactic activities, maintain continuity of medical and surgical care, transfer care of patients, or conduct outpatient continuity clinics where they provide management for continuity patients. During the 6 additional hours, residents may not manage new admissions to the ICU.

As a general rule, the resident may not manage non-continuity patients in the 6 hours post-call.

3. No new patients may be accepted after 24 hours of continuous duty, except in outpatient continuity clinics. A new patient is defined as any patient for whom the resident has not previously provided care. A patient admitted to the ICU from surgery is considered a new patient.
4. At-home call (pager call) is defined as call taken from outside the assigned institution.
  - a) The frequency of at-home call is not subject to the every third night limitation. However, at-home call must not be so frequent as to preclude rest and reasonable personal time for each resident. Residents taking at-home call must be provided with 1 day in 7 completely free from all educational and clinical responsibilities, averaged over a 4-week period.
  - b) When residents are called into the hospital from home, the hours residents spend in-house are counted toward the 80-hour limit.
  - c) The program director and the faculty must monitor the demands of at-home call in their programs and make scheduling adjustments as necessary to mitigate excessive service demands and/or fatigue.

#### D. Moonlighting

1. Because residency education is a full-time endeavor, the program director must ensure that moonlighting does not interfere with the ability of the resident to achieve the goals and objectives of the educational program.
2. The program director must comply with the sponsoring institution's written policies and procedures regarding moonlighting, in compliance with the Institutional Requirements III. D.1.k.
3. Moonlighting that occurs within the residency program and/or the sponsoring institution or the non-hospital sponsor's primary clinical site(s), ie, internal moonlighting, must be counted toward the 80-hour weekly limit on duty hours.

#### E. Oversight

1. Each program must have written policies and procedures consistent with the Institutional and Program Requirements for resident duty hours and the working environment. These policies must be distributed to the residents and the faculty. Monitoring of duty hours is required with frequency sufficient to ensure an appropriate balance between education and service.

2. Back-up support systems must be provided when patient care responsibilities are unusually difficult or prolonged, or if unexpected circumstances create resident fatigue sufficient to jeopardize patient care.

## VII. SCHOLARLY ACTIVITY

(Refer to the Program Requirements for Residency Education in the Subspecialties of Anesthesiology for requirements concerning scholarly activity.)

## VIII. EVALUATION

Faculty responsible for teaching subspecialty trainees in ACCM must provide critical evaluations of each trainee's progress and competence to the director at the end of 6 months and 12 months of training. These evaluations should include intellectual abilities, manual skills, attitudes and interpersonal relationships, as well as specific tasks of patient management, decision-making skills and critical analysis of clinical situations. The subspecialty trainee in ACCM must achieve an overall satisfactory evaluation at twelve months to receive credit for training. There must be written feedback of these evaluations to the subspecialty trainee.

Written and confidential evaluation of CCM faculty performance by the resident must take place once a year.

Written evaluations of patient care and subspecialty training objectives are required annually.

## IX. Board Certification

One measure of the quality of a program is the record of its graduates in obtaining certification in critical care by the American Board of Anesthesiology. The RRC will consider this information as part of the overall evaluation of the program.

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