

ACGME International

Advanced Specialty Program Requirements for Graduate Medical Education in 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

Critical care medicine is <u>the internal medicine subspecialty that focuses on</u> 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.

Int. II. Duration of Education

Int. II.A. The educational program in critical care medicine must be 24 or 36 months in length.

I. Institution

I.A. Sponsoring Institution

- I.A.1. A fellowship in critical care medicine must function as an integral part of ACGME-I-accredited residency in internal medicine.
- I.A.2. Located at the primary clinical site, there should be at least three-ACGME-I-accredited subspecialty programs from among the followinginternal medicine disciplines: cardiovascular disease; gastroenterology; infectious diseases; nephrology; or pulmonary disease.
- I.A.3. The Sponsoring Institution should also sponsor an ACGME-Iaccredited residency program in general surgery.

I.B. Participating Sites

See International Foundational Requirements, Section I.B.

II. Program Personnel and Resources

II.A. Program Director

- II.A.1. The program director must be responsible for monitoring fellow stress, including mental or emotional conditions inhibiting performance or learning, and drug- or alcohol-related dysfunction.
- II.A.1.a) Situations that demand excessive service or that consistently Critical Care Medicine 2

	produce undesirable stress on fellows must be evaluated and modified.
II.A.1.b)	The program director should provide access to timely confidential counseling and psychological support services to fellows.
II.A.2.	The program director must:
II.A.2.a)	ensure that fellows' service responsibilities are limited to patients for whom the teaching service has diagnostic and therapeutic responsibility; and,
II.A.2.b)	participate in academic societies and in educational programs designed to enhance educational and administrative skills.
II.B.	Faculty
II.B.1.	In addition to the program director, each program must have at least two core faculty members.
II.B.1.a)	Core faculty members must be active clinicians with knowledge of, experience with, and commitment to critical care medicine as a discipline.
ll.B.1.b)	In addition to the responsibilities of all individual faculty members, the core faculty members and the program director must be responsible for the planning, implementation, monitoring, and evaluation of fellows' clinical and research education.
II.B.1.c)	At least one core faculty member must:
II.B.1.c).(1)	be knowledgeable in evaluation and assessment of the ACGME-I Competencies; and,
II.B.1.c).(2)	spend significant time in the evaluation of fellows, including direct observation of fellows with patients.
II.B.2.	Board-certified or equivalent clinical faculty members in cardiology, gastroenterology, hematology, infectious disease, nephrology, oncology, and pulmonary disease must participate in the education of fellows.
II.B.3.	Faculty members from anesthesiology, cardiovascular surgery, emergency medicine, neurology, neurological surgery, obstetrics and gynecology, orthopaedic surgery, surgery, thoracic surgery, urology, and vascular surgery should be available to participate in the education of fellows.
II.C.	Other Program Personnel
II.C.1.	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.	There must be space and equipment for the program, including meeting rooms, examination rooms, computers, visual and other educational aids, and work/study space. The program, in partnership with its Sponsoring Institution, must provide the broad range of facilities and clinical support services necessary to provide comprehensive and timely care of adult patients, including;
II.D.1.a)	an active emergency service;
II.D.1.b)	an active open-heart surgery program;
II.D.1.c)	critical care unit(s) located in a designated area within the hospital and constructed and designed specifically for the care of critically ill patients.
II.D.1.c).(1)	Whether operating in separate locations or in 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.1.c).(2)	There must be an average daily census of at least five patients per fellow during assignments to critical care units.
II.D.1.c).(3)	The MICU or its equivalent must <u>should</u> be at the primary clinical site and should be the focus of a teaching service.
II.D.1.d)	equipment, expertise, and personnel to provide both continuous and intermittent renal replacement therapy in the critical care units;
II.D.1.e)	equipment necessary to care for critically ill patients, <u>including</u> bronchoscopy equipment;
II.D.1.f)	nutritional support services; and,
II.D.1.g)	post-operative care and respiratory care services.
II.D.2.	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.
II.D.3.	Adequate facilities to support the educational program must be in place.
II.D.3.a)	The Sponsoring Institution must provide the broad range of facilities and clinical support services required to provide Critical Care Medicine 4

	comprehensive care of adult patients.
II.D.4.a)	Fellows must have access to a lounge facility during assigned duty hours.
II.D.4.b)	When fellows are in the hospital, assigned night duty, or called in from home, they must be provided with a secure space for their- belongings.
II.D.2.	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.3.	The following laboratory and diagnostic services must be available at the primary clinical site:
II.D.3.a)	timely bedside imaging services for patients in the critical care units, <u>including portable chest x-ray (CXR), bedside ultrasound, and echocardiogram;</u> and,
II.D.3.b)	computed tomography (CT) imaging, including CT angiography.
II.D.4.	A supporting laboratory that provides complete and prompt laboratory evaluation <u>must be available at the primary clinical site or at a participating site to allow reliable and timely return of laboratory test results.</u>
II.D.5.	Other services should be available, including anesthesiology, laboratory medicine, and radiology.
II.D.6.	Access to an electronic health record should be provided.
IV.D.6.	Patient Population
II.D.6.a)	The patient population must have a variety of clinical problems and stages of diseases.
III.D.7.a).(1)	Because critical care medicine is multidisciplinary in nature, 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.
III.D.7.b)	There must be patients of each gender, with a broad age range, including geriatric patients.
III.D.7.c)	A sufficient number of patients must be available to enable each- fellow to achieve the required educational outcomes.
III. Fellow A	ppointment

III.D. Eligibility Criteria

III.D.1.	To be eligible for appointment at the F1 level, fellows should have completed an ACGME-I-accredited residency program in emergency medicine or internal medicine, or an emergency medicine or internal medicine residency program acceptable to the Sponsoring Institution's Graduate Medical Education Committee.
III.D.1.a)	Fellows who have completed an emergency medicine program should have completed at least six months of direct patient care experience in internal medicine, of which at least three months must have been in a MICU.
III.D.2.	To be eligible for appointment at the F2 level, fellows must have completed a two- or three-year ACGME-I-accredited internal medicine subspecialty fellowship program, or an internal medicine subspecialty program acceptable to the Sponsoring Institution's Graduate Medical Education Committee.
III.D.2.a)	Fellows who are appointed at the F2 level will automatically satisfy the requirement for 12 months of elective experience or scholarly activity.
III.E.	Number of Fellows
	See International Foundational Requirements, Section III.B.
IV. Speci	alty-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) high standards of ethical behavior, including maintaining appropriate professional boundaries and relationships with other physicians and 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:
IV.A.1.b).(1).(a) <u>providing care in a variety of health care</u> <u>settings, including inpatient and various</u> Critical Care Medicine 6

	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; and,
IV.A.1.b).(1).(b)	using critical thinking and evidence-based tools; and,
IV.A.1.b).(1).(c)	using population-based data.
IV.A.1.b).(2)	Fellows must demonstrate competence in prevention, the evaluation and management of patients with:
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 diseases in the critical care unit;
IV.A.1.b).(2).(e)	circulatory failure;
IV.A.1.b).(2).(f)	end-of-life issues and palliative care;
IV.A.1.b).(2).(g)	hypertensive emergencies;
IV.A.1.b).(2).(h)	immunosuppressed conditions in the critical care unit;
IV.A.1.b).(2).(i)	metabolic, nutritional, and endocrine effects of critical illness, <u>and,</u> hematologic, and coagulation disorders associated with critical illness;
IV.A.1.b).(2).(j)	multi-organ system failure;
IV.A.1.b).(2).(k)	peri-operative critical illnesses, including those requiring hemodynamic and ventilatory support;
IV.A.1.b).(2).(I)	renal disorders in the critical care unit, including electrolyte and acid-base disturbance and acute renal failure;
IV.A.1.b).(2).(m)	respiratory failure, including acute respiratory distress syndrome, acute and chronic respiratory failure in obstructive lung diseases, and neuromuscular respiratory drive disorders;
IV.A.1.b).(2).(n)	sepsis and sepsis syndrome; and,

IV.A.1.b).(2).(o)	severe organ dysfunction resulting in critical illness, including:
IV.A.1.b).(2).(o).(i)	disorders of the endocrine, gastrointestinal, hematologic, immune, musculoskeletal, and neurologic systems, as well as infections and malignancies; and,
IV.A.1.b).(2).(o).(ii)	shock syndromes.
IV.A.1.b).(3)	Fellows must be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice including
IV.A.1.b).(3).(a)	performing diagnostic and therapeutic procedures relevant to their specific career path, including;
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)	insertion of arterial, central venous, and pulmonary artery balloon flotation catheters;
IV.A.1.b).(3).(a).(v)	operation of bedside hemodynamic monitoring systems;
IV.A.1.b).(3).(a).(iv).(a)	Each fellow must perform a- minimum of 50 such-procedures.
IV.A.1.b).(3).(a).(vi)	use <u>placement and management</u> of chest tubes and <u>pleural</u> drainage systems;
IV.A.1.b).(3).(a).(vii)	use of ultrasound techniques to perform thoracentesis and place intravascular and intracavitary tubes and catheters; and, technical and procedural skills of 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;
IV.A.1.b).(3).(a).(viii)	therapeutic flexible fiber-optic bronchoscopy procedures limited to indications for therapeutic removal of airway secretions, diagnostic aspiration of airway secretions or lavaged fluid, or Critical Care Medicine 8

	airway management;
IV.A.1.b).(3).(a).(ix)	use of a variety of positive pressure ventilatory modes, to include:
IV.A.1.b).(3).(a).(ix).(a)	initiation, maintenance, and weaning off of ventilatory support;
IV.A.1.b).(3).(a).(ix).(b)	respiratory care techniques; and,
IV.A.1.b).(3).(a).(ix).(c)	withdrawal of mechanical ventilatory support.
IV.A.1.b).(3).(a).(x)	use of reservoir masks and continuous positive airway pressure masks for delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry; and,
IV.A.1.b).(3).(a).(xi)	use of transcutaneous pacemakers.
IV.A.1.b).(3).(b)	treating their patient's conditions with practices that are patient-centered, safe, scientifically based, effective, timely and cost-effective; including use of,
IV.A.1.b).(3).(b).(i)	nutritional support; and,
IV.A.1.b).(3).(b).(ii)	paralytic agents and sedative and analgesic drugs in the critical care unit.
IV.A.1. b).(3).(c)	using diagnostic and/or imaging studies relevant to the care of the patient, including
IV.A.1.b).(3).(c).(i)	interpretation of data derived from various bedside devices commonly employed to monitor patients; and,
IV.A.1.b).(3).(c).(ii)	interpretation of intracranial pressure monitoring.
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 basic sciences, with particular emphasis on biochemistry and physiology, including cell and molecular biology and immunology, as they relate to
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	critical care medicine;
IV.A.1.c).(1).(c)	the ethical, economic, and legal aspects of critical illness;
IV.A.1.c).(1).(d)	the psychosocial and emotional effects of critical illness on patients and their families;
IV.A.1.c).(1).(e)	the recognition and management of patients critically ill from disasters, including those caused by chemical and biological agent inhalation and trauma;
IV.A.1.c).(1).(f)	detection and prevention of iatrogenic and nosocomial problems in critical care medicine; and,
IV.A.1.c).(1).(g)	monitoring and supervising special services, including <u>respiratory care units</u> , and respiratory care techniques and services.
IV.A.1.c).(2).	Fellows must demonstrate knowledge of the indications, contraindications, and complications of placement of arterial, central venous, and pulmonary artery balloon flotation catheters.
IV.A.1.c).(3).	Fellows must demonstrate sufficient knowledge specific to the subspecialty of critical care medicine including:
IV.A.1.c).(3).(a)	application of technology appropriate for the clinical context, including evolving technologies;
IV.A.1.c).(3).(b)	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.c).(3).(b).(i).	imaging techniques commonly employed in the evaluation of patients with critical illness, including <u>technical and procedural</u> <u>use of ultrasound, and interpretation of</u> <u>ultrasound images at the point of care for</u> <u>medical decision making ultrasound; and,</u>
IV.A.1.c).(3).(b).(ii).	pericardiocentesis
IV.A.1.c).(3).(b).(iii)	placement of percutaneous tracheostomies; and,
IV.A.1.c).(1).(a).(iii)	screening tests and procedures; and,
IV.A.1.c).(3).(b).(iv)	renal replacement therapy.
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IV.A.1.c).(3).(c)	pharmacotherapeutic and non-pharmacotherapeutic treatment of the broad spectrum of medical conditions and clinical disorders, including;
IV.A.1.c).(3).(c)	(i) pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness; and,
IV.A.1.c).(3).(c)	.(ii) the use of paralytic agents and sedative and analgesic drugs in the critical care unit.
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 develop skills and habits to meet the following goal:
IV.A.1.d).(1).(a)	obtain procedure-specific informed consent by competently educating patients about rationale, technique, 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, their 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. Fellows must:
IV.A.1.f).(1).(a)	participate in quality improvement and patient safety- activities in the intensive care unit (ICU); and,
IV.A.1.f).(1).(a)	acquire skills required to organize, administer, and direct a critical care unit.
IV.B. F	Regularly Scheduled Educational Activities
IV.B.1.	The core curriculum <u>educational program</u> must include a d idactic program <u>instruction</u> based on the core knowledge content in the subspecialty area.
IV.B.1.a)	The program must <u>ensure that</u> afford each fellows have Critical Care Medicine 11

an opportunity to review topics <u>all knowledge content</u> covered in from conferences that the fellow was unable to they could not attend.

IV.B.2.	Fellows must have a sufficient number of didactic sessions to ensure fellow-fellow and fellow-and-faculty interaction.
IV.B.3.	Fellows must participate in clinical case conferences, journal clubs, research conferences, and morbidity and mortality or quality improvement conferences.
IV.B.4.	All core conferences must have at least one faculty member present and must be scheduled to ensure peer-peer and peer-faculty member interaction.
Ⅳ.B.5.	Patient-based teaching must include direct interaction between- fellows and faculty members, bedside teaching, discussion of- pathophysiology, and the use of current evidence in diagnostic and- therapeutic decisions.
IV.B.6.	Patient-based teaching must be conducted:
IV.B.6.c)	formally conducted on all inpatient, outpatient, and consultative services; and,
IV.B.6.d)	conducted with a frequency and duration that ensures a- meaningful and continuous teaching relationship between the assigned supervising faculty member(s) and fellows.
₩.Β.7.	Fellows must receive instruction in practice management relevant to critical care medicine.
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 guality 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 to manage adult patients with a wide variety of serious illnesses and injuries requiring treatment in a critical care setting.
- IV.C.4.a) A minimum of 12 months must be devoted to clinical experiences.

IV.C.4.b)	At least six months must be devoted to the care of critically ill medical patients (i.e., MICU/CICU or equivalent).
IV.C.4.b).(1)	This experience may be reduced up to three months by equivalent (month for month) ICU experience completed during a previous two- or three-year ACGME- or ACGME-I- accredited internal medicine subspecialty fellowship program.
IV.C.4.c)	At least three months must be devoted to the care of critically ill non-medical patients.
IV.C.4.c).(1)	This experience should consist of at least one month of direct patient care activity, with the remainder being fulfilled with either consultative activities or with direct care of such patients.
IV.C.4.d)	At least 12 additional months must be devoted to appropriate <u>clinical or</u> elective experiences or scholarly activity.
IV.C.5.	Fellows must be informed of the clinical outcomes of their patients who are discharged from the critical care units.
IV.C.6.	Fellows must have clinical experience in the evaluation and management of patients:
IV.C.6.a)	after discharge from the critical care unit;
IV.C.6.b)	with critical obstetric and gynecologic disorders
IV.C.6.c)	with neurosurgical emergencies; and,
IV.C.6.e)	with trauma.
IV.C.7.	Procedures and Technical Skills Fellows should must have clinical experience in the placement of managing patients with percutaneous tracheostomies, including their specific complications.
IV.C.1.h).(1)	Faculty members must teach and supervise the fellows in the performance and interpretation of procedures.
IV.C.1.h).(1)	Procedures must be documented in each fellow's- record, giving indications, outcomes, diagnoses, and- supervisor(s).
IV.C.8.	Fellows must have experience in the role of critical care medicine consultant in the inpatient setting.
IV.C.9.	The program must provide educational experiences in team-based care that allow fellows to interact with and learn from other health care professionals
IV.C.10.	The educational program must provide fellows with elective experiences
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relevant to their future practice or to further skill/competence development

IV.C.11. Fellows should participate in training using simulation.

IV.D. Scholarly Activity

- IV.D.1. Fellows' Scholarly Activity
- IV.D.1.a)
 While in the program all fellows must engage in at least one of the following scholarly activities: participation in grand rounds, posters, 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 serving as a journal reviewer, journal editorial board member, or editor.
- IV.A.2. Faculty Scholarly Activity

See International Foundational Requirements, Section IV.D.2.

IV. Evaluation

See International Foundational Requirements, Section V.

V. The Learning and Working Environment

V.A. Principles

See International Foundational Requirements, Section VI.A.

V.B. Patient Safety

See International Foundational Requirements, Section VI.B.

V.C. Quality Improvement

See International Foundational Requirements, Section VI.C.

V.D. Supervision and Accountability

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

V.E. Professionalism

See International Foundational Requirements, Section VI.E.

V.F. Well-Being

See International Foundational Requirements, Section VI.F.

V.G. Fatigue

See International Foundational Requirements, Section VI.G.

V.H. Transitions of Care

See International Foundational Requirements, Section VI.H.

V.I. Clinical Experience and Education

See International Foundational Requirements, Section VI.I.

V.J. On-Call Activities

See International Foundational Requirements, Section VI.J.