Critical care medicine

Background

Critical care specialists—also called intensivists—are qualified to diagnose and manage the care of critical care unit (CCU) or ICU patients who have acute, life-threatening illnesses or injuries (e.g., heart attack, poisoning, pneumonia, surgical complications, premature birth, or stroke). Other types of trauma that may require the care or services of a critical care specialist include automobile or industrial accidents, gunshot or stab wounds, falls, and burns.

CCUs were established in hospitals based on the premise that acutely ill patients have a better chance of survival if constant care is provided by highly trained physicians in areas of the hospital specifically designated for such cases. In addition to CCUs and ICUs, critical care medicine may be administered in medical ICUs (MICU), surgical ICUs (SICU), pediatric ICUs, coronary care units, and burn units.

Critical care medicine specialists work closely with critical care nurses, respiratory therapists, critical care pharmacists/pharmacologists, and other allied health professionals (e.g., physical/occupational therapists, technicians, social workers, and dietitians) to provide their patients with ongoing and consistent care.

Because the treatments or procedures for critically ill patients are often complex and invasive, these patients face a higher risk of complications. As a result, hospitals should exercise caution when developing privileging criteria for critical care medicine specialists.

According to the Society of Critical Care Medicine (SCCM), critical care medicine subspecialists are first board-certified in a medical specialty, such as internal medicine or anesthesiology, and then receive special education, training, and subspecialty board certification in critical care medicine. A fellowship in critical care medicine is typically 12 or 24 months in duration, depending on the level and type of previous training and the requirements of the specific certifying board. Subspecialty certification in critical care medicine is available through theesthesiology, emergency medicine, internal medicine, and OB-GYN American Board of Medical Specialty (ABMS) boards. The American Osteopathic Association (AOA) also offers a certificate of added qualifications in critical care medicine to eligible, board-certified internists and anesthesiologists.

For more information, please see the following related Clinical Privilege White Papers:
• Anesthesiology—Practice area 125
• Emergency medicine—Practice area 133
• Internal medicine—Practice area 135
• Obstetrics and gynecology—Practice area 147
• Pediatric critical care medicine—Practice area 414
• Surgical critical care—Practice area 128

Involved specialties

Critical care medicine physicians (intensivists)

Positions of specialty boards

ABIM

The American Board of Internal Medicine (ABIM) and the American Board of Emergency Medicine (ABEM) jointly developed a critical care medicine certification program. The examination is administered to candidates from both boards at the same time in the same testing centers; ABIM is responsible for its administration.

To become certified in the subspecialty of critical care medicine through the ABIM (see the next section for ABEM-specific requirements), physicians must:
• At the time of application, be previously certified in internal medicine by ABIM
• Satisfactorily complete the requisite formal training requirements of Pathway A, B, or C as specified below
• Demonstrate clinical competence, procedural skills, and moral and ethical behavior in the clinical setting
• Hold a valid, unrestricted, and unchallenged license to practice medicine
• Pass the critical care medicine certification examination

Diplomates may apply for admission to the critical care medicine examination under one of three training pathways: Pathway A, Pathway B, or Pathway C.

ABIM specifies the following requirements for Pathway A:
• Two years of accredited fellowship training in a subspecialty of internal medicine (three years for cardiovascular disease and gastroenterology), including the care of patients in CCUs
• Certification by ABIM in the subspecialty
• One year of accredited clinical fellowship training in critical care medicine within the department of medicine

ABIM diplomates who are also certified in neurology by the American Board of Psychiatry and Neurology may apply through Pathway A, provided that the neurology training included the care of patients in CCUs and the additional year of accredited critical care medicine fellowship training is sponsored by a department of internal medicine.
ABIM specifies the following requirements for Pathway B:
• Two years of accredited fellowship training in critical care medicine (including 12 months of full-time clinical training) within the department of medicine

ABIM specifies the following requirements for Pathway C:
• Two years of fellowship training in advanced general internal medicine that includes at least six months of critical care medicine
• One year of accredited fellowship training in critical care medicine within the department of medicine

Candidates seeking dual certification in pulmonary disease and critical care medicine must complete a minimum of three years of accredited combined training, 18 months of which must be clinical training.

**ABEM**

The ABEM offers certification in the subspecialty of internal medicine–critical care medicine (IM-CCM) to diplomates of the ABEM who fulfill the eligibility criteria and pass the IM-CCM certification examination. As previously mentioned, ABEM cosponsors this subspecialty with the ABIM.

General criteria for ABEM diplomates to be eligible for certification in IM-CCM include the following:
• The diplomate must meet the requirements of the ABEM Maintenance of Certification program
• Medical licensure must be in compliance with the ABEM Policy on Medical Licensure
• The diplomate must fulfill the eligibility criteria of the pathway (training or practice) through which he or she applies, as defined below
• ABEM must be able to obtain independent verification of clinical competence in critical care medicine; successful completion of IM-CCM fellowship training; and, if the physician applies via the practice pathway, the physician’s practice of critical care medicine

There are two application pathways for certification in IM-CCM: an Accreditation Council for Graduate Medical Education (ACGME)–accredited fellowship pathway (training pathway) and a practice pathway.

The training pathway requires successful completion of an ACGME-accredited IM-CCM fellowship on or after September 21, 2011, that is a minimum of 24 months duration.

The practice application pathway requires both the completion of a 24-month critical care medicine fellowship and the practice of critical care medicine, as follows:
- The applicant must have successfully completed one of the following critical care fellowships of at least 24 months duration:
  - An ACGME-accredited IM-CCM fellowship completed before September 21, 2011
  - An unaccredited IM-CCM fellowship that subsequently became ACGME accredited on or before December 31, 1992
  - An ACGME-accredited fellowship in another critical care specialty (e.g., surgical critical care or anesthesiology critical care)
- For at least three, not necessarily contiguous, years of the five years prior to submitting an application for certification in IM-CCM, including the 12 months immediately prior to submitting an application, the applicant must have completed one of the following:
  - 40% of his or her post-training clinical practice time in the practice of critical care medicine
  - 25% of his or her total post-training professional time in the practice of critical care medicine

**ABA**

The American Board of Anesthesiology (ABA) awards subspecialty certification only to qualified ABA diplomates who do not hold a valid certificate in the same subspecialty from another ABMS member board. To become certified in the subspecialty of critical care medicine through the ABA, candidates must:

- Be a diplomate of the ABA.
- Hold a permanent, unconditional, unrestricted, and unexpired license to practice medicine or osteopathy in at least one state or jurisdiction of the United States or province of Canada.
- Have fulfilled the ABA subspecialty training requirement, consisting of 12 months of full-time training in an ACGME-accredited critical care program. The ABA grants a fellow credit toward its subspecialty training requirements in two successive six-month increments, each of which ends with a satisfactory Certificate of Clinical Competence.
- Have satisfied the subspecialty examination requirement as defined by the ABA.
- Have a professional standing satisfactory to the ABA.
- Be capable of independently performing the entire scope of subspecialty practice without accommodation or with reasonable accommodation.

**ABOG**

In order to recognize those obstetricians/gynecologists who, through education and examination, have demonstrated added knowledge and skill in the care of critically ill patients, the American Board of Obstetrics and Gynecology (ABOG) issues certificates in the specialty of OB-GYN with added qualification in critical care. To be eligible for subspecialty certification through the ABOG, fellows must satisfactorily complete a course of education in critical care of no less than 12 months in duration. This education must be in a program fulfilling the
requirements of the American Board of Surgery (ABS) for surgical critical care or the ABA for critical care medicine (see above).

In order to be approved for the examination in surgical critical care administered by the ABS or the examination in critical care medicine administered by the ABA, the following guidelines must be met:

- The candidate must have been registered for and completed a 12-month ABA or ABS critical care fellowship accredited by the ACGME
- The candidate must be a diplomate of the ABOG in good standing at the time of application and must be current in the Maintenance of Certification process, if applicable
- The examination may be taken after completion of the fellowship in critical care contingent upon availability and eligibility by either the ABS or the ABA, but the examination must be administered by the board that approved the fellowship program where the candidate received education
- Application for certification in critical care must be made at least 90 days prior to the date of the examination
- Before the application for certification can be approved, the ABOG must receive an affidavit from the program director of the critical care fellowship program attesting to the candidate’s satisfactory completion of the program
- A statement of successful completion of the examination administered by the ABS or the ABA must be received by the ABOG before the ABOG can administer a certificate of added qualification in critical care

**AOBIM**

The American Osteopathic Board of Internal Medicine (AOBIM) offers certification of added qualifications for internists who have been certified by the AOA, through the AOBIM, in internal medicine and have completed training in the care of the critically ill patient. An applicant may be approved for examination by meeting one of these three training requirements:

- Certification by the AOA in internal medicine and two years of AOA-approved training in critical care medicine
- Certification by the AOA in internal medicine and the subspecialty and one of the following AOA-approved fellowship training pathways:
  - Three years of subspecialty training in cardiology or two years of subspecialty training in pulmonary disease, nephrology, or infectious disease followed by one year of training in critical care medicine.
  - Three years of combined training in infectious disease/critical care medicine, nephrology/critical care medicine, or pulmonary disease/critical care medicine. At least 12 of the 36 months of training must include a full-time commitment in an ICU.
- Certification in internal medicine, five years of training in a combined emergency medicine/internal medicine residency program, and one year of fellowship training in critical care medicine
Physicians who demonstrate both satisfactory completion of training and successful performance on a comprehensive, one-day examination will receive a certificate of added qualifications in critical care medicine by the AOBIM.

**AOBA**

The minimum requirements to be eligible to receive certification of added qualification in critical care medicine through the American Osteopathic Board of Anesthesiology (AOBA) are as follows:

- Active certification by the AOA through the AOBA.
- A diplomate with one or more years of formal training in critical care medicine, acceptable to the AOBA, should have practiced as a specialist in critical care medicine for a minimum of one year before applying to take the examination.
- Following satisfactory compliance with the prescribed requirements for examination, the diplomate is required to pass a written examination administered by the AOBA. The examination is to evaluate the diplomate’s understanding of the scientific basis of the problems involved in critical care medicine, familiarity with current advances in critical care medicine, possession of sound judgment, and degree of skill in the diagnostic and therapeutic procedures involved in the practice of critical care.

**Positions of societies, academies, colleges, and associations**

**SCCM**

The SCCM, in conjunction with the American College of Critical Care Medicine (the consultative body of the SCCM), publishes *Guidelines for Critical Care Medicine Training and Continuing Medical Education*. The guidelines state that upon completion of the subspecialty training program in critical care medicine, each physician must be able to perform the following tasks (note that this is not an exhaustive list):

- Identify the needs of and provide care for all critically ill patients
- Provide resuscitation, including advanced techniques, to any patients sustaining a life-threatening event
- Initiate critical care to stabilize and manage patients who require transport to another facility for a higher level of critical care support
- Initiate and manage the use of mechanical ventilators, and wean patients from mechanical ventilators using a variety of techniques
- Instruct other qualified caregivers and the public in the theory and techniques of cardiopulmonary resuscitation
- Treat cardiogenic, traumatic, hypovolemic, and distributive shock using conventional and state-of-the-art approaches
- Recognize the potential for multiple organ failure and institute measures to avoid or reverse this syndrome
• Identify life-threatening electrolyte and acid-base disturbances, provide treatment, and monitor the outcome
• Diagnose malnutrition, and use and monitor advanced nutrition support methodologies
• Diagnose common and uncommon poisonings and provide all necessary treatment
• Instruct other practitioners in the appropriate use and monitoring of conscious and deep sedation, and use advanced pain management strategies
• Select, place, and use appropriate invasive and noninvasive monitors for titrating therapy in any critically ill patient
• Prioritize complex data to support an action plan
• Use and help enforce advanced methods of infection control
• Follow medication safe practice guidelines and determine cost-effectiveness of therapeutic interventions
• Support and increase the skills of ICU nurses and ancillary personnel in caring for critically ill patients by acting as the ICU team leader

The same document includes the following list of core procedural skills for residents:

• Airway management
  - Maintenance of an open airway in the non-intubated patient
  - Bag-mask ventilation
  - Tracheal intubation
  - Management of pneumothorax
• Circulation
  - Arterial puncture and cannulation
  - Insertion of central venous catheters
  - Pericardiocentesis in acute tamponade
  - Dynamic electrocardiogram interpretation
  - Cardioversion and defibrillation
  - Pulmonary artery catheterization
  - Transcutaneous pacing
  - Electrocardiographic monitoring
• Additional procedures
  - Thoracentesis
  - Paracentesis
  - Endoscopy
  - Bronchoscopy

The SCCM also publishes Guidelines for Granting Privileges for the Performance of Procedures in Critically Ill Patients. In this document, the SCCM suggests that the credentialing process should have three components: identification of procedures, delineation of specific standards, and a credentialing mechanism at each institution for implementing the standards.
Privileges to perform procedures should be obtained by one or more of the following pathways:

- **Training pathway:** Applicants may develop the appropriate cognitive and psychomotor skills for one or more procedures during postgraduate training or through approved CME programs. Evidence of performance proficiency must accompany any documentation of training when applying for privileges. This generally takes the form of a letter(s) from appropriate individual(s), certificates, or other forms of documentation.

- **Practice pathway:** Appropriate cognitive and psychomotor skills for one or more procedures may be inferred from credentials granted at other institutions plus evidence of proficiency. Documentation of this type might include letters from other institutions plus proof of procedure performance frequency and an acceptable complication rate as compared to established standards of practice.

- **Examination pathway:** Applicants unable to satisfy either the training or practice pathway requirements may obtain privileges after satisfactory formal demonstration of the cognitive and psychomotor skills necessary for the safe performance of each procedure. Cognitive skills may be assessed by written and/or oral examination. Psychomotor skills should be observed by one or more individuals with demonstrated competence in the procedure(s) being evaluated.

Privileges for procedures should be reviewed and renewed at regular intervals, and privileges should be denied if the applicant fails to satisfy the requirements listed above.

According to the SCCM, the following procedures have been identified as high risk, high volume, and problem prone; they are commonly performed by the intensivist in the critically ill patient:

- Arterial cannulation, percutaneous
- Central venous cannulation, all routes
- Pulmonary artery catheterization
- Temporary transvenous pacemaker placement
- Cardioversion/defibrillation
- Airway intubation
- Tube thoracostomy
- Fiber-optic bronchoscopy, therapeutic
- Gastroesophageal balloon tamponade
- Pericardiocentesis
- Percutaneous tracheostomy/cricothyrotomy tube placement (Seldinger technique)
- Diagnostic peritoneal lavage
- Peritoneal dialysis catheter placement
- Mechanical ventilation
- Continuous arteriovenous hemofiltration and dialysis
ACGME

For physicians who have completed an ACGME-accredited internal medicine or emergency medicine program or at least three years of internal medicine education prior to starting a critical care fellowship, the ACGME publishes its *Program Requirements for Graduate Medical Education in Critical Care Medicine*. Here, the ACGME states that the purpose of critical care medicine fellowships is to provide advanced education to allow a fellow to acquire competency in the subspecialty with sufficient expertise to act as a primary intensivist or independent consultant. The educational program in critical care medicine must be 24 months in length.

With regard to 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 competence in 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. Fellows must demonstrate competence in the prevention, evaluation, and management of patients with:

- Acute lung injury, including radiation, inhalation, and trauma
- Acute metabolic disturbances, including overdosages and intoxication syndromes
- Anaphylaxis and acute allergic reactions in the CCU
- Cardiovascular diseases in the CCU
- Circulatory failure
- End-of-life issues and palliative care
- Hypertensive emergencies
- Immunosuppressed conditions in the CCU
- Metabolic, nutritional, and endocrine effects of critical illness, and hematologic and coagulation disorders associated with critical illness
- Multiple organ failure
- Critical illness in perioperative patients, including hemodynamic and ventilatory support
- Renal disorders in the CCU, including electrolyte and acid-base disturbance and acute renal failure
- Respiratory failure, including acute respiratory distress syndrome, acute and chronic respiratory failure in obstructive lung diseases, and neuromuscular respiratory drive disorders
- Sepsis and sepsis syndrome
- 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
- Shock syndromes

Fellows must also demonstrate competence in interpreting data derived from various bedside devices commonly employed to monitor patients, in addition to competence in the following procedural and technical skills:

- Airway management
The use of a variety of positive pressure ventilatory modes, including:
- Initiation and maintenance of, and weaning off of, ventilatory support
- Respiratory care techniques
- Withdrawal of mechanical ventilatory support

The use of reservoir masks and continuous positive airway pressure masks for delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry

Therapeutic flexible fiber-optic bronchoscopy procedures limited to indications for therapeutic removal of airway secretions, diagnostic aspiration of airway secretions or lavaged fluid, or airway management (each fellow must perform a minimum of 50 such procedures)

Diagnostic and therapeutic procedures, including paracentesis, lumbar puncture, thoracentesis, endotracheal intubation, and related procedures

Use of chest tubes and drainage systems

Insertion of arterial, central venous, and pulmonary artery balloon flotation catheters

Operation of bedside hemodynamic monitoring systems

Emergency cardioversion

Interpretation of intracranial pressure monitoring

Nutritional support

Use of ultrasound techniques to perform thoracentesis and place intravascular and intracavitary tubes and catheters

Use of transcutaneous pacemakers

With regard to 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 also demonstrate knowledge of the scientific method of problem solving and evidence-based decision-making, in addition to knowledge of indications, contraindications, limitations, complications, techniques, and interpretation of results of those diagnostic and therapeutic procedures integral to the discipline, including:

- Pericardiocentesis
- Placement of percutaneous tracheostomies
- Imaging techniques commonly employed in the evaluation of patients with critical illness, including the use of ultrasound
- Screening tests and procedures
- Renal replacement therapy

Additionally, fellows must demonstrate medical knowledge of:

- The basic sciences, with particular emphasis on biochemistry and physiology, including cell and molecular biology and immunology, as they relate to critical care medicine
- The ethical, economic, and legal aspects of critical illness
- The psychosocial and emotional effects of critical illness on patients and their families
- The recognition and management of critical illness caused by disasters,
Critical care medicine

including trauma and inhalation of chemical and biological agents
- The use of paralytic agents and sedative and analgesic drugs in the CCU
- Detection and prevention of iatrogenic and nosocomial problems in critical care medicine
- Monitoring and supervision of special services, including:
  - Respiratory care units
  - Respiratory care techniques and services
  - Pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness

During the fellowship, a minimum of 12 months must be devoted to clinical experiences, including a minimum of six months devoted to the care of critically ill medical patients (i.e., MICU/CCU or equivalent) and at least three months devoted to the care of critically ill nonmedical patients. The remaining 12 months must be devoted to appropriate elective experiences or scholarly activity. Fellows must participate in training using simulation, must be informed of the clinical outcomes of their patients who are discharged from the CCU, and must have clinical experience in the evaluation and management of patients:
- With trauma
- With neurosurgical emergencies
- With critical obstetric and gynecologic disorders
- After discharge from the CCU

With regard to specific procedures and technical skills, it is suggested that fellows have clinical experience in the placement of percutaneous tracheostomies, and fellows must have experience acting as a critical care medicine consultant in the inpatient setting.

For physicians who wish to fulfill the ABA requirements for subspecialty training in critical care medicine, the ACGME publishes its *Program Requirements for Graduate Medical Education in Anesthesiology Critical Care Medicine*. Here, the ACGME states that subspecialty training in anesthesiology critical care medicine shall consist of 12 months of full-time training, beginning after satisfactory completion of a core anesthesiology residency program. At least nine of the 12 months of training in anesthesiology critical care medicine must be spent in the care of critically ill patients in ICUs. The remainder may be in clinical activities or research relevant to critical care.

During the anesthesiology critical care fellowship, each fellow must gain clinical experience in the following areas:
- Airway maintenance and management
- Mechanical ventilation
- Devices that supply supplemental oxygen
- Indications of and techniques for emergency and therapeutic treatment of conditions requiring thoracentesis and/or tube thoracotomy
- Emergency and therapeutic fiber-optic laryngotracheobronchoscopy
- Assessment and evaluation of pulmonary function
- Cardiopulmonary resuscitation
- Placement and management of arterial, central venous, and pulmonary arterial catheters
- Emergency and therapeutic placement of pacemakers
- Pharmacologic and mechanical support of circulation
- Evaluation and management of central nervous system dysfunction
- Recognition and treatment of hepatic and renal dysfunction
- Diagnosis and treatment of sepsis
- Fluid resuscitation and management of massive blood loss
- Enteral and total parenteral nutrition
- Bioengineering and monitoring
- Interpretation of laboratory results
- Psychiatric effects of critical illness
- Transesophageal echocardiography
- Ethical aspects of critical care

Additionally, the teaching curriculum must include the following areas:
- Resuscitation
- Cardiovascular physiology, pathology, pathophysiology, and therapy
- Respiratory physiology, pathology, pathophysiology, and therapy
- Renal physiology, pathology, pathophysiology, and therapy
- Central nervous system physiology, pathology, pathophysiology, and therapy
- Pain management of critically ill patients
- Metabolic and endocrine effects of critical illness
- Infectious disease physiology, pathology, pathophysiology, and therapy
- Hematologic disorders secondary to critical illness
- Gastrointestinal, genitourinary, and OB-GYN acute disorders
- Trauma, including burns
- Monitoring, bioengineering, and biostatistics
- Life-threatening pediatric conditions
- End-of-life care
- Pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness
- Transport of critically ill patients
- Administrative and management principles and techniques
- Medical informatics
- Cost-effective care
- Ethical and legal aspects
- Effective interpersonal and communication skills with patients, family members, and other healthcare providers

AOA

The AOA, along with the American College of Osteopathic Internists, publishes its Specific Basic Standards for Osteopathic Fellowship Training in
Critical Care Medicine. In this document, the AOA states that the critical care fellowship must be 24 months in duration after completion of an internal medicine residency or after any medicine subspecialty fellowship except cardiology, pulmonology, or nephrology. The critical care fellowship must be 12 months in duration after completion of a cardiology, pulmonology, or nephrology fellowship, or a combined emergency medicine/internal medicine residency. All programs must provide opportunities for fellows to acquire those skills needed to direct a CCU and to work effectively as a member of a multidisciplinary team.

With regard to medical knowledge, the critical care fellow must have learning activities in:

- Physiology, pathophysiology, diagnosis, and treatment of critical disorders of the cardiovascular, respiratory, renal, gastrointestinal, genitourinary, neurologic, endocrine, hematologic, musculoskeletal, and immune systems and of infectious diseases
- Physiology, pathophysiology, diagnosis, and treatment of electrolyte and acid-base disorders
- Metabolic, nutritional, and endocrine effects of critical illnesses
- Hematologic and coagulation disorders associated with critical illnesses
- Critical OB-GYN disorders
- Management of the immunosuppressed patient
- Management of anaphylaxis and acute allergic reactions
- Trauma
- Drug metabolism and excretion in critical illness
- The use of paralytic agents
- Ethical, economic, and legal aspects of critical illness
- Psychosocial and emotional effects of critical illness on patients and their families
- Iatrogenic and nosocomial problems in critical care medicine
- Occupational Safety and Health Administration regulations and universal precautions for protection of healthcare workers

With regard to patient care, fellows must have training and experience in the following:

- Evaluation of oliguria
- Management of massive transfusions
- Management of hemostatic defects
- Management of parenteral and enteral nutrition
- Interpretation of antibiotic levels and sensitivities
- Pharmacokinetics

With regard to rotational curriculum, fellows in one-year critical care medicine programs must have at least six months of training in medical and cardiac ICUs under the direct supervision of the program director or a designee. Additional training must be provided in dialysis techniques and in medical emergencies.
that occur in endocrinology, gastroenterology, hematology, oncology, infectious diseases, and neurology. Fellows must also have a rotation that will allow them to care for patients that have had open-heart surgery. In two-year critical care programs, the fellow must spend at least six months of each year in medical and cardiac ICUs under the supervision of the program director or a designee. During the first year of training, specific rotations in endotracheal intubation techniques, mechanical ventilatory support, central venous access techniques, hemodynamic monitoring, and support and management of acute renal failure are required.

Critical care fellows must also become competent in the following procedures:

- Establishment and maintenance of an open airway in non-intubated, unconscious, paralyzed adults
- Pressure-cycled, volume-cycled, time-cycled, and flow-cycled mechanical ventilation
- The use of reservoir masks and continuous positive pressure masks for the delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry
- Management of pneumothorax (needle insertion and drainage systems) and chest tube insertion
- Maintenance of circulation with arterial puncture and blood sampling; insertion of central venous, arterial, and pulmonary artery balloon flotation catheters; basic and advanced cardiopulmonary resuscitation; and cardioversion
- Thoracentesis
- The use of monitoring equipment, including the utilization, zeroing, and calibration of transducers and the utilization of amplifiers and recorders
- Cardiac output determinations by thermodilution and other techniques
- Calculation of oxygen content, intrapulmonary shunt, and alveolar arterial gradients

Additionally, the fellow must learn the indications, contraindications, complications, and limitations of:

- Pericardiocentesis
- Transthoracic and transvenous pacemaker insertion
- Peritoneal dialysis
- Peritoneal lavage
- Chest tube insertion
- Intracranial pressure monitoring

In conjunction with the American Osteopathic College of Anesthesiologists, the AOA also publishes its Basic Standards for Specialty Training in Critical Care Medicine for Anesthesiology. At the time of publication for this white paper, these training standards are listed as dormant on the AOA website.
Positions of accreditation bodies

**CMS**

CMS has no formal position concerning the delineation of privileges for critical care medicine. However, the CMS *Conditions of Participation (CoP)* define a requirement for a criteria-based privileging process in §482.22(c)(6) stating, “The bylaws must include criteria for determining the privileges to be granted to individual practitioners and a procedure for applying the criteria to individuals requesting privileges.”

§482.12(a)(6) states, “The governing body must assure that the medical staff bylaws describe the privileging process. The process articulated in the bylaws, rules or regulations must include criteria for determining the privileges that may be granted to individual practitioners and a procedure for applying the criteria to individual practitioners that considers:

- Individual character
- Individual competence
- Individual training
- Individual experience
- Individual judgment

The governing body must ensure that the hospital’s bylaws governing medical staff membership or the granting of privileges apply equally to all practitioners in each professional category of practitioners.”

Specific privileges must reflect activities that the majority of practitioners in that category can perform competently and that the hospital can support. Privileges are not granted for tasks, procedures, or activities that are not conducted within the hospital, regardless of the practitioner’s ability to perform them.

Each practitioner must be individually evaluated for requested privileges. It cannot be assumed that every practitioner can perform every task, activity, or privilege specific to a specialty, nor can it be assumed that the practitioner should be automatically granted the full range of privileges. The individual practitioner’s ability to perform each task, activity, or privilege must be individually assessed.

CMS also requires that the organization have a process to ensure that practitioners granted privileges are working within the scope of those privileges.

CMS’ *CoPs* include the need for a periodic appraisal of practitioners appointed to the medical staff/granted medical staff privileges (§482.22[a][1]). In the absence of a state law that establishes a time frame for the periodic appraisal, CMS recommends that an appraisal be conducted at least every 24 months. The purpose of the periodic appraisal is to determine whether clinical privileges or membership should be continued, discontinued, revised, or otherwise changed.
The Joint Commission

The Joint Commission has no formal position concerning the delineation of privileges for critical care medicine. However, in its *Comprehensive Accreditation Manual for Hospitals*, The Joint Commission states, “The hospital collects information regarding each practitioner’s current license status, training, experience, competence, and ability to perform the requested privilege” (MS.06.01.03).

In the introduction for MS.06.01.03, The Joint Commission states that there must be a reliable and consistent system in place to process applications and verify credentials. The organized medical staff must then review and evaluate the data collected. The resultant privilege recommendations to the governing body are based on the assessment of the data.

The Joint Commission introduces MS.06.01.05 by stating, “The organized medical staff is responsible for planning and implementing a privileging process.” It goes on to state that this process typically includes:

- Developing and approving a procedures list
- Processing the application
- Evaluating applicant-specific information
- Submitting recommendations to the governing body for applicant-specific delineated privileges
- Notifying the applicant, relevant personnel, and, as required by law, external entities of the privileging decision
- Monitoring the use of privileges and quality-of-care issues

MS.06.01.05 further states, “The decision to grant or deny a privilege(s) and/or to renew an existing privilege(s) is an objective, evidence-based process.”

The EPs for standard MS.06.01.05 include several requirements as follows:

- The need for all licensed independent practitioners who provide care, treatment, and services to have a current license, certification, or registration, as required by law and regulation
- Established criteria as recommended by the organized medical staff and approved by the governing body with specific evaluation of current licensure and/or certification, specific relevant training, evidence of physical ability, professional practice review data from the applicant’s current organization, peer and/or faculty recommendation, and a review of the practitioner’s performance within the hospital (for renewal of privileges)
- Consistent application of criteria
- A clearly defined (documented) procedure for processing clinical privilege requests that is approved by the organized medical staff
- Documentation and confirmation of the applicant’s statement that no health problems exist that would affect his or her ability to perform privileges requested
- A query of the NPDB for initial privileges, renewal of privileges, and when a new privilege is requested
- Written peer recommendations that address the practitioner’s current medical/clinical knowledge, technical and clinical skills, clinical judgment, interpersonal skills, communication skills, and professionalism
- A list of specific challenges or concerns that the organized medical staff must evaluate prior to recommending privileges (MS.06.01.05, EP 9)
- A process to determine whether there is sufficient clinical performance information to make a decision related to privileges
- A decision (action) on the completed application for privileges that occurs within the time period specified in the organization’s medical staff bylaws
- Information regarding any changes to practitioners’ clinical privileges, updated as they occur

The Joint Commission further states, “The organized medical staff reviews and analyzes information regarding each requesting practitioner’s current licensure status, training, experience, current competence, and ability to perform the requested privilege” (MS.06.01.07).

In the EPs for standard MS.06.01.07, The Joint Commission states that the information review and analysis process is clearly defined and that the decision process must be timely. The organization, based on recommendations by the organized medical staff and approval by the governing body, develops criteria that will be considered in the decision to grant, limit, or deny a request for privileges. The criteria must be consistently applied and directly relate to the quality of care, treatment, and services. Ultimately, the governing body or delegated governing body has the final authority for granting, renewing, or denying clinical privileges. Privileges may not be granted for a period beyond two years.

Criteria that determine a practitioner’s ability to provide patient care, treatment, and services within the scope of the privilege(s) requested are consistently evaluated.

The Joint Commission further states, “Ongoing professional practice evaluation information is factored into the decision to maintain existing privilege(s), to revise existing privileges, or to revoke an existing privilege prior to or at the time of renewal” (MS.08.01.03).

In the EPs for MS.08.01.03, The Joint Commission says there is a clearly defined process facilitating the evaluation of each practitioner’s professional practice, in which the type of information collected is determined by individual departments and approved by the organized medical staff. Information resulting from the ongoing professional practice evaluation is used to determine whether to continue, limit, or revoke any existing privilege.
**HFAP**

The Healthcare Facilities Accreditation Program (HFAP) has no formal position concerning the delineation of privileges for critical care medicine. The bylaws must include the criteria for determining the privileges to be granted to the individual practitioners and the procedure for applying the criteria to individuals requesting privileges (03.01.09). Privileges are granted based on the medical staff’s review of an individual practitioner’s qualifications and its recommendation regarding that individual practitioner to the governing body.

It is also required that the organization have a process to ensure that practitioners granted privileges are working within the scope of those privileges.

Privileges must be granted within the capabilities of the facility. For example, if an organization is not capable of performing open-heart surgery, no physician should be granted that privilege.

In the explanation for standard 03.01.13 related to membership selection criteria, HFAP states, “Basic criteria listed in the bylaws, or the credentials manual, include the items listed in this standard. (Emphasis is placed on training and competence in the requested privileges.)”

The bylaws also define the mechanisms by which the clinical departments, if applicable, or the medical staff as a whole establish criteria for specific privilege delineation.

Periodic appraisals of the suitability for membership and clinical privileges is required to determine whether the individual practitioner’s clinical privileges should be approved, continued, discontinued, revised, or otherwise changed (03.00.04). The appraisals are to be conducted at least every 24 months.

The medical staff is accountable to the governing body for the quality of medical care provided, and quality assessment and performance improvement (03.02.01) information must be used in the process of evaluating and acting on re-privileging and reappointment requests from members and other credentialed staff.

**DNV**

DNV has no formal position concerning the delineation of privileges for critical care medicine. MS.12 Standard Requirement (SR) #1 states, “The medical staff bylaws shall include criteria for determining the privileges to be granted to individual practitioners and a procedure for applying the criteria to those individuals that request privileges.”

The governing body shall ensure that under no circumstances is medical staff membership or professional privileges in the organization dependent solely upon certification, fellowship, or membership in a specialty body or society.
Regarding the Medical Staff Standards related to Clinical Privileges (MS.12), DNV requires specific provisions within the medical staff bylaws for:

- The consideration of automatic suspension of clinical privileges in the following circumstances: revocation/restriction of licensure; revocation, suspension, or probation of a DEA license; failure to maintain professional liability insurance as specified; and noncompliance with written medical record delinquency/deficiency requirements
- Immediate and automatic suspension of clinical privileges due to the termination or revocation of the practitioner’s Medicare/Medicaid status
- Fair hearing and appeal

The Interpretive Guidelines also state that core privileges for general surgery and surgical subspecialties are acceptable as long as the core is properly defined.

DNV also requires a mechanism (outlined in the bylaws) to ensure that all individuals provide services only within the scope of privileges granted (MS.12, SR.4).

Clinical privileges (and appointments or reappointments) are for a period as defined by state law or, if permitted by state law, not to exceed three years (MS.12, SR.2).

Individual practitioner performance data must be measured, utilized, and evaluated as a part of the decision-making for appointment and reappointment. Although not specifically stated, this would apply to the individual practitioner’s respective delineation of privilege requests.

**CRC draft criteria**

The following draft criteria are intended to serve solely as a starting point for the development of an institution’s policy regarding this practice area. The core privileges and accompanying procedure list are not meant to be all-encompassing. They define the types of activities, procedures, and privileges that the majority of practitioners in this specialty perform. Additionally, it cannot be expected or required that practitioners perform every procedure listed. Instruct practitioners that they may strikethrough or delete any procedures they do not wish to request.

**Minimum threshold criteria for requesting privileges in critical care medicine**

**Basic education:** MD or DO

**Minimal formal training:** Successful completion of an ACGME- or AOA-accredited postgraduate training program in the relevant medical specialty and successful completion of an accredited fellowship in critical care medicine and/or current subspecialty certification or active participation in the examination process (with achievement of certification within [n] years) leading to subspecialty certification in critical care medicine by the ABMS Board or the American Osteopathic Board.
**Required current experience:** Inpatient care to at least 30 patients in the CCU, reflective of the scope of privileges requested, during the past 12 months or successful completion of an ACGME- or AOA-accredited residency or clinical fellowship within the past 12 months (plus advanced cardiac life support, advanced trauma life support, pediatric advanced life support, or advanced pediatric life support provider status).

**References**

If the applicant is recently trained, a letter of reference should come from the director of the applicant’s training program. Alternatively, a letter of reference may come from the applicable department chair and/or clinical service chief at the facility where the applicant most recently practiced.

**Core privileges in critical care medicine**

Core privileges for critical care medicine include the ability to admit, evaluate, diagnose, and provide treatment or consultative services for patients of all ages with multiple organ dysfunction and in need of critical care for life-threatening disorders. Physicians in this specialty may also assess, stabilize, and determine the disposition of patients with emergent conditions consistent with medical staff policy regarding emergency and consultative call services. The core privileges in this specialty include the procedures on the following procedure list and such other procedures that are extensions of the same techniques and skills:

- Performance of history and physical exam
- Airway maintenance intubation, including fiber-optic bronchoscopy and laryngoscopy
- Arterial puncture and cannulation
- Cardiopulmonary resuscitation
- Calculation of oxygen content, intrapulmonary shunt, and alveolar arterial gradients
- Cardiac output determinations by thermodilution and other techniques
- Temporary cardiac pacemaker insertion and application
- Cardioversion and defibrillation
- Echocardiography and electrocardiography interpretation
- Endoscopy
- Esophagoscopy and gastroscopy
- Evaluation of oliguria
- Extracorporeal membrane oxygenation
- Insertion of central venous, arterial, and pulmonary artery balloon flotation catheters
- Insertion of hemodialysis and peritoneal dialysis catheters
- Interpretation of intracranial pressure monitoring
- Lumbar puncture
- Management of anaphylaxis and acute allergic reactions
• Management of critical illness in pregnancy
• Management of life-threatening disorders in ICUs, including but not limited to shock, coma, heart failure, trauma, respiratory arrest, drug overdose, massive bleeding, diabetic acidosis, and kidney failure
• Management of massive transfusions
• Management of the immunosuppressed patient
• Monitoring and assessment of metabolism and nutrition
• Needle and tube thoracostomy
• Paracentesis
• Percutaneous needle aspiration of palpable masses
• Percutaneous tracheostomy/cricothyrotomy tube placement
• Pericardiocentesis
• Peritoneal dialysis
• Peritoneal lavage
• Preliminary interpretation of imaging studies
• Thoracentesis
• Tracheostomy
• Transtracheal catheterization
• Image-guided procedures
• Use of reservoir masks, nasal prongs/cannulas, and nebulizers for delivery of supplemental oxygen and inhalants
• Ventilator management, including experience with various modes and continuous positive airway pressure therapies
• Wound care

Special noncore privileges in critical care medicine

If desired, noncore privileges are requested individually in addition to requesting the core. Each individual requesting noncore privileges must meet the specific threshold criteria governing the exercise of the privilege requested, including training, required previous experience, and maintenance of clinical competence. Noncore privileges include administration of sedation and analgesia.

Reappointment

Reappointment should be based on unbiased, objective results of care according to a hospital’s quality assurance mechanism. To be eligible to renew privileges in critical care, the applicant must have current demonstrated competence and an adequate volume of experience ([n] patients) with acceptable results, reflective of the scope of privileges requested, for the past 24 months based on results of ongoing professional practice evaluation and outcomes. Evidence of current physical and mental ability to perform privileges requested is required of all applicants for renewal of privileges. In addition, continuing education related to critical care medicine should be required.
For more information

Accreditation Council for Graduate Medical Education
515 North State Street, Suite 2000
Chicago, IL 60610-4322
Telephone: 312-755-5000
Fax: 312-755-7498
Website: www.acgme.org

American Board of Internal Medicine
510 Walnut Street, Suite 1700
Philadelphia, PA 19106
Telephone: 800-441-2246
Fax: 215-446-3590
Website: www.abim.org

American Osteopathic Association
142 East Ontario Street
Chicago, IL 60611
Telephone: 800-621-1773
Fax: 312-202-8200
Website: www.osteopathic.org

American Osteopathic Board of Internal Medicine
1111 West 17th Street
Tulsa, OK 74107-1898
Telephone: 918-561-1267
Website: www.aobim.org

Centers for Medicare & Medicaid Services
7500 Security Boulevard
Baltimore, MD 21244
Telephone: 877-267-2323
Website: www.cms.hhs.gov

DNV Healthcare, Inc.
400 Techne Center Drive, Suite 350
Milford, OH 45150
Website: www.dnvaccreditation.com

Healthcare Facilities Accreditation Program
142 E. Ontario Street
Chicago, IL 60611
Telephone: 312-202-8258
Website: www.hfap.org
The Joint Commission
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
Telephone: 630-792-5000
Fax: 630-792-5005
Website: www.jointcommission.org

Society of Critical Care Medicine
500 Midway Drive
Mount Prospect, IL 60056
Telephone: 847-827-6869
Fax: 847-827-6886
Website: www.sccm.org