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الجامعة العربية الاماراتية
United Arab Emirates University

NATIONAL INSTITUTE FOR HEALTH SPECIALTIES

NIHS Program Requirements for Advanced Specialty Education in Acute Care Point of Care Ultrasound (Acute Care POCUS)

The Emirati Board in Acute Care Point of Care Ultrasound (Acute Care POCUS) is expected to define its specific program aims consistent with the overall mission of its Sponsoring Institution, the needs of the community it serves and that its graduates will serve, and the distinctive capabilities of physicians it intends to graduate. The Program must demonstrate substantial compliance with the Common and specialty-specific Program Requirements.

Where applicable, text in italics describes the underlying philosophy of the requirements in that section. These philosophic statements are not program requirements and are therefore not citable.

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Introduction

Int. A. Preamble

Advanced medical education is graduate medical education beyond a core residency or fellowship program for physicians who desire to enter more specialized practice. Trained physicians serve the public by providing subspecialty care, which may also include core medical care, acting as a community resource for expertise in their field, creating and integrating new knowledge into practice, and educating future generations of physicians. Graduate medical education values the strength that a diverse group of physicians brings to medical care.

Physicians who have completed residency/fellowship are able to practice independently in their core specialty. The trainee's care of patients within the Acute POCUS subspecialty is undertaken with appropriate faculty supervision and conditional independence. The trainees develop deep medical knowledge, patient care skills, and expertise applicable to their focused area of practice.

Int. B. Definition of Acute Care Point of Care Ultrasound (POCUS)

Acute Care POCUS uses Ultrasound (US) technology for the bedside evaluation of acute or critical medical conditions. It is utilized for diagnosis of emergency conditions, resuscitation of the acutely ill, critically ill or injured, guidance of procedures, monitoring of certain pathologic states and as an adjunct to therapy.

US Examinations are typically performed, interpreted, and integrated into care by physicians or those under the supervision of physicians in the emergency department or a non-emergency setting such as hospital unit, out-of-hospital, battlefield, space, urgent care, clinic, or remote or other settings. It may be performed as a single examination, repeated due to clinical need or deterioration, or used for monitoring physiological or pathological changes.

Acute Care POCUS is a separate entity distinct from the physical examination that adds anatomic, functional, and physiological information to the care of the acutely ill patient. It provides clinically significant data not obtainable by inspection, palpation, auscultation, or other components of the physical examination.

Acute Care POCUS can be classified into the following functional clinical categories:

1. *Resuscitative*: US use as directly related to acute resuscitation
2. *Diagnostic*: US utilized in an emergent diagnostic imaging capacity
3. *Symptom or sign-based*: US used in a clinical pathway based upon the patient's symptom or sign (e.g., shortness of breath)
4. *Procedure guidance*: US used as an aid to guide a procedure
5. *Therapeutic and Monitoring*: US use in therapeutics or in physiological monitoring

The area of focused competence is applied in adult and pediatric populations.

Upon completion of training, a certified physician is expected to function as a competent specialist in Acute Care POCUS, capable of enhanced practice in this area, within the scope of any primary specialty or practice.

The discipline of Acute Care POCUS includes responsibility for:

- performance and interpretation of point-of-care ultrasonography (POCUS) for diagnosis and management in the acute care setting;
- management of an acute care POCUS service.

Int. C. Length of Educational Program

The educational program in Acute Care POCUS must be a minimum of 12 months of part-time training; it may be prolonged up to 6 months which may vary depending on the completion of the minimally required US scans and achieving the required competencies during the training period. ^(Core)

I. Oversight

I.A. Sponsoring Institution

The Sponsoring Institution is the entity that assumes the ultimate financial and academic responsibility for a program of graduate medical education, consistent with the NIHS Institutional Requirements.

The Sponsoring Institution must be the primary clinical defined as the most utilized rotation site of clinical activity for the program.

Background and Intent: *Participating sites will reflect the health care needs of the community and the educational needs of the trainees. A wide variety of organizations may provide a robust educational experience and, thus, Sponsoring Institutions and participating sites may encompass inpatient and outpatient settings.*

I.A.1. The program must be sponsored by one NIHS-accredited Sponsoring Institution. ^(Core)

I.B. Participating Sites

A participating site is an entity that provides educational experiences or educational assignments/rotations for trainees.

I.B.1. The program, with approval of its Sponsoring Institution, must designate a primary clinical site. ^(Core)

I.B.1.a) An Acute Care POCUS advanced training must function as an integral part of an NIHS-accredited program in Emergency Medicine. ^(Core)

I.B.1.b) The pediatric stream Acute Care POCUS advanced training must function as an integral part of an NIHS-accredited program in Pediatric Emergency Medicine if present, or NIHS-accredited

program in Emergency Medicine with enough pediatric emergency patient volume and dedicated medical staff. ^(Core)

I.B.2. There must be a program letter of agreement (PLA) between the program and each participating site that governs the relationship between the program and the participating site providing a required assignment. ^(Core)

I.B.2.a) The PLA must:

I.B.2.a)(1) be renewed at least every 5 years; ^(Core)

I.B.2.a)(2) be approved by the designated institutional official (DIO); ^(Core)

I.B.2.a)(3) specify the duration and content of the educational experience; ^(Core)

I.B.2.a)(4) state the policies and procedures that will govern trainee education during the assignment; ^(Core)

I.B.2.a)(5) identify the faculty members who will assume educational and supervisory responsibility for trainees; ^(Core)

I.B.2.a)(6) specify the responsibilities for teaching, supervision, and formal evaluation of trainees. ^(Core)

I.B.3. The program must monitor the clinical learning and working environment at all participating sites. ^(Core)

I.B.3.a) At each participating site there must be one faculty member, designated by the program director who is accountable for trainee education at that site, in collaboration with the program director. ^(Core)

Background and Intent: *While all traineeship programs must be sponsored by a single NIHS-accredited Sponsoring Institution, many programs will utilize other clinical settings to provide required or elective training experiences. At times it is appropriate to utilize community sites that are not owned by or affiliated with the Sponsoring Institution. Some of these sites may be remote for geographic, transportation, or communication issues. When utilizing such sites, the program must ensure the quality of the educational experience.*

I.B.4. The program director must submit any additions or deletions of participating sites routinely providing an educational experience required for all trainees, of one-month full time equivalent (FTE) or more through NIHS Accreditation System. ^(Core)

I.B.5. Trainee assignments away from the Sponsoring Institution should not prevent trainees' regular participation in required didactics. ^(Core)

I.C. Recruitment

The program, in partnership with its Sponsoring Institution, must engage in practices that focus on mission-driven, ongoing, systematic recruitment and retention of a diverse and inclusive workforce of trainees, residents (if present),

faculty members, senior administrative staff members, and other relevant members of its academic community. ^(Core)

I.D. Resources

I.D.1. The program, in partnership with its Sponsoring Institution, must ensure the availability of adequate resources for trainee education. ^(Core)

I.D.1.a) Adequate patient population must be available to ensure that trainees attain required competencies. ^(Core)

I.D.1.a)(1) The training sites have access to patients who undergo acute care POCUS in the following areas: ^(Core)

- General/abdominal; ^(Core)
- Pelvic; ^(Core)
- Cardiac; ^(Core)
- Thorax. ^(Core)

I.D.1.a)(2) There must be a sufficient number and variety of archived teaching cases to meet the educational needs of the Acute Care POCUS trainees. ^(Core)

I.D.1.a)(3) The acute care POCUS service has a structured quality assurance program with follow-up that includes comparison to reference standards (including pathology review, surgical findings, comprehensive imaging review, and clinical follow-up) and a mechanism for peer review of POCUS studies. ^(Core)

I.D.1.b) Clinical and consultative services and facilities are effectively organized and adequate to ensure that trainees attain the required competencies. ^(Core)

I.D.1.b)(1) The program has access to an emergency department and to other clinical services that include outpatient clinics and inpatient beds. ^(Core)

I.D.1.b)(2) The clinical facilities are organized to provide the trainee with opportunities to perform acute care POCUS. ^(Core)

I.D.1.b)(3) The program has access to facilities for comprehensive imaging and correlation of POCUS imaging. ^(Core)

I.D.1.b)(4): The program has access to: ^(Core)

- A department of medical imaging; ^(Core)
- A department of obstetrics-gynecology; ^(Core)
- A department of cardiology; ^(Core)
- A department of surgery; ^(Core)
- An intensive care unit. ^(Core)

I.D.1.b)(5) Programs that offer a pediatric stream have access to a pediatric emergency department and pediatric

specialists, including radiologists, surgeons and cardiologists. ^(Core)

I.D.1.c) The program has the necessary financial, physical, and technical resources. ^(Core)

I.D.1.c)(1) Access to the equipment to perform Acute Care POCUS transabdominal ultrasound, point-of-care echocardiography, and high-frequency soft tissue ultrasound. ^(Core)

I.D.1.c)(2) Access to appropriate ultrasound systems and an imaging archiving system with reporting functions. ^(Core)

I.D.1.d) There must be provided dedicated US systems with appropriate transducers and imaging capabilities readily available for immediate clinical use 24/7. ^(Core)

I.D.1.d)(1) Machines should be chosen to handle the rigors of the multi-user, multi-location practice environment of the ED. ^(Core)

I.D.1.d)(2) Regular in-service of personnel using the equipment and appropriate transducer care, stocking and storage of supplies, adequate cleaning of external and internal transducers with respect to infection control, maintenance of US machines by clinical engineering or a designated maintenance team, and efficient communication of equipment issues. ^(Core)

I.D.1.d)(3) Clinicians using ultrasound should follow common ED US safety practices including ALARA (as low as reasonably achievable), probe decontamination, and machine maintenance. ^(Core)

I.D.1.e) There must be provided US educational (online and/or print) resources readily available for access. ^(Core)

I.D.1.f) The course site should include a didactic room as well as separate rooms or areas for scanning stations. ^(Core)

I.D.2. The program, in partnership with its Sponsoring Institution, must ensure healthy and safe learning and working environments that promote well-being and provide for ^(Core):

I.D.2.a) access to food while on duty; ^(Core)

I.D.2.b) safe, quiet, clean, and private sleep/rest facilities available and accessible with proximity appropriate for safe patient care; ^(Core)

I.D.2.c) security and safety measures appropriate to the participating site; ^(Core)

I.D.3. Trainees must have ready access to specialty-specific and other appropriate reference material in print or electronic format. This must

include access to electronic medical literature databases with full text capabilities. ^(Core)

I.D.4. The program's educational and clinical resources must be adequate to support the number of trainees appointed to the program. ^(Core)

I.E. Other Learners and Other Care Providers

An advanced learning medical program usually occurs in the context of many learners and other care providers and limited clinical resources. It should be structured to optimize education for all learners present. ^(Core)

II. Personnel

II.A. Program Director

II.A.1. There must be one faculty member appointed as program director with authority and accountability for the overall program, including compliance with all applicable program requirements. ^(Core)

II.A.1.a) The Sponsoring Institution's GMEC must approve a change in program director. ^(Core)

II.A.1.b) The program must demonstrate retention of the program director for a length of time adequate to maintain continuity of leadership and program stability. ^(Core)

II.A.2. At a minimum, the program director must be provided with the salary support required to devote 30 percent FTE of non-clinical time to the administration of the program. ^(Core)

II.A.3. Qualifications of the program director:

II.A.3.a) must include subspecialty expertise and at least three years of documented educational and/or administrative experience, or qualifications acceptable to the Central Accreditation Committee; ^(Core)

II.A.3.b) must be licensed as an Emergency Medicine consultant with subspecialty certified training in Acute Care POCUS, or with specialty qualifications that are acceptable to the Central Accreditation Committee; ^(Core)

II.A.3.b)(1) For the Pediatric stream, the program director must be consultant and licensed in Pediatrics or Pediatric Emergency Medicine subspecialty with subspecialty certified training in Acute Care POCUS. ^(Core)

II.A.3.c) must include current medical licensure and appropriate medical staff appointment; ^(Core)

II.A.3.d) must be actively involved in the practice of Acute Care POCUS. ^(Core)

II.A.4. Program Director Responsibilities

The program director must have responsibility, authority, and accountability for administration and operations; teaching and scholarly activity; trainee recruitment and selection, evaluation, and promotion of trainees, and disciplinary action; supervision of trainees; and trainee education in the context of patient care. ^(Core)

II.A.4.a) The program director must:

II.A.4.a)(1) be a role model of professionalism; ^(Core)

II.A.4.a)(2) design and conduct the program in a fashion consistent with the needs of the community, the mission(s) of the Sponsoring Institution, and the mission(s) of the program; ^(Core)

II.A.4.a)(3) administer and maintain a learning environment conducive to educating the trainees in each of the NIHS Competency domains; ^(Core)

II.A.4.a)(4) develop and oversee a process to evaluate candidates prior to approval as program faculty members for participation in the traineeship program education and at least annually thereafter; ^(Core)

II.A.4.a)(5) have the authority to approve and/or remove program faculty members for participation in the traineeship program education at all sites; ^(Core)

II.A.4.a)(6) have the authority to remove trainees from supervising interactions and/or learning environments that do not meet the standards of the program; ^(Core)

II.A.4.a)(7) provide a learning and working environment in which trainees have the opportunity to raise concerns and provide feedback in a confidential manner as appropriate, without fear of intimidation or retaliation; ^(Core)

II.A.4.a)(8) ensure the program's compliance with the Sponsoring Institution's policies and procedures related to grievances and due process; ^(Core)

II.A.4.a)(9) ensure the program's compliance with the Sponsoring Institution's policies and procedures for due process when action is taken to suspend or dismiss, not to promote, or not to renew the appointment of a trainee; ^(Core)

II.A.4.a)(10) document verification of program completion for all graduating trainees; within 30 days; ^(Core)

II.A.4.a)(11) provide verification of an individual trainee's completion upon the trainee's request, within 30 days; ^(Core)

II.A.4.a)(12) Maintain compliance with overall program goals: educational, clinical, and academic. ^(Core)

II.A.4.a)(13) Select appropriate US machines, probes and equipment for the clinical care setting. ^(Core)

II.A.4.a)(14) Provide educational resources for physicians and other healthcare workers seeking credentialing, which may include in-house and/or outsourced educational content. ^(Core)

II.A.4.a)(15) Develop, maintain, and improve an adequate QA process in which physician scans are reviewed for quality in a timely manner and from which feedback is generated. ^(Core)

II.A.5. Associate Program Director (APD):

II.A.5.a) For programs with an approved complement of more than 15, one of the (sub)specialty-certified core faculty members must be appointed as associate program director to assist the program director with the administrative and clinical oversight of the program. ^(Core)

II.A.5.b) Sponsoring institution to provide APD with 0.3 FTE (or 12 hours per week) of protected time for education and program administration, The APD must not work more than 0.7 FTE in a clinical capacity. ^(Core)

II.A.5.c) APD should assume the role for a duration suitable for ensuring program continuity and stability. ^(Core)

II.B. Faculty

Faculty members ensure that patients receive the level of care expected from a specialist in the field. Faculty members provide appropriate levels of supervision to promote patient safety. Faculty members create an effective learning environment by acting in a professional manner and attending to the well-being of the trainees and themselves.

II.B.1. At each participating site, there must be enough faculty members with competence to instruct and supervise all trainees at that location. ^(Core)

II.B.1.a) The ratio of all faculty to trainees must be a minimum of 1:1. ^(Core)

II.B.1.b) The credentials, competencies, and scope of practice of the faculty must be adequate to provide the breadth and depth of the discipline, including required clinical teaching, academic teaching, appropriate research, and assessment and feedback to trainees. ^(Core)

II.B.1.c) The teaching faculty includes individuals with experience in Acute Care POCUS. ^(Core)

II.B.2. Faculty members must:

II.B.2.a) be role models of professionalism; ^(Core)

II.B.2.b) demonstrate a strong interest in the education of trainees; ^(Core)

II.B.2.c) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities; ^(Core)

II.B.2.d) administer and maintain an educational environment conducive to educating trainees; ^(Core)

II.B.3. Faculty Qualifications

II.B.3.a) Faculty members must have appropriate qualifications in their field and hold appropriate institutional appointments. ^(Core)

II.B.3.b) Physician faculty members must:

II.B.3.b)(1) have a current license in Emergency Medicine or Pediatric Emergency medicine or other specialty that practice Acute Care POCUS, or possess qualifications judged acceptable to the Central Accreditation Committee. ^(Core)

II.B.3.c) Any non-physician faculty members who participate in program education must be approved by the program director. ^(Core)

II.C. Program Coordinator

II.C.1. There must be a program coordinator. ^(Core)

II.C.2. At a minimum, the program coordinator must be provided with adequate time for the administration of the program. ^(Core)

II.D. Other Program Personnel

The program, in partnership with its Sponsoring Institution, must jointly ensure the availability of necessary personnel for the effective administration of the program. ^(Core)

III. Program Appointments

III.A. Eligibility Requirements

III.A.1. The eligible candidates must be graduates of a residency program in any primary specialty or general practitioners providing management in the acute care setting. ^(Core)

III.B. Number of Trainees

III.B.1. The program director must not appoint more trainees than approved by the Central Accreditation Committee. ^(Core)

III.B.2. All changes in trainee complement must be approved by the NIHS Central Accreditation Committee. ^(Core)

III.B.3. The number of trainees appointed to the program must not exceed the program's educational and clinical resources. ^(Core)

III.B.4. The number of available training positions in the program must be at least one per year. ^(Detail)

III.C. Trainees Transfers

The program must obtain verification of previous educational experiences and a summative competency-based performance evaluation prior to acceptance of a transferring trainee, and Milestones evaluations upon matriculation. ^(Core)

IV. Educational Program

The NIHS accreditation system is designed to encourage excellence and innovation in medical education regardless of the organizational affiliation, size, or location of the program.

The educational program must support the development of knowledgeable, skillful physicians who provide compassionate care.

IV.A. Curriculum Components

The Educational Curriculum must contain the following educational components: ^(Core)

IV.A.1. A set of program aims consistent with the Sponsoring Institution's mission, the needs of the community it serves, and the desired distinctive capabilities of its graduates. ^(Core)

IV.A.2. Competency-based goals and objectives for each educational experience are designed to promote progress on a trajectory to autonomous. ^(Core)

IV.A.2.a) These goals and objectives must be distributed and available to trainees and faculty members. ^(Core)

IV.A.3. Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and graded supervision in their subspecialty. ^(Core)

IV.A.4. Structured educational activities beyond direct patient care. ^(Core)

IV.A.5. Advancement of trainees' knowledge of ethical principles foundational to medical professionalism. ^(Core)

IV.B. Defined Core Competencies

IV.B.1. The program must integrate the following Core Competencies into the curriculum: ^(Core)

IV.B.1.a) Professionalism

Trainees must demonstrate a commitment to professionalism and an adherence to ethical principles. ^(Core)

IV.B.1.a)(1) Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality. ^(Core)

IV.B.1.a)(2) Recognize and manage conflicts of interest. ^(Core)

IV.B.1.a)(3) Demonstrate insight into their own limits of expertise. ^(Core)

IV.B.1.a)(4) Demonstrate accountability to patients, society, and the profession by responding to societal expectations of physicians. ^(Core)

IV.B.1.a)(5) Demonstrate a commitment to patient safety and quality improvement. ^(Core)

IV.B.1.a)(6) Participate in peer assessment and standard setting. ^(Core)

IV.B.1.a)(7) Exhibit self-awareness and manage influences on personal well-being and professional performance. ^(Core)

IV.B.1.a)(8) Manage personal and professional demands for sustainable practice throughout the physician life cycle. ^(Core)

IV.B.1.b) Patient Care and Procedural Skills

Trainees must be able to provide patient care that is appropriate, and effective for the treatment or health problems and the promotion of health. ^(Core)

IV.B.1.b)(1) Practice medicine within their defined scope of practice and expertise. ^(Core)

IV.B.1.b)(1)(a) Perform appropriately timed clinical assessments that are presented in an organized manner. ^(Core)

IV.B.1.b)(1)(b) Carry out professional duties in the face of multiple competing demands. ^(Core)

IV.B.1.b)(1)(c) Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice. ^(Core)

IV.B.1.b)(2) Perform acute care POCUS patient-centered assessment, integrating clinical information and ancillary tests, and establish a management plan. ^(Core)

IV.B.1.b)(2)(a) Prioritize issues to be addressed in a patient encounter. ^(Core)

IV.B.1.b)(2)(b) Integrate the patient's history, physical exam, laboratory investigations, imaging findings, and other ancillary tests in order to guide

the POCUS examination and assist with the interpretation of the findings. ^(Core)

IV.B.1.b)(2)(b)(i) Identify whether POCUS is indicated in the patient's assessment. ^(Core)

IV.B.1.b)(2)(b)(ii) Select the appropriate probe. ^(Core)

IV.B.1.b)(2)(c) Select patients for whom comprehensive imaging is required. ^(Core)

IV.B.1.b)(2)(c)(i) Recognize the strengths, limitations, and indications for imaging by diagnostic radiology (ultrasound and other modalities), cardiology, or obstetrics-gynecology as compared to POCUS. ^(Core)

IV.B.1.b)(2)(d) Perform POCUS for the investigation of relevant acute care presentations including but not restricted to the following: ^(Core)

- Hemodynamic instability or shock
- Chest pain
- Dyspnea
- Abdominal, pelvic, or back pain
- Soft tissue erythema, swelling, or pain
- Soft tissue foreign body
- Joint swelling
- Testicular pain
- Sore throat
- Renal dysfunction and/or urinary retention
- Evaluation of multi-system traumatic injury
- Source of sepsis
- Pregnancy and its complications
- Acute change in vision
- Head trauma (*pediatric stream*)
- Altered mental status (*pediatric stream*)

IV.B.1.b)(2)(e) Integrate POCUS and other imaging modalities into a patient-centered diagnostic and management plan. ^(Core)

IV.B.1.b)(3) Plan and perform procedures and therapies for the purpose of assessment and/or management. ^(Core)

IV.B.1.b)(3)(a) Determine the most appropriate procedures or therapies. ^(Core)

IV.B.1.b)(3)(b) Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, a proposed procedure or therapy. ^(Core)

IV.B.1.b(3)(c) Prioritize a procedure or therapy, taking into account clinical urgency and available resources. ^(Core)

IV.B.1.b(3)(c)(i) Defer procedures to a diagnostic radiologist, interventional radiologist, cardiologist, or obstetrician/gynecologist, as appropriate. ^(Core)

IV.B.1.b(3)(d) Perform POCUS in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances. ^(Core)

IV.B.1.b(3)(d)(i) Apply the physical principles of ultrasound and instrumentation to optimize acquired images. ^(Core)

- Position patients to optimize image acquisition and comfort.
- Manipulate equipment to optimize image acquisition.
- Recognize and describe ultrasound artifacts.
- Use computer applications and post-processing tools to optimize imaging acquisition and analysis.

IV.B.1.b(3)(e) Apply standard principles of infection control for acute care POCUS equipment before, during, and after diagnostic procedures. ^(Core)

IV.B.1.b(3)(f) Perform acute care POCUS for diagnostic assessment (*applicable to both adult and pediatrics unless specified below*): ^(Core)

IV.B.1.b(3)(f)(i) Cardiovascular system. ^(Core)

- Left ventricular systolic function
- Right ventricular size
- Pericardial effusion
- Integrated intravascular volume status, including assessment of the lung, inferior vena cava, and visual estimation of ventricular function
- Abdominal aortic aneurysm (*Adult stream*)
- Limited emergent identification of acute lower-extremity deep vein thrombosis.

IV.B.1.b(3)(f)(ii) Respiratory system. ^(Core)

- Pleural effusion
- Pneumothorax
- Interstitial syndrome, including pulmonary edema, interstitial syndrome, bronchiolitis, pneumonia, and diffuse parenchymal disease
- Lung consolidation.

IV.B.1.b(3)(f)(iii) Abdomen. ^(Core)

- Intraabdominal free fluid
- Cholelithiasis
- Cholecystitis
- Bowel obstruction
- intussusception (*pediatric stream*)

IV.B.1.b(3)(f)(iv) Genitourinary system. ^(Core)

- Hydronephrosis and hydroureter
- Urinary retention

IV.B.1.b(3)(f)(v) Transabdominal Female reproductive system. ^(Core)

- First trimester pregnancy

IV.B.1.b(3)(f)(vi) Musculoskeletal system. ^(Core)

- Achilles tendon tears
- Quadriceps tendon tears
- Long bone fractures
- Effusions involving a medium- or large-size joint

IV.B.1.b(3)(f)(vii) Superficial soft tissue. ^(Core)

- Soft tissue infections, including cellulitis and abscess
- Foreign body detection

IV.B.1.b(3)(f)(viii) Eye. ^(Detail)

- Retinal detachment
- Posterior vitreous detachment
- Vitreous hemorrhage

IV.B.1.b(3)(g) Perform a post-procedural imaging search for complications. ^(Core)

IV.B.1.b(4) Establish plans for ongoing care and, when appropriate, timely consultation. ^(Core)

IV.B.1.b(4)(a) Implement a patient-centered care plan that supports ongoing care, follow-up

investigations, response to treatment, and further consultation. ^(Core)

IV.B.1.b)(4)(a)(i) Ensure follow-up is arranged. ^(Core)

IV.B.1.b)(4)(a)(ii) Request comprehensive imaging studies or procedures when necessary, considering the sensitivity and specificity of acute care POCUS. ^(Core)

IV.B.1.b)(4)(a)(iii) Ensure close correlation between results of follow-up comprehensive investigations to that of clinical assessment and POCUS, with an emphasis on correlation to reference standards. ^(Core)

IV.B.1.b)(4)(a)(iv) Ensure the appropriate follow-up of unexpected findings detected in the course of POCUS assessment. ^(Core)

IV.B.1.c) Medical Knowledge

Trainees 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. ^(Core)

IV.B.1.c)(1) Trainees must demonstrate knowledge of the clinical and biomedical sciences relevant to their discipline: ^(Core)

IV.B.1.c)(1)(a) Anatomy and physiology of the relevant organ systems or body regions with a particular emphasis on ultrasonography applications. ^(Core)

IV.B.1.c)(1)(b) Biological effects and safety of ultrasound. ^(Core)

IV.B.1.c)(1)(c) Physical principles and instrumentation of ultrasound, including M-mode, two-dimensional, Doppler, and harmonic imaging. ^(Core)

IV.B.1.c)(1)(d) Technical and physical principles of other imaging modalities and interventional applications related to POCUS, the inherent limitations of these modalities, and factors affecting quality of the images. ^(Core)

IV.B.1.c)(1)(e) Indications, techniques, complications, and potential contribution of POCUS to clinical outcomes and interventional procedures. ^(Core)

IV.B.1.c)(1)(f) Ultrasonography imaging features of:

IV.B.1.c)(1)(f)(i) Cardiovascular system. ^(Core)

- Ultrasonographic anatomy of the major vessels
- Ventricular size and systolic function
- Pericardial tamponade
- Aortic aneurysm (*adult stream*)
- Echocardiographic features of massive Pulmonary embolism (*adult stream*)

IV.B.1.c)(1)(f)(ii) Respiratory system. ^(Core)

- Pleural disease, including effusion and pneumothorax
- Abnormalities of the lung parenchyma, including interstitial syndrome and lung consolidation
- Bronchiolitis (*pediatric stream*)

IV.B.1.c)(1)(f)(iii) Abdomen. ^(Core)

- Intraabdominal fluid
- Cholelithiasis
- Cholecystitis
- Bowel obstruction
- Intussusception (*pediatric stream*)

IV.B.1.c)(1)(f)(iv) Genitourinary system. ^(Core)

- Features of urinary tract obstruction and urinary retention

IV.B.1.c)(1)(f)(v) Female reproductive system. ^(Core)

- First trimester pregnancy

IV.B.1.c)(1)(f)(vi) Musculoskeletal system. ^(Core)

- Long bone fractures
 - Achilles tendon tears
 - Quadriceps tendon tears
 - Effusions involving a medium- or large-size joint

IV.B.1.c)(1)(f)(vii) Superficial soft tissue. ^(Core)

- Soft tissue infections
- Foreign body detection

IV.B.1.c)(1)(f)(viii) Eye. ^(Detail)

- Retinal detachment
- Posterior vitreous detachment

- Vitreous hemorrhage
- Intraocular lens dislocation
- Intraocular foreign body

IV.B.1.c)(2) Must demonstrate knowledge in the management of an acute care POCUS service: ^(Core)

IV.B.1.c)(2)(a) Disinfection and sterilization procedures. ^(Core)

IV.B.1.c)(2)(b) Appropriate handling and disposal of infectious materials, body fluids, and other tissue material. ^(Core)

IV.B.1.c)(2)(c) Principles and procedures of conducting needed analysis. ^(Core)

IV.B.1.c)(2)(d) Principles of quality assurance and peer review. ^(Core)

IV.B.1.d) Practice-based Learning and Improvement

Trainees must demonstrate the ability to investigate and evaluate their care of patients, applying scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. ^(Core)

IV.B.1.d)(1) Trainees must engage in the continuous enhancement of their professional activities through ongoing learning and: ^(Core)

IV.B.1.d)(1)(a) Develop, implement, monitor, and revise a personal learning plan to enhance professional practice. ^(Core)

IV.B.1.d)(1)(b) Identify opportunities for learning and improvement by regularly reflecting on and assessing their performance using various internal and external data sources. ^(Core)

IV.B.1.d)(1)(b)(i) Develop personal quality improvement activities that compare POCUS interpretation with the reference standard (e.g., comprehensive imaging, clinical follow-up). ^(Core)

IV.B.1.d)(1)(c) Engage in collaborative learning to continuously improve personal practice and contribute to collective improvements in practice. ^(Core)

IV.B.1.d)(1)(c)(i) Organize clinical and educational activities in collaboration with diagnostic radiologists, cardiologists, or obstetrician/gynecologists, as relevant. ^(Core)

IV.B.1.e) Interpersonal and Communication Skills

Trainees must demonstrate interpersonal and communication skills that result in an effective exchange of information and collaboration with patients, their families, and health professionals. ^(Core)

IV.B.1.e)(1) Establish professional therapeutic relationships with patients and their families. ^(Core)

IV.B.1.e)(1)(a) Communicate using a patient-centered approach that encourages patient trust and autonomy and is characterized by empathy, respect, and compassion. ^(Core)

IV.B.1.e)(1)(b) Optimize the physical environment for patient comfort, dignity, privacy, engagement, and safety while performing POCUS examinations and procedures. ^(Core)

IV.B.1.e)(1)(c) Respond to a patient's non-verbal behaviors to enhance communication. ^(Core)

IV.B.1.e)(2) Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families. ^(Core)

IV.B.1.e)(2)(a) Use patient-centered interviewing skills to effectively gather relevant biomedical information. ^(Core)

IV.B.1.e)(2)(b) Integrate POCUS effectively into the patient encounter. ^(Core)

IV.B.1.e)(2)(c) Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent. ^(Core)

IV.B.1.e)(3) Share health care information and plans with patients and their families. ^(Core)

IV.B.1.e)(3)(a) Share information and explanations that are clear, accurate, and timely. ^(Core)

IV.B.1.e)(3)(b) Convey information about the complementary role of POCUS and comprehensive imaging to patients and families. ^(Core)

IV.B.1.e)(4) Document and share written and electronic information about the medical encounter to optimize clinical decision-making, patient safety, confidentiality, and privacy. ^(Core)

IV.B.1.e)(4)(a) Document clinical encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements. ^(Core)

IV.B.1.e(4)(a)(i) Provide image capture and imaging documentation to facilitate review as necessary for follow-up examinations or reference to previous or subsequent imaging. ^(Core)

IV.B.1.e(4)(a)(ii) Provide written interpretation of imaging, including the construction of a well formulated report. ^(Core)

IV.B.1.e(4)(a)(iii) Store images that provide support for the diagnosis and treatment plan, as well as the differential diagnosis for the presenting symptoms and findings. ^(Core)

IV.B.1.e(4)(a)(iv) Document and disseminate information related to procedures performed and their outcomes. ^(Core)

IV.B.1.e(4)(a)(v) Provide written clinical conclusions, integrating comprehensive imaging and clinical data. ^(Core)

IV.B.1.e(4)(b) Communicate effectively using a written health record, electronic medical record, or other digital technology. ^(Core)

IV.B.1.e(4)(c) Share imaging findings, clinical assessments, and plans with patients and others in a manner that enhances understanding and that respects patient privacy and confidentiality. ^(Core)

IV.B.1.f) Systems-based Practice

Trainees must demonstrate an awareness of and responsiveness to the larger context and system of health care, including the social determinants of health, as well as the ability to call effectively on other resources to provide optimal health care. ^(Core)

IV.B.1.f(1) Apply a POCUS quality assurance program. ^(Core)

IV.B.1.f(2) Apply evidence and management processes to achieve cost-appropriate care. ^(Core)

IV.B.1.f(2)(a) Use POCUS judiciously in the assessment and management of individual patients. ^(Core)

IV.B.1.f(2)(b) Utilize POCUS resources in an efficient manner. ^(Core)

IV.B.1.f(3) Manage the functions and operations of an acute care POCUS service. ^(Core)

IV.B.1.f(3)(a) Perform a needs assessment for POCUS services for a department or individual physician. ^(Core)

IV.B.1.f(3)(b) Establish maintenance processes for POCUS equipment. ^(Core)

IV.B.1.f(3)(c) Follow the guidelines for disinfection/infection control for a POCUS program. ^(Core)

IV.B.1.f(3)(d) Manage and maintain POCUS equipment and facilities. ^(Core)

IV.B.1.f(3)(d)(i) Demonstrate an understanding of the factors affecting the lifetime of equipment and recognize the need for replacement or additional equipment. ^(Core)

IV.B.1.f(3)(d)(ii) Identify and evaluate options to choose the most appropriate equipment for the clinical requirements. ^(Core)

IV.B.1.f(3)(d)(iii) Describe the principles of acceptance testing and other evaluations to ensure that both technical and clinical needs are met by the equipment. ^(Core)

IV.B.1.f(3)(e) Design and implement individual performance self-assessment and peer review processes. ^(Core)

IV.B.1.f(4) Establish and maintain interdependent relationships with other colleagues for the provision of quality care, recognizing the benefits of a relationship with colleagues in the comprehensive imaging specialties of Diagnostic Radiology, Cardiology, and Obstetrics and Gynecology. ^(Core)

IV.B.1.f(4)(a) Negotiate overlapping and shared responsibilities with physicians and other colleagues in the health care professions in episodic and ongoing care. ^(Core)

IV.B.1.f(4)(b) Work with others to assess, plan, provide, and integrate care for patients, especially in areas where comprehensive imaging and POCUS overlap. ^(Core)

IV.B.1.f(5) Engage in respectful shared decision-making with physicians and other colleagues in the health care professions. ^(Core)

IV.B.1.f(6) Hand over the care of a patient to another health care professional to facilitate continuity of safe patient care. ^(Core)

IV.B.1.f)(6)(a) Determine when comprehensive imaging is necessary and coordinate imaging studies with other health care professionals. ^(Core)

IV.B.1.f)(6)(b) Demonstrate safe handover of care, using both oral and written communication of POCUS findings and procedures, during a patient transition to a different health care professional, setting, or stage of care. ^(Core)

IV.C. Curriculum Organization and Trainee Experiences

IV.C.1. The curriculum must be structured to optimize trainee educational experiences, the length of these experiences, and supervisory continuity. ^(Core)

IV.C.1.a) Clinical experiences should be structured to facilitate learning in a manner that allows trainees to function as part of an effective interprofessional team that works together towards the shared goals of patient safety and quality improvement. ^(Core)

IV.C.2. Learning Objectives

The Acute Care POCUS course is provided for practicing physicians and other clinicians who did not receive adequate US training during residency. ^(Core)

IV.C.2.a) The specific training shall consist of a comprehensive longitudinal curriculum, multi-day course, series of short courses, or preceptorship. ^(Core)

IV.C.2.b) If not completed previously, then introductory training in US physics and knobology is required prior to training in individual applications. ^(Core)

IV.C.2.b)(1) Pre-course and post-course online learning may be utilized to reduce the course time spent on traditional didactics and facilitate later review. ^(Core)

IV.C.2.b)(2) Small group hands-on instruction with US faculty on models, simulators, and task trainers provides experience in image acquisition, interpretation, and integration of US exam findings into patient care. ^(Core)

IV.C.2.c) US credentialing letter and course certificates should include a description of the specific topics and applications reviewed, total number of training exams completed with expert supervision, performance on other course assessment measures such as SDOTs or simulation cases. ^(Core)

IV.C.3. Didactics

IV.C.3.a) The program must organize didactic sessions dedicated to US. ^(Core)

IV.C.3.a)(1) Didactic sessions should be in the form of: ^(Core)

- Free open access medical education
- Online interactive didactic sessions
- Hands-on US training on image acquisition and interpretation in clinical environment
- Simulation hands on US training on new skills and/or invasive procedures to enhance patient safety
- Live instructor training
- Supervised examination performance during clinical work.

IV.C.4. Curriculum

The curriculum must be built around competencies in US and target the progressive development and application of increasingly sophisticated knowledge and psychomotor skills. ^(Core)

IV.C.4.a) The clinician must:

IV.C.4.a)(1) Recognize the US indications and contraindications. ^(Core)

IV.C.4.a)(2) Be able to acquire adequate images. ^(Core)

- understand the basic US physics
- operate the US system correctly (knobology)
- perform US application protocols on patients presenting with different conditions and body habitus.

IV.C.4.a)(3) Interpret the imaging by distinguishing normal anatomy, common variants, as well as a range of pathology from obvious to subtle. ^(Core)

IV.C.4.a)(4) Be able to integrate US exam findings into their medical decision-making. ^(Core)

IV.C.4.a)(5) Possess detailed knowledge of each exam's accuracy. ^(Core)

IV.C.4.a)(6) Document properly in the medical record. ^(Core)

IV.C.4.b) A comprehensive US clinician curriculum should contain: ^(Core)

IV.C.4.b)(1) Introduction. ^(Core)

- Distinguish between consultative, clinical, point-of-care, and acute care ultrasound.
- Recognize primary US applications.

IV.C.4.b)(2) Physics and Instrumentation. ^(Core)

- Explain ultrasound physics relevant to US: ^(Core)
 - Piezoelectric effect
 - Frequency
 - Resolution

- Attenuation
- Echogenicity
- Doppler - color and spectral
- Operate the US system as needed to obtain and interpret images adequate for clinical decision making including: ^(Core)
 - Knobology
 - Image mode
 - Gain
 - Time gain compensation (TGC)
 - Focus
 - Transducer types
- Recognize common ultrasound artifacts including. ^(Core)
 - Reverberation
 - Mirror
 - Shadowing
 - Enhancement
 - Edge

IV.C.4.b)(3) Trauma (Focused Assessment by Sonography in Trauma). ^(Core)

- Describe the indications, clinical algorithm, and limitations of US in blunt and penetrating thoracoabdominal trauma.
- Perform the US protocol for Trauma in both primary and secondary surveys.
- Identify relevant US anatomy including the pleura, diaphragm, inferior vena cava, pericardium, liver, spleen, kidneys, bladder, prostate and uterus.
- Recognize pathologic findings and pitfalls in the evaluation of pneumothorax, hemothorax, hemopericardium, cardiac activity, volume status, and hemoperitoneum.
- Integrate Trauma US findings into individual patient, departmental, and disaster management.

IV.C.4.b)(4) First-Trimester Pregnancy. ^(Core)

- Transabdominal approach
- Describe the indications, clinical algorithms and limitations of US in first-trimester pregnancy pain and bleeding.
- Understand the utility of quantitative B-HCG in the evaluation of first-trimester pregnancy pain and bleeding.

- Perform US protocols for transabdominal views as appropriate, including identifying features of early definitive intrauterine pregnancy.
- Identify relevant US anatomy including the cervix, uterus, adnexa, bladder and cul-de-sac.
- Recognize the relevant findings and pitfalls when evaluating for intrauterine pregnancy:
- Early embryonic structures including the gestational sac, yolk sac, fetal pole, and heart
- Location of embryonic structures in pelvis
- Integrate pregnancy US findings into individual patient and departmental management.

IV.C.4.b)(5) Abdominal Aorta. ^(Core)

- Describe indications, clinical algorithms, and limitations of US in the evaluation of abdominal aortic pathology.
- Perform US protocols to evaluate the abdominal aorta including measurement techniques.
- Identify relevant US anatomy including the aorta with major branches, inferior vena cava, and vertebral bodies.
- Integrate Aorta US findings into individual patient and departmental management.

IV.C.4.b)(6) Basic Cardiac and Hemodynamic Assessment. ^(Core)

- Describe the indications and limitations of cardiac US.
- Perform standard US windows (subcostal, parasternal, and apical) and planes (four chamber, long and short axis).
- Identify relevant US anatomy including pericardium, cardiac chambers, valves, descending aorta and inferior vena cava.
- Estimate qualitative left ventricular systolic function.
- Recognize cardiac arrest, pericardial effusions with or without tamponade.

IV.C.4.b)(7) Hepatobiliary. ^(Core)

- Describe the indications and limitations of US of the biliary tract.
- Perform US protocols to evaluate the biliary tract.

- Identify relevant ultrasound anatomy including the gallbladder, portal triad, inferior vena cava, and liver.
- Recognize the relevant findings and pitfalls when evaluating cholelithiasis and cholecystitis.
- Integrate US of the biliary tract into individual patient and departmental management.

IV.C.4.b)(8) Urinary Tract. ^(Core)

- Describe the indications and limitations of US of the kidneys and bladder.
- Perform US protocols to evaluate the urinary tract.
- Identify relevant US anatomy including the renal cortex, renal pelvis, ureter, bladder, liver, spleen, and uterus or prostate.
- Recognize the relevant findings and pitfalls when evaluating for hydronephrosis, renal calculi, bladder volume, pregnancy, and Foley catheter evaluation.
- Integrate US of the urinary tract into individual patient and departmental management.

IV.C.4.b)(9) Lower extremity Deep Vein Thrombosis. ^(Core)

- Describe the indications and limitations of US for the detection of deep venous thrombosis.
- Understand the differences between lower extremity venous US and radiology lab-or vascular lab- performed "Duplex evaluation"
- Perform US protocols for the detection of deep venous thrombosis of the lower extremities including:
 - Vessel identification
 - Compression
 - Doppler imaging of respiratory variation and augmentation.
- Identify relevant US anatomy of the lower extremities including the deep venous and arterial systems, major nerves, and lymph nodes.
- Recognize the relevant findings and pitfalls when evaluating for deep venous thrombosis.
- Integrate US for deep venous thrombosis into individual patient and departmental management.

IV.C.4.b)(10) Skin and Soft Tissue. ^(Core)

- Describe the indications and limitations of skin and soft tissue US.
- Perform US protocols for the evaluation of skin and soft tissue pathology.
- Identify relevant US anatomy including:
 - Skin
 - Adipose
 - Lymph Nodes
- Recognize the relevant findings and pitfalls when evaluating the following:
 - Soft tissue infections: Abscess versus cellulitis
 - Subcutaneous fluid collection identification
 - Foreign body location and size
- Integrate skin and soft tissue US findings into individual patient and departmental management.

IV.C.4.b)(11) Musculoskeletal. ^(Core)

- Describe the indications and limitations of musculoskeletal US.
- Perform US protocols for the evaluation of musculoskeletal pathology.
- Identify relevant US anatomy including:
 - Tendons and Ligaments
 - Muscles
 - Bones
 - Joints
- Recognize the relevant findings and pitfalls when evaluating the following:
 - Tendon injury
 - Fractures
 - Joint identification
- Integrate musculoskeletal EUS findings into individual patient and departmental management.

IV.C.4.b)(12) Thoracic. ^(Core)

- Describe the indications and limitations of thoracic US
- Perform US protocols for the detection of:
 - Pneumothorax
 - Pleural Effusion
 - Interstitial Lung Fluid (CHF, ARDS, pneumonia)
- Identify relevant US anatomy of thoracic structures.

- Recognize the relevant findings and pitfalls when evaluating for thoracic pathology
- Integrate thoracic US findings into individual patient and departmental management.

IV.C.4.b)(14) Bowel. ^(Core)

- Describe the indications and limitations of bowel US
- Perform US protocols for the detection of:
 - Small and Large Bowel obstruction
 - Intussusception
- Identify relevant US anatomy of bowel structures.
- Recognize the relevant findings and pitfalls when evaluating for bowel pathology
- Integrate bowel US findings into individual patient and departmental management.

IV.C.4.b)(13) Ocular. ^(Detail)

- Describe the indications, limitations, and relative contraindications of ocular CUS.
- Perform CUS protocols for the detection of
 - Vitreous hemorrhage
 - Posterior vitreous detachment
 - Retinal detachment
 - Optic nerve sheath diameter measurement
 - Optic disc evaluation
- Light reflex
 - Identify relevant US anatomy of the globe and orbital structures.
 - Recognize the relevant findings and pitfalls when evaluating for ocular pathology.
- Integrate ocular US into individual patient and departmental management.

IV.C.5. Experience

The end of the training requires advanced knowledge of and experience in Acute Care POCUS including: ^(Core)

IV.C.5.a) Performance and interpretation of POCUS examinations in the breadth of body systems, in any acute care setting. ^(Core)

IV.C.5.b) Participation in quality assurance activities of a POCUS program. ^(Core)

IV.C.5.c) Attendance and presentation of POCUS case studies at departmental and multidisciplinary rounds and/or conferences. ^(Core)

IV.C.5.d) Participation in teaching and assessment of other trainees and attending physicians. ^(Core)

IV.C.6. Documenting Experience and Demonstrating Proficiency

The program must ensure sufficient tools and methods to demonstrate US proficiency in addition to a set of number benchmarks. ^(Core)

IV.C.6.a) These methods must include:

IV.C.6.a)(1) Real-time supervision during clinical US. ^(Core)

IV.C.6.a)(2) Quality assurance (QA) image review sessions. ^(Core)

IV.C.6.a)(3) Ongoing individual QA image review exam feedback. ^(Core)

IV.C.6.a)(4) Standardized knowledge assessments. ^(Core)

IV.C.6.a)(5) Small group observed structured clinical examinations (OSCEs). ^(Core)

IV.C.6.a)(6) One-on-one standardized direct observation tools (SDOTs). ^(Core)

IV.C.6.a)(7) Simulation assessments. ^(Core)

IV.C.6.b) The assessment should be completed both at the beginning and the end of a training period. ^(Core)

IV.C.6.b)(1) Initial assessment should identify each trainee's needs, providing the opportunity to modify a local curriculum as needed to create more individualized learning plans. ^(Core)

IV.C.6.b)(2) Final assessment demonstrates trainee competency and future learning needs and identify opportunities for curriculum improvement. ^(Core)

IV.C.6.c) Credentialing examinations must include normal, common variants and pathological findings. ^(Core)

IV.C.6.c)(1) During benchmark completion (credentialing phase), US exams should be quality reviewed for technique and accuracy by US faculty. ^(Core)

IV.C.6.c)(2) All images submitted in the portfolio must include an attestation from the reporting physician documenting that all images were acquired by the trainee.

IV.C.7. Minimum performance numbers:

IV.C.7.a) Overall US trainees should complete the following benchmarks: ^(Core)

IV.C.7.a)(1) A minimum of 25 quality-reviewed exams in every application. ^(Core)

The table below details the minimum required ultrasound scans by clinical application

Ultrasound Application	Minimal Number of
------------------------	-------------------

	Ultrasound Scans
Trauma (Focused Assessment by Sonography in Trauma)	25
Basic Cardiac	25
Thoracic	25
First-Trimester Pregnancy (adult)	25
Abdominal Aorta (adult)	25
Biliary	25
Urinary Tract	25
Lower extremity Deep Vein Thrombosis	25
Skin and Soft Tissue	25
Musculoskeletal	25
Bowel (Bowel Obstruction- Adults) (Intussusception- Pediatrics)	25

V. Evaluation

V.A. Trainee Evaluation

V.A.1. Feedback and Evaluation

Formative and summative evaluation have distinct definitions.

Formative evaluation is monitoring trainee learning and providing ongoing feedback that can be used by trainees to improve their learning.

More specifically, formative evaluations help:

- trainees identify their strengths and weaknesses and target areas that need work
- program directors and faculty members recognize where trainees are struggling and address problems immediately.

Summative evaluation is evaluating a trainee's learning by comparing the trainees against the goals and objectives of the rotation and program, respectively and is utilized to make decisions about promotion to the next level of training, or program completion.

End-of-year evaluations have both summative and formative components. Information from a summative evaluation can be used formatively when trainees or faculty members use it to guide their efforts and activities in subsequent rotations and to successfully complete the traineeship program.

V.A.1.a) Faculty members must directly observe, evaluate, and frequently provide feedback on trainee performance during each rotation or similar educational assignment. ^(Core)

This feedback will allow for the development of the learner as they strive to achieve the Milestones. More frequent feedback is strongly encouraged for trainees who have deficiencies that may result in a poor final rotation evaluation.

V.A.1.a)(1) The faculty must discuss this evaluation with each trainee at the completion of each assignment. ^(Core)

V.A.1.a)(2) Assessment of procedural competence should include a formal evaluation process and not be based solely on a minimum number of procedures performed. ^(Detail)

V.A.1.b) Formative evaluation

Oral and written formative evaluations such as In-Training Evaluation Reports are performed at intervals of no longer than two months to assess the progress of trainees and to provide timely feedback. ^(Core)

V.A.1.b)(1) The evaluations review competencies related to Acute Care POCUS. ^(Core)

V.A.1.b)(2) The validated logbook of cases signed by the supervising physician is reviewed as part of the assessment process. ^(Core)

V.A.1.c) The program must provide an objective performance evaluation based on the Competencies and must: ^(Core)

V.A.1.c)(1) use multiple evaluators (e.g., faculty members, peers, patients, self, and other professional staff members) ^(Core)

V.A.1.c)(2) provide that information to the Clinical Competency Committee for its synthesis of progressive trainee performance and improvement toward unsupervised practice. ^(Core)

V.A.1.d) The program director or their designee, with input from the Clinical Competency Committee, must:

V.A.1.d)(1) Meet with and review with each trainee their documented semi-annual evaluation of performance, including progress and the specialty-specific Milestones ^(Core)

V.A.1.d)(1)(a) Review of trainee Case-Logs must be a part of the semi-annual review. ^(Detail)

V.A.1.d)(2) assist trainee in developing individualized learning plans to capitalize on their strengths and identify areas for growth; ^(Core)

V.A.1.e) At least annually, there must be a summative evaluation of each trainee that includes their readiness to progress to the next year of the program, if applicable. ^(Core)

V.A.1.f) The evaluations of a trainee's performance must be accessible for review by the trainee. ^(Core)

V.A.2. Final Evaluation

V.A.2.a) The program director must provide a final evaluation for each trainee upon completion of the program. ^(Core)

V.A.2.a)(1) The acute care POCUS-specific competencies and benchmarks, must be used as tools to document performance and verify that the trainee has demonstrated sufficient competence to be able to engage in autonomous practice upon completion of the program. ^(Core)

V.A.2.a)(2) The final evaluation must:

V.A.2.a)(2)(a) become part of the trainee's permanent record maintained by the institution, and must be accessible for review by the trainee in accordance with institutional policy; ^(Core)

V.A.2.a)(2)(b) verify that the trainee has demonstrated the knowledge, skills, and behaviours necessary to enter autonomous practice; ^(Core)

V.A.2.a)(2)(c) consider recommendations from the Clinical Competency Committee ^(Core)

V.A.2.a)(2)(d) be shared with the trainee upon completion of the program. ^(Core)

V.A.3. A Clinical Competency Committee must be appointed by the program director. ^(Core)

V.A.3.a) The Clinical Competency Committee must include at least three members of the program faculty, at least one of whom is a core faculty member. ^(Core)

V.A.3.a)(1) Additional members must be faculty members from the same program or other programs, or other health professionals who have extensive contact and experience with the program's trainees. ^(Core)

V.A.3.a)(2) The Program Director has final responsibility for trainee evaluation and promotion decisions. ^(Core)

V.A.3.b) The Clinical Competency Committee must:

V.A.3.b)(1) Review all trainees evaluation at least semi-annually; ^(Core)

V.A.3.b)(2) determine each trainee's progress; ^(Core)

V.A.3.b)(3) meet prior to the trainees' semi-annual evaluations and advise the program director regarding each trainee's progress. ^(Core)

V.B. Faculty Evaluation

V.B.1. The program must have a process to evaluate each faculty member's performance as it relates to the educational program at least annually. ^(Core)

V.B.1.a) This evaluation must include a review of the faculty member's clinical teaching abilities, engagement with the educational program, participation in faculty development related to their skills as an educator, clinical performance, review of patient outcomes, professionalism, research, and scholarly activities. ^(Core)

V.B.1.b) This evaluation must include written, anonymous, and confidential evaluations by the trainees. ^(Core)

V.B.2. Faculty members must receive feedback on their evaluations at least annually. ^(Core)

V.B.3. Results of the faculty educational evaluations should be incorporated into program-wide faculty development plans. ^(Core)

V.C. Program Evaluation and Improvement

V.C.1. The program director must appoint the Program Evaluation Committee to conduct and document the Annual Program Evaluation as part of the program's continuous improvement process. ^(Core)

The performance of trainees and faculty members reflects program quality and will use metrics to reflect the program's goals.

The Program Evaluation Committee must present the Annual Program Evaluation Report in a written form to be discussed with all program faculty and trainees as a part of continuous improvement plans.

V.C.1.a) The Program Evaluation Committee must be composed of at least two program faculty members, at least one of whom is a core faculty member, and at least one trainee. ^(Core)

V.C.1.b) Program Evaluation Committee responsibilities must include:

V.C.1.b)(1) acting as an advisor to the program director, through program oversight; ^(Core)

V.C.1.b)(2) review of the program's requirements, both NIHS required and program self-determined goals, and the progress toward meeting them; ^(Core)

V.C.1.b)(3) guiding ongoing program improvement, including developing new goals based upon outcomes; ^(Core)

V.C.1.b)(4) review of the current operating environment to identify strengths, challenges, opportunities, and threats related to the program's mission and aims. ^(Core)

V.C.1.c) The Program Evaluation Committee should consider the following elements in its assessment of the program:

V.C.1.c)(1) program curriculum; ^(Core)

V.C.1.c)(2) outcomes from prior Annual Program Evaluation(s); ^(Core)

V.C.1.c)(3) NIHS letters of notification including citations, areas for improvement, and comments; ^(Core)

V.C.1.c)(4) the quality and safety of patient care; ^(Core)

V.C.1.c)(5) Aggregate trainees and the faculty:

V.C.1.c)(5)(a) well-being; ^(Core)

V.C.1.c)(5)(b) recruitment and retention following institutional policies; ^(Core)

V.C.1.c)(5)(c) workforce diversity following institutional policies; ^(Core)

V.C.1.c)(5)(d) engagement in quality improvement and patient safety; ^(Core)

V.C.1.c)(5)(e) scholarly activity; ^(Core)

V.C.1.c)(5)(f) Trainees and Faculty Surveys; ^(Core)

V.C.1.c)(5)(g) written evaluations of the program (see above). ^(Core)

V.C.1.c)(6) Aggregate trainee:

V.C.1.c)(6)(a) certification rates; ^(Core)

V.C.1.c)(6)(b) graduates' performance. ^(Core)

V.C.1.c)(7) Aggregate faculty:

V.C.1.c)(7)(a) faculty evaluation; ^(Core)

V.C.1.c)(7)(b) professional development. ^(Core)

V.C.1.d) The Program Evaluation Committee must evaluate the program's mission and aims, strengths, areas for improvement, and threats. ^(Core)

V.C.1.e) The Annual Program Evaluation review, including the action plan, must:

V.C.1.e)(1) be distributed to and discussed with the members of the teaching faculty and the trainees; ^(Core)

V.C.1.e)(2) be submitted to the DIO. ^(Core)

V.C.2. The program will be accredited and reaccredited by the NIHS in accordance with NIHS Accreditation Bylaws.

V.C.2.a) The program must complete a Self-Study before its reaccreditation Site Visit. ^(Core)

V.C.2.b) The Self-Study is an objective, comprehensive evaluation of the traineeship program with the aim to improve it. ^(Detail)

V.C.3. The goal of NIHS-accredited education is to train physicians who seek and achieve a certification. One measure of the effectiveness of the educational program is the ultimate pass rate. ^(Outcome)

V.C.3.a) Under the guidance of the Program Director all eligible program graduates should take the certifying examination conducted by the NIHS to obtain the Certification. ^(Outcome)

V.C.3.b) Graduates are eligible to sit for the Certification examination for up to three years from the date of completion of traineeship training. ^(Outcome)

V.C.4. During the traineeship, the trainees are strongly encouraged to sit for an organized Annual In-Training Examination. ^(Detail)

VI. The Learning and Working Environment

Traineeship education must occur in the context of a learning and working environment that emphasizes the following principles:

- Excellence in the safety and quality of care rendered to patients by trainees today
- Excellence in the safety and quality of care rendered to patients by today's trainees in their future practice

VI.A. Patient Safety, Quality Improvement, Supervision and Accountability

VI.A.1. Patient Safety and Quality Improvement

It is necessary for trainees and faculty members to consistently work in a well-coordinated manner with other health care professionals to achieve organizational patient safety goals.

VI.A.1.a) Patient Safety

VI.A.1.a)(1) Culture of Safety

A culture of safety requires continuous identification of vulnerabilities and a willingness to transparently deal with them. An effective organization has formal mechanisms to assess the knowledge, skills, and attitudes of its personnel toward safety to identify areas for improvement.

VI.A.1.a)(1)(a) The program, its faculty and trainees must actively participate in patient safety systems and contribute to a culture of safety. ^(Core)

VI.A.1.a)(1)(b) The program must have a structure that promotes safe, inter-professional, team-based care. ^(Core)

VI.A.1.a)(2) Education on Patient Safety

Programs must provide formal educational activities that promote patient safety-related goals, tools, and techniques. ^(Core)

VI.A.1.a)(3) Patient Safety Events

Reporting, investigation, and follow-up of adverse events, near misses, and unsafe conditions are pivotal mechanisms for improving patient safety and are essential for the

success of any patient safety program. Feedback and experiential learning are essential to developing true competence in the ability to identify causes and institute sustainable system-based changes to ameliorate patient safety vulnerabilities.

VI.A.1.a)(3)(a) Trainees, faculty members, and other clinical staff members must:

- know their responsibilities in reporting patient safety events at the clinical site; ^(Core)
- know how to report patient safety events, including near misses, at the clinical site; ^(Core)
- be provided with summary information of their institution's patient safety reports. ^(Core)

VI.A.1.a)(3)(b) Trainees must participate as team members in real and/or simulated inter-professional clinical patient safety activities, such as root cause analyses or other activities that include analysis, as well as formulation and implementation of actions. ^(Core)

VI.A.1.a)(4) Trainee Education and Experience in Disclosure of Adverse Events

Patient-centered care requires patients, and when appropriate families, to be appraised of clinical situations that affect them, including adverse events. This is an important skill for faculty physicians to model, and for trainees to develop and apply.

VI.A.1.a)(4)(a) All trainees must receive training in how to disclose adverse events to patients and families. ^(Core)

VI.A.1.a)(4)(b) Trainees should have the opportunity to participate in the disclosure of patient safety events, real or simulated. ^(Detail)

VI.A.1.b) Quality Improvement

VI.A.1.b)(1) Education in Quality Improvement

Trainees must receive training and experience in quality improvement processes, including an understanding of health care disparities. ^(Core)

VI.A.1.b)(2) Quality Metrics

Trainees and faculty members must receive data on quality metrics and benchmarks related to their patient populations. ^(Core)

VI.A.1.b)(3) Engagement in Quality Improvement Activities

Trainees must have the opportunity to participate in inter-professional quality improvement activities. (Core)

VI.A.2. Supervision and Accountability

VI.A.2.a) Although the attending physician is ultimately responsible for the care of the patient, every physician shares in the responsibility and accountability for their efforts in the provision of care. Effective programs, in partnership with their Sponsoring Institutions, define, widely communicate, and monitor a structured chain of responsibility and accountability as it relates to the supervision of all patient care.

Supervision in the setting of traineeship medical education provides safe and effective care to patients; ensures each trainee's development of the skills, knowledge, and attitudes required to enter the unsupervised practice of medicine; and establishes a foundation for continued professional growth.

VI.A.2.a)(1) Each patient must have an identifiable and appropriately credentialed and privileged attending physician who is responsible and accountable for the patient's care. (Core)

VI.A.2.a)(1)(a) This information must be available to trainees, faculty members, other members of the health care team, and patients. (Core)

VI.A.2.a)(1)(b) Trainees and faculty members must inform each patient of their respective roles in that patient's care when providing direct patient care. (Core)

VI.A.2.b) Supervision may be exercised through a variety of methods. For some aspects of patient care, the supervising physician may be a more advanced trainee. Other portions of care provided by the trainee can be adequately supervised by the appropriate availability of the supervising faculty member, or senior trainee physician, either on site or by means of telecommunication technology. Some activities require the physical presence of the supervising faculty member. In some circumstances, supervision may include post-hoc review of trainee-delivered care with feedback.

VI.A.2.b)(1) The program must demonstrate that the appropriate level of supervision in place for all trainees is based on each trainee's level of training and ability, as well as patient complexity and acuity. Supervision may be exercised through a variety of methods, as appropriate to the situation. (Core)

VI.A.2.b)(2) The program must define when the physical presence of a supervising physician is required. ^(Core)

VI.A.2.c) Levels of Supervision

To promote appropriate trainee supervision while providing for graded authority and responsibility, the program must use the following classification of supervision: ^(Core)

VI.A.2.c)(1) Direct Supervision: the supervising physician is physically present with the trainee during the key portions of the patient interaction. ^(Core)

VI.A.2.c)(2) Indirect Supervision: the supervising physician does not provide physical or concurrent visual or audio supervision but is immediately available to the trainee for guidance and is available to provide appropriate direct supervision. ^(Core)

VI.A.2.c)(3) Oversight: the supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered. ^(Core)

VI.A.2.d) The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each trainee must be assigned by the program director and faculty members. ^(Core)

VI.A.2.d)(1) The program director must evaluate each trainee's abilities based on specific criteria. ^(Core)

VI.A.2.d)(2) Faculty members functioning as supervising physicians must delegate portions of care to trainees based on the needs of the patient and the skills of each trainee. ^(Core)

VI.A.2.e) Programs must set guidelines for circumstances and events in which trainees must communicate with the supervising faculty member(s). ^(Core)

VI.A.2.e)(1) Each trainee must know the limits of their scope of authority, and the circumstances under which the trainee is permitted to act with conditional independence. ^(Outcome)

VI.A.2.f) Faculty supervision assignments must be of sufficient duration to assess the knowledge and skills of each trainee and to delegate to the trainee the appropriate level of patient care authority and responsibility. ^(Core)

VI.B. Professionalism

VI.B.1. Programs, in partnership with their Sponsoring Institutions, must educate trainees and faculty members concerning the professional responsibilities of physicians, including their obligation to be

appropriately rested and fit to provide the care required by their patients.
(Core)

VI.B.2. The learning objectives of the program must:

VI.B.2.a) be accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events; (Core)

VI.B.2.b) ensure manageable patient care responsibilities. (Core)

VI.B.3. The program director, in partnership with the Sponsoring Institution, must provide a culture of professionalism that supports patient safety and personal responsibility. (Core)

VI.B.4. Trainees and faculty members must demonstrate an understanding of their personal role in the:

VI.B.4.a) provision of patient- and family-centered care; (Outcome)

VI.B.4.b) safety and welfare of patients entrusted to their care, including the ability to report unsafe conditions and adverse events; (Outcome)

VI.B.4.c) assurance of their fitness for work, including: (Outcome)

VI.B.4.c)(1) management of their time before, during, and after clinical assignments; (Outcome)

VI.B.4.c)(2) recognition of impairment, including from illness, fatigue, and substance use, in themselves, their peers, and other members of the health care team. (Outcome)

VI.B.5. All trainees and faculty members must demonstrate responsiveness to patient needs that supersedes self-interest. This includes the recognition that under certain circumstances, the best interests of the patient may be served by transitioning that patient's care to another qualified provider. (Outcome)

VI.B.6. Programs, in partnership with their Sponsoring Institutions, should have a process for education of trainees and faculty regarding unprofessional behavior and a confidential process for reporting, investigating, and addressing such concerns. (Core)

VI.C. Well-Being

Trainees and faculty members are at risk for burnout and depression. Programs, in partnership with their Sponsoring Institutions, have the same responsibility to address well-being as other aspects of trainee competence. Physicians and all members of the health care team share responsibility for the well-being of each other.

VI.C.1. The responsibility of the program, in partnership with the Sponsoring Institution, to address well-being must include:

VI.C.1.b) attention to scheduling, work intensity, and work compression that impacts trainee well-being; (Core)

VI.C.1.c) evaluating workplace safety data and addressing the safety of trainees and faculty members; ^(Core)

VI.C.1.d) policies and programs that encourage optimal trainee and faculty member well-being; ^(Core)

VI.C.1.e) attention to trainee and faculty member burnout, depression, and substance use disorders.

VI.D. Fatigue Mitigation

VI.D.1. Programs must:

VI.D.1.a) educate all faculty members and trainees to recognize the signs of fatigue and sleep deprivation; ^(Core)

VI.D.1.b) educate all faculty members and trainees in alertness management and fatigue mitigation processes; ^(Core)

VI.E. Clinical Responsibilities, Teamwork, and Transitions of Care

VI.E.1. Clinical Responsibilities

The clinical responsibilities for each trainee must be based on educational level, patient safety, trainee ability, severity and complexity of patient illness/condition, and available support services. ^(Core)

VI.E.2. Teamwork

Trainees must care for patients in an environment that maximizes communication. This must include the opportunity to work as a member of effective interprofessional teams that are appropriate to the delivery of care in the specialty and larger health system. ^(Core)

VI.E.3. Transitions of Care

VI.E.3.a) Programs must design clinical assignments to optimize transitions in patient care, including their safety, frequency, and structure. ^(Core)

VI.E.3.d) Programs and clinical sites must maintain and communicate schedules of attending physicians and trainees. ^(Core)

*Core Requirements: Statements that define structure, resource, or process elements essential to every graduate medical educational program.

†Detail Requirements: Statements that describe a specific structure, resource, or process, for achieving compliance with a Core Requirement. Programs and sponsoring institutions in substantial compliance with the Outcome Requirements may utilize alternative or innovative approaches to meet Core Requirements.

‡Outcome Requirements: Statements that specify expected measurable or observable attributes (knowledge, abilities, skills, or attitudes) of trainees at key stages of their graduate medical education.

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