Neonatal Neurocritical Care Program Requirements

Approved April 24, 2023

Neonatal Neurocritical Program Requirements

The common program requirements are standards required of accredited programs in all UCNS subspecialties. They are shown in **bold** typeface below. Requirements in regular typeface are defined by each subspecialty.

I. Introduction

A. The field of Neonatal Neurocritical Care (NNCC) is a subspecialty that provides complex diagnostic testing, management, and prognostication required to care for the neurologically compromised maternal/fetal dyad, preterm or term neonate and the developing child.

B. Purpose of the Training Program

1. **The purpose of the training program is to prepare the physician for independent practice in** Neonatal Neurocritical Care. **This training must be based on supervised clinical work with increasing patient care responsibilities and transition to independent practice over the course of the training program.**
2. **The program must require its fellows to obtain competencies in the six core competency areas defined by the Accreditation Council for Graduate Medical Education (ACGME). It is the responsibility of the program to provide precise definitions of specific knowledge, skills, and behaviors, as well as educational opportunities in which the fellow must demonstrate competence in those areas. The program's curricular goals and objectives must correlate to the appropriate ACGME Core Competencies and global learning objectives.**

C. The goals of a subspecialty training program in NNCC are:

1. Knowledge of fetal brain development, maldevelopment and the effect of early life brain injury on subsequent neurodevelopment.
    a. Normal brain anatomy and development (including embryological/fetal brain development), physiology and pathophysiology.
    b. Genetic determinants of normal and abnormal brain development.
    c. Effects of injury on fetal and perinatal brain development.
    d. Cerebrovascular physiology and pathophysiology of neonates including, but not limited to, disorders such as focal and global hypoxia-ischemia, vascular malformations and the effect of systemic disorders on cerebrovascular physiology.
    e. Environmental causes of and contributors to brain development and injury, including, but not limited to, stress, nutrition, licit and illicit pharmacologic agents, toxins and sociodemographic influences.
    f. Classification of neonatal seizures, their etiologies, management and associated risks for later epilepsy and effects on neurodevelopment.
    g. Effect of systemic disorders on brain development and function, including *in utero* and neonatal infections, endocrine and metabolic disorders, congenital heart disease and other organ anomalies and dysfunction.

2. Knowledge of the approach to the examination and diagnosis of fetuses, newborns, infants and toddlers, including interpretation of neuroimaging, neurophysiology, laboratory, neuropathology, and genetic data.
3. Effects of critical illnesses and NNCC management on brain development and long-term neurologic outcome.

4. Ability to communicate a range of developmental prognoses with patients and families in a culturally sensitive manner.
5. Knowledge of the institutional recommendations for the diagnosis of brain death in neonates, infants and children.
6. Outpatient, long-term follow-up and management of children with congenital and perinatally acquired neurological disorders.

II. Institutional Support

There are three types of institutions that may comprise a program: 1) the sponsoring institution, which assumes ultimate responsibility for the program and is required of all programs, 2) the primary institution, which is the primary clinical training site and may or may not be the sponsoring institution, and 3) the participating institution, which provides required experience that cannot be obtained at the primary or sponsoring institutions.

A. Sponsoring Institution

1. **The sponsoring institution must be accredited by the ACGME or the Canadian Excellence in Residency Accreditation (CanERA), formerly the Royal College of Physicians and Surgeons of Canada (RCPSC) and meet the current ACGME Institutional Requirements or CanERA General Standards of Accreditation for Institutions with Residency Programs. This responsibility extends to fellow assignments at all primary and participating institutions. The sponsoring institution must be appropriately organized for the conduct of graduate medical education (GME) in a scholarly environment and must be committed to excellence in both medical education and patient care.**
2. **A letter demonstrating the sponsoring institution's responsibility for the program must be submitted. The letter must:**
   a. **confirm sponsorship and oversight of the training program's GME activities,**
   b. **state the sponsoring institution's commitment to training and education, which includes the resources provided by the sponsoring institution, the primary institution, and/or the departments that support the program director's fulfillment of his or her duties as described in these program requirements, and**
   c. **be signed by the designated institution official of the institution as defined by ACGME or postgraduate dean as defined by CanERA.**
3. **Institutional support and oversight are further demonstrated by the required designated institution official/postgraduate dean signature on all program accreditation and reaccreditation applications and annual report submissions.**

B. Primary Institution

1. **Assignments at the primary institution must be of sufficient duration to ensure a quality educational experience and must provide sufficient opportunity for continuity of care. The primary institution must demonstrate the ability to promote the overall program goals and support educational and peer activities.**
2. **A letter from the appropriate department chair(s) at the primary institution must be submitted. The letter must:**
   a. **confirm the relationship of the primary institution to the program,**
   b. **state the primary institution's commitment to training and education, and**
   c. **list specific activities that will be undertaken, supported, and supervised at the primary institution.**

C. Participating Institutions

1. **Assignments to participating institutions must be based on a clear educational rationale, must have clearly stated learning objectives and activities, and should provide resources not otherwise available to the program. When multiple participating institutions are used, there should be assurance of the continuity of the educational experience.**
2. **Assignments at participating institutions must be of sufficient duration to ensure a quality educational experience and should provide sufficient opportunity for continuity of care. All participating institutions must demonstrate the ability to promote the overall program goals and support educational and peer activities.**
3. **If a participating institution is used, a participating institution letter must be submitted. The letter must:**
   a. **confirm the relationship of the participating institution to the program,**
   b. **state the participating institution's commitment to training and education,**
   c. **list specific activities that will be undertaken, supported, and supervised at the participating institution, and**
   d. **be signed by the appropriate official, e.g., department chair or medical director, of the participating institution.**

III. Facilities and Resources

A. Each program must demonstrate that it possesses the facilities and resources necessary to support a quality educational experience.

1. **Additional professional, technical, and administrative personnel must be provided to adequately support the fellowship training program in attaining its educational and administrative goals.**
2. **In programs not situated in a department of neurology, evidence must be provided that demonstrates fellows have access to neurological services** including a Fetal Care Consultative Service providing fetal neurology consultation, Neonatal Neurocritical Clinical Service, and outpatient Neurodevelopmental Follow-Up Clinic. This clinic will specifically provide care for children at-risk for or previously diagnosed with neurological disorders identified in the fetal and/or perinatal period. There should also be population-specific neuromonitoring (e.g., EEG, EMG, NIRS) and neuroimaging facilities and capabilities.
3. Basic facilities and accommodations for learning, including office and meeting spaces and computer resources with provision of access to requisite and relevant learning materials and statistical support as indicated.

IV. Faculty

The faculty of accredited programs consists of: 1) the program director, 2) core faculty, and 3) other faculty. Core faculty are physicians who oversee clinical training in the subspecialty. The program director is considered a core faculty member when determining the fellow complement. Other faculty are physicians and other professionals determined by the Subspecialty to be necessary to deliver the program curriculum. The program director and faculty are responsible for the general administration of the program and for the establishment and maintenance of a stable educational environment. Adequate durations of appointments for the program director and core faculty members are essential for maintaining such an environment. The duration of appointment for the program director must provide for continuity of leadership.

A. Program Director Qualifications

1. **There must be a single program director responsible for the program. The person designated with this authority is accountable for the operation of the program and he or she should be a member of the faculty or medical staff of the primary institution.**
2. **The program director must:**
   a. **possess requisite specialty expertise as well as documented educational and administrative abilities and experience in his or her field,**
   b. **be certified by the American Board of Medical Specialties (ABMS), RCPSC,** American Osteopathic Association (AOA), **or College of Family Physicians of Canada (CFPC) in** neurology with special qualification in child neurology, neurodevelopmental disabilities, or neonatal perinatal medicine,
   c. **possess a current, valid, unrestricted, and unqualified license to practice medicine in the state or province of the program, and**
   d. **if UCNS certification is offered in the subspecialty, be certified, and maintain certification, in** Neonatal Neurocritical Care **by the UCNS.**
      i. **New programs without a certified program director may apply for accreditation, as long as the application contains an attestation that the program director will become certified at the next available opportunity, which includes certification through the UCNS faculty diplomate pathway. The attestation must contain a statement that the program understands that should the program director fail to achieve certification, the program must immediately submit a program change request appointing an appropriately qualified program director.**

B. Program Director Responsibilities

1. **The program director must:**
   a. **oversee and organize the activities of the educational program in all institutions participating in the program including selecting and supervising the faculty and other program personnel at each institution, and monitoring appropriate fellow supervision and evaluation at all institutions used by the program,**
   b. **prepare accurate statistical and narrative descriptions of the program as requested by the UCNS, as well as update the program and fellow records annually,**
   c. **ensure the implementation of fair policies and procedures, as established by the sponsoring institution, to address fellow grievances and due process in compliance with the ACGME's or CanERA's institutional requirements,**
   d. **monitor fellow stress, including mental or emotional conditions inhibiting performance or learning, and drug- or alcohol-related dysfunction, and**
   e. **obtain prior approval of the UCNS for changes in the program that may significantly alter the educational experience of the fellows. Upon review of a proposal for a program change, the UCNS may determine that additional oversight or a site visit is necessary. Examples of changes that must be reported include:**
      1) **change in the program director,**
      2) **the addition or deletion of sponsoring, primary, or participating institution(s),**
      3) **change in the number of approved fellows, and**
      4) **change in the format of the educational program.**

C. Core Faculty Qualifications

1. **Each core faculty member must:**
    a. **possess requisite specialty expertise as well as documented educational and administrative abilities and experience in his or her field,**
    b. **be currently certified by the ABMS, RCPSC,** AOA, **or CFPC in** neurology with special qualifications in child neurology, neurodevelopmental disabilities, or neonatal perinatal medicine,
    c. **possess a current, valid, unrestricted, and unqualified license to practice medicine in the state or province of the program, and**
    d. **be appointed in good standing to the faculty of an institution participating in the program.**
2. **The core faculty must include at least one** child **neurologist** and one neonatologist**. The** child **neurologist** or neonatologist **may also be the program director.**

D. Core Faculty Responsibilities

1. **There must be a sufficient number of core faculty members with documented qualifications at each institution participating in the program to instruct and adequately supervise all fellows in the program.**
2. **Core faculty members must:**
    a. **devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities,**
    b. **evaluate the fellows they supervise in a timely manner, and**
    c. **demonstrate a strong interest in the education of fellows, demonstrate competence in both clinical care and teaching abilities, support the goals and objectives of the educational program, and demonstrate commitment to their own continuing medical education by participating in scholarly activities.**

E. Other Faculty

1. There must be sufficient number of faculty members with documented qualifications at each institution to instruct all fellows in the program in the following specialties: maternal-fetal medicine, pediatric neuroradiology, neurosurgery, electrophysiology, genetics, pathology, therapy services (physical, occupational, speech), infant/child development, and social work.

V. Fellow Appointment

A. Duration of Training

1. **Fellowship programs must be no less than** 12 months**, the entirety of which must be spent in patient-oriented** Neonatal Neurocritical Care **education. At least 80% of the fellow's time must be spent in supervised** clinical **training activities in the practice of** Neonatal Neurocritical Care**, including didactic and clinical education specific to the subspecialty, electives, and scholarly activities.**
2. **Flexible Fellowships**
    a. **Programs may offer flexible fellowships for a variety of reasons, including, but not limited to: combined clinical/research fellowships or to allow fellows opportunities for work/life balance. Programs that combine clinical and research training (clinician-scientist fellowship program) may be up to 36 months in duration for a one-year program and 48 months for a two-year program. At least** 12 **full months of this extended-program period must be spent in patient-**

oriented Neonatal Neurocritical Care **clinical, educational, and scholarly activity, the distribution of which across this extended period is at the program's discretion.**

B. Fellow Eligibility

1. **The fellow must possess a current valid and unrestricted license to practice medicine in the United States or its territories or Canada.**
2. **The fellow must be a graduate of a residency program in** child **neurology** or pediatrics **accredited by the ACGME, RCPSC, or CanERA.**
3. **The fellow must be board certified or eligible for certification by the ABMS, RCPSC,** AOA, **or CFPC in** neurology with special qualifications in child neurology, neurodevelopmental disabilities, or neonatal perinatal medicine**.**

C. Fellow Complement

The fellow complement is the number of fellows allowed to be enrolled in the program at any given time, e.g., across all training years.

1. **There must be at least** 2 **core faculty members for every** 1 **fellow.**

D. Appointment of Fellows and Other Students

1. **The appointment of fellows who do not meet the eligibility criteria above must not dilute or detract from the educational opportunities of regularly appointed** Neonatal Neurocritical Care **fellows. Programs must include these fellows in all reports submitted to UCNS to demonstrate compliance with the approved fellow complement. Fellows who are enrolled without meeting the eligibility criteria must be notified that they may not apply for UCNS certification examinations as graduates of an accredited program.**

VI. Educational Program

A. Role of the Program Director and Faculty

1. **The program director, with assistance of the faculty, is responsible for developing and implementing the academic and clinical program of fellow education by:**
   a. **preparing a written statement to be distributed to fellows and faculty and reviewed with fellows prior to assignment, which outlines the educational goals and objectives of the program with respect to the knowledge, skills, and other attributes to be demonstrated by fellows for the entire fellowship and on each major assignment and each level of the program,**
   b. **preparing and implementing a comprehensive, well-organized, and effective curriculum, both academic and clinical, which includes the presentation of core specialty knowledge supplemented by the addition of current information, and**
   c. **providing fellows with direct experience in progressive responsibility for patient management.**

B. Competencies

1. **A fellowship program must require that its fellows obtain competence in the AGCME Core Competencies to the level expected of a new practitioner in the subspecialty. Programs must define the specific and unique learning objectives in the area including the knowledge, skills, and behaviors required and provide educational experiences as needed in order for their fellows to demonstrate the core competencies.**

2. **The program must use the ACGME Core Competencies to develop competency-based goals and objectives for all educational experiences during the period of fellowship training in** Neonatal Neurocritical Care**.**

C. Didactic Components

1. **The program must include structured, fellow-specific educational experiences such as rounds, conferences, case presentations, lectures, and seminars that complement the clinical and self-directed educational opportunities. Together, various educational experiences must facilitate the fellow's mastery of the core content areas and foster the competencies as described above.**

D. Clinical Components

1. **The fellow's clinical experience must be spent in supervised activities related to the care of patients** including, but not limited to, fetal neurology, CNS maldevelopment, neonatal brain injuries including intraventricular and other types/sites of intracranial hemorrhage, periventricular leukomalacia, hypoxic-ischemic encephalopathy, traumatic brain injury, seizures/epilepsy, vascular disorders, metabolic disturbances, neurogenetic disorders, neurodegenerative disorders, ventriculomegaly/hydrocephalus, neuromuscular disorders, CNS infections (acute and in utero infections), systemic disorders associated with neurological injury and aberrant neurodevelopmental outcomes, and neurodevelopmental follow-up, all as delineated in the UCNS Neonatal Neurocritical Care Certification Content Outline**. Clinical experiences may include all training relevant to** Neonatal Neurocritical Care, **including lectures and individual didactic experiences and journal clubs emphasizing clinical matters.**

E. Scholarly Activities

1. **The responsibility for establishing and maintaining an environment of inquiry and scholarship rests with the faculty. Both faculty and fellows must participate actively in some form of scholarly activity. Scholarship is defined as activities unrelated to the specific care of patients, which includes scholarship pertaining to research, writing review papers, giving research-based lectures and participating in research-oriented journal clubs.**
2. **There must be adequate resources for scholarly activities for faculty and fellows**, including, but not limited to, computing services for data analysis and statistical support as indicated.

F. Fellow Supervision, Clinical Experience and Education, and Well-Being

Providing fellows with a sound academic and clinical education must be carefully planned and balanced with concerns for patient safety and fellow well-being. Each program must ensure that the learning objectives of the program are not compromised by excessive reliance on fellows to fulfill service obligations. Didactic and clinical education defined by the program requirements must have priority in the allotment of a fellow's time and energy.

1. **Fellow Supervision**
    a. **All patient care required by the program requirements must be supervised by qualified faculty. The program director must ensure, direct, and document adequate supervision of fellows at all times. Fellows must be provided with rapid, reliable systems for communicating with supervising faculty.**
    b. **Faculty schedules must be structured to provide fellows with continuous supervision and consultation.**

c. **Faculty and fellows must be educated about and meet ACGME or CanERA requirements concerning faculty and fellow well-being and fatigue mitigation.**

2. **Clinical Experience and Education and Well-Being**
   a. **Clinical assignments must recognize that the faculty and fellows collectively have responsibility for the safety and welfare of patients. Fellow clinical experience and education supervision, and accountability, and clinical work hours, including time spent on-call, must comply with the current ACGME or CanERA institutional program requirements.**

VII. Evaluation

A. Fellow Evaluation

1. **Fellow evaluation by faculty must:**
   a. **take place at least semi-annually to identify areas of weakness and strength, which must be communicated to the fellow,**
   b. **use the subspecialty milestones to document fellow experience and performance, and**
   c. **include the use of assessment results to achieve progressive improvements in the fellow's competence and performance in the ACGME Core Competencies and the subspecialty's core knowledge areas. Appropriate sources of evaluation include faculty, patients, peers, self, and other professional staff.**
2. **The program must include a mechanism for providing regular and timely performance feedback to fellows. Issues of unacceptable performance must be addressed in a timely fashion and in accordance with the policies and procedures of the sponsoring institution.**
3. **Summary and final evaluation of the fellow must:**
   a. **be prepared by the program director and should reflect the input of faculty,**
   b. **include a formative evaluation of the fellow's demonstration of learning objectives and mastery of the ACGME Core Competencies using the subspecialty's milestones,**
   c. **include a final, summative evaluation by the program director using the subspecialty's milestones to document the fellow's demonstration of sufficient competence and professional ability to practice the subspecialty competently and independently, and**
   d. **include a statement specifically regarding the fellow's ability to practice the subspecialty independently upon completion of the program.**

B. Faculty Evaluation

1. **The performance of faculty must be evaluated by the program director on an annual basis.**
2. **The evaluations must include a review of their teaching abilities, commitment to the educational program, clinical knowledge, and scholarly activities.**
3. **These evaluations must include confidential annual written evaluations by fellows.**

C. Program Evaluation and Outcomes

1. **The effectiveness of a program must be evaluated in a systematic manner. In particular, the quality of the curriculum and the extent to which the educational goals have been met must be assessed.**
2. **Confidential written evaluations by fellows must be utilized in this process.**

3. **The program will use fellow performance and outcome assessment in its evaluation of the educational effectiveness of the fellowship program. At a minimum, the fellow performance on the UCNS certification examination should be used as a measure of the effectiveness of the education provided by the training program. The development and use of clinical performance measures appropriate to the structure and content of each program is encouraged.**
4. **The program must have a process in place for using fellow performance and assessment results together with other program evaluation results to improve the fellowship program.**