ACGME Program Requirements for Fellowship Education in Neonatal-Perinatal Medicine

Effective: July 1, 2007

Introduction

A. Scope of Training

1. Neonatal-perinatal medicine programs provide fellows with the background to understand the physiology and altered structure and function of the fetus and the neonate, and to diagnose and manage problems of the neonate.

2. The program must emphasize the fundamentals of clinical diagnosis and management of problems seen in the continuum of development from the prenatal through the intrapartum and neonatal periods, including assessment of outcomes.

VIII. Institutions

An accredited program in neonatal-perinatal medicine must be affiliated with a residency program in obstetrics and gynecology accredited by the Accreditation Council for Graduate Medical Education (ACGME). The obstetrics and gynecology program must be within the same geographic location and have board-certified maternal-fetal medicine specialists.

IX. Program Personnel and Resources

A. Faculty

1. An accredited program must have at least four full-time neonatologists actively contributing sufficient time and effort to the educational program to fulfill the supervisory, teaching, and mentoring requirements of the program.

2. The program must include the full range of pediatric subspecialists necessary for teaching and consultation. In addition, appropriate consultants must be available in related disciplines, including: a pediatric neurologist, a geneticist, a consultant skilled in neurodevelopment, and a pediatric radiologist.

3. Each program must have a full range of surgical subspecialists with experience in pediatrics necessary for teaching and consultation, including consultant faculty in: pediatric surgery, neurosurgery, ophthalmology, orthopaedic surgery, otolaryngology, urology, and

cardiothoracic surgery.

B. Other Program Personnel

The following professional staff, skilled in the care of critically ill and/or premature neonates, are essential: nurses, respiratory therapists, pharmacists, nutritionists skilled in the management of both enteral and parenteral nutrition, therapists skilled in evaluating feeding difficulties initially or in follow up, medical social workers skilled in management of families in crisis and end-of-life care, specialists in physical and occupational therapy applied in a developmentally appropriate way, and specialists in the assessment of hearing.

C. Resources

1. A specially-designated neonatal intensive care unit (NICU) must be located in the primary teaching site. Facilities and equipment in that unit must meet the generally-accepted standards of modern intensive care units, and appropriate laboratory services must be available 24 hours a day. The facilities and resources must include: portable x-ray, ultrasound imaging, ECG, neonatal echocardiography, and EEG services on a 24 hour a day basis with 24 hour a day interpretation services.

2. The perinatal service must have facilities and equipment which meet the generally-accepted standards for high-risk newborn resuscitation.

3. The primary teaching site must meet the generally-accepted standards for modern laboratories and services needed for management of high-risk pregnancies and critically ill neonates. These must include:

   a) microchemistry and hematology laboratories;

   b) blood gas analysis;

   c) perinatal diagnostic laboratory;

   d) pathology services, including those for evaluation of placental pathology;

   e) diagnostic bacteriology and virology laboratories;

   f) blood bank; and,

g) accessible CT and MRI facilities.

4. The teaching sites should also have access to the following within a reasonable period of time:

a) screening laboratory for inborn errors of metabolism;

b) clinical toxicology laboratory;

c) nuclear medicine facilities;

d) cytogenetics laboratory; and,

e) audiology services.

5. The program must provide the patient care experiences necessary for the fellows to acquire skill in delivery room stabilization and resuscitation of critically ill neonates. To accomplish this, there must be a sufficient number and variety of high-risk obstetrical patients to ensure that the fellows become knowledgeable in identifying high-risk pregnancies and evaluating fetal well-being and maturation.

6. A sufficient number of discharged infants must be available in a NICU Follow-up Clinic to assure appropriate outpatient experience for each fellow. The clinic must have staff with expertise in performing developmental assessments, as well as skilled neonatal or pediatric faculty as teachers. These experiences should enable fellows to understand the relationship between neonatal illnesses and later health and development, and to become aware of the socioeconomic impact and psychosocial stress that such infants may place on a family.

X. Educational Program

A. Patient Care

1. Fellows in neonatal-perinatal medicine must be directly involved in the care of critically ill surgical patients in order to acquire the requisite specialty-specific knowledge and skills to attain competence in the evaluation, diagnosis and pre/post operative management of such patients. To meet these goals, the coordination of care and collegial relationships between pediatric surgeons, neonatologists, and critical care intensivists concerning the management of medical problems in these complex critically ill patients are essential.

2. Fellows must have experience and instruction adequate for them to manage critically ill neonates. In addition to the general principles of critical care, this should include, but not be limited to, techniques of neonatal resuscitation, venous and arterial access, evacuation of air leaks, endotracheal intubation, preparation for transport, ventilatory support, continuous monitoring, temperature control, and nutritional support.

3. Fellows must have instruction in the psychosocial implications of disorders of the fetus, neonate, and young infant, as well as in the family dynamics surrounding the birth and care of a sick neonate. The fellows should have experience in patient consultation, communication with referring physicians, and in organizing transport of neonates within the framework of an integrated regional system with different levels of perinatal care. They should also receive instruction about and participate in the education of physicians and other healthcare professionals regarding emerging issues and factors impacting regional perinatal morbidity and mortality.

4. Fellows must learn to identify the high-risk pregnancy, and must become familiar with the methods used to evaluate fetal well-being and maturation. Fellows must become familiar with factors that may compromise the fetus during the intrapartum period, and recognize the signs of fetal distress. In addition, fellows must participate in the follow-up of high-risk neonates.

5. Programs must teach fellows to be effective consultants in neonatal-perinatal medicine. All fellows must receive instruction that prepares them to conduct and interpret relevant scholarly efforts in neonatal-perinatal medicine, to teach neonatal-perinatal medicine effectively, and to be effective administrators and leaders in the field.

6. To become skilled in diagnosis and management, fellows must be exposed to critically ill neonates with diverse medical and surgical conditions. Fellows must participate in the care of a sufficient number of neonates who require ventilatory assistance in order to become skilled in their management; fellows should also participate in the care of neonates requiring major surgery. In addition, fellows must acquire knowledge of, and participate in, the care of neonates requiring cardiac surgical procedures (and their postoperative complications).

7. A neonatal database of all patient admissions, diagnoses, and outcomes must be used for fellow education. Programs should provide fellows with knowledge about the tabulation and evaluation of an institutional database. Exposure to a regional or national fetal and neonatal morbidity and mortality database is encouraged. There should also be instruction and experience in techniques of collation and critical interpretation of data pertaining to immediate outcome and sequelae of various diseases, for which the presence of a statistician is suggested. This experience should be closely related to the evaluations of various modalities of therapy used in these disorders.

B. Medical Knowledge

1. The program must provide fellows with instruction in related basic sciences. Seminars, conferences, and courses must be offered in the basic disciplines related to pregnancy, the fetus, and the neonate. This should include maternal physiological, biochemical, and pharmacological influences on the fetus; fetal physiology; fetal development; placental function (placental circulation, gas exchange, growth); physiological and biochemical adaptation to birth; cellular, molecular, and developmental biology and pathology relevant to diseases of the neonate; psychology of pregnancy and maternal-infant interaction; breast feeding and lactation; growth and nutrition; and genetics.

2. Fellows should also participate in regularly-scheduled multidisciplinary conferences, such as case conferences and those that review perinatal mortality and morbidity.

ACGME Approved: September 12, 2006 Effective: July 1, 2007

Companion Document
(Guidelines for Subspecialty PIF Documentation)

The revised Program Requirements document for the Subspecialties of Pediatrics reflects a transition from a process orientation to one of outcomes. In order to provide assistance to Program Directors, this Companion Document includes some explanation and guidelines for the types of documentation that will be expected. The numeric designations refer to sections of the Program Requirements.

Goals and Objectives (Section IV.A.2)

Written goals and objectives are required for each learning experience. These must be level specific since you would expect more expertise as learners progress thorough fellowship training. Goals are broad statements of what the learner is expected to accomplish over time. Objectives are specific statements about what the learner is expected to do. Learning objectives should begin with a verb. The choice of verbs is important as the verb gives an indication of the level of complexity of the task. For example, it is easier to “identify” or “explain” than it is to “apply” and “evaluate.” The verb that one chooses also needs to be one that describes a measurable behavior. So verbs like learn or understand are not useful for writing learning objectives because it is difficult for an evaluator to directly observe whether the objective has been met. Responsibilities should not be confused with learning objectives and should not be included here. For example, “respond to the arrest team pager when you are on the ICU and ED rotations” is a responsibility and not a true learning objective. The level of detail of the learning objectives should be such that an evaluator would be able to say that a goal has been reached because the requisite set of behaviors needed to reach the goal have all been witnessed. The goals and objectives for each learning experience must be distributed to and reviewed with each learner.

Collaboration Between Programs (Section II.A.4.t.)

For departments/institutions with more than one pediatric subspecialty fellowship program, there should be evidence of a collaborative effort among the fellowship directors in: 1) the preparation and delivery of required general curricular content areas (e.g., biostatistics, critical literature review, preparation of grant applications, etc.), 2) the formation and implementation of the scholarship oversight committees such that, to the extent possible, each fellow’s committee is consistent in function, level of responsibility and expectations of fellow accountability. Written guidelines for the operation of the scholarship oversight committee should be developed as a collaborative effort among subspecialty program directors. A mechanism for fellows to document their research progress is available through the American Academy of Pediatrics (AAP) “Fellow Center” of PediaLink (www.PediaLink.org),

ACGME Competencies (Section IV.A.5.)

Practice-based Learning and Improvement (Section IV.A.5.c.)

In order for fellows to adopt this competency as a life-long habit of practice, they should be guided in the process of reflection with the intent of identifying strengths, needed areas for improvement, and plans to implement strategies that will lead to practice improvement. Fellows should be paired with a faculty mentor with whom they can develop a meaningful relationship to guide them in this process. Faculty development is necessary to ensure that mentors have the needed skills to address the full scope of their responsibilities and function as a valuable resource to fellows. Mentors should meet with mentees a minimum of twice per year along with ongoing interaction via email, phone conversations, etc., during these intervals.

The process of self-assessment is most valuable when discussed with a mentor. The mentor should guide the fellow in reviewing evaluations from health care team members and patients to understand: 1) how one's performance /behavior can impact others, and 2) how to incorporate this feedback into future practice improvement. The fellow can then build on this self-assessment and reflective process by developing an individualized learning plan (e.g., documenting a minimum of three personal learning objectives to address identified areas of needed improvement and strategies to achieve the objectives). This plan should be updated at least annually with the final plan focusing on transition to the next phase of one's career and a plan for life-long learning. The "Fellow Center" of PediaLink provides a mechanism to guide fellows through a self-assessment and reflective process that culminates in documentation of their learning plan.

In addition to knowledge content, it is critical that fellows demonstrate their ability to use technology to access scientific evidence, interpret the evidence they uncover, and then apply it to the care of their patients. The program must document that a fellow is able to perform these skills and that the faculty have a structured way of teaching and evaluating such skill. Having the fellows present at Journal Club or complete a critically-appraised topic are examples of ideal ways of teaching and assessing skills. Necessary components include faculty guidance, criteria for demonstrating competence that are transparent to both fellows and faculty, and documented achievement of competence using the established criteria.

The program must also document that fellows acquire the skills needed to analyze and improve the quality of their practice. Each fellow should engage in a quality improvement project/activity under the guidance of the faculty. The Plan-Do-Study-Act (PDSA) cycle, as described by Berwick, which can be completed in a minimum of two week cycles, provides a practical method for engaging fellows in this process. This requirement may also be met through fellow membership on a QI Committee. In this case there must be evidence of the fellow's active participation in the planning, implementation and analysis of an intervention on a practice outcome.

Programs must provide skilled teachers as role models who demonstrate the value of teaching students, residents, patients and families. Structured learning activities that address teaching skills should be incorporated into the curriculum. Fellows should have opportunities to practice these skills and in turn be evaluated in so doing so that feedback can be used to bring about ongoing improvement.

Interpersonal and Communication Skills (Section IV.A.5.d.)

Effective written and verbal communication is critical to practicing the science of medicine; style and content of communication is critical to practicing the art of medicine.

Providing fellows a structured curriculum to address the needed skills as well as engaging them in interactive methods of learning, such as role modeling, role playing, direct observation and feedback, etc., are necessary to enable them to become competent in this area. Based on the need for subspecialists to engage in the delivery of critical/complex and sometimes devastating information regarding diagnosis, process and treatment, particular attention must be given to teaching and assessing competence in conducting family meetings for these purposes. “On-the-job” training without structured teaching and feedback is not sufficient.

Effective communication is a requisite skill for optimal functioning of the health care team. The ability to function as a both a member and leader of a team are critical skills for the subspecialist who works with referring physicians and agencies, patient and families, as well as other members of the health care system.

One effective way of evaluating communication is through review of the fellow’s correspondence with other health care professionals. A structured process for review of written communication, particularly consults and letters to referring physicians is required. Ad hoc review of written communication does not meet this requirement. Timeliness of completion as well as quality of information provided should be assessed and a mechanism for delivering feedback to the fellow must be ensured. Documentation of competence should be included as part of the written evaluation process.

Professionalism (Section IV.A.5.e.)

Medical ethics and professionalism should be emphasized in the didactic curriculum and modeled by the faculty in all aspects of their practice. A structured curriculum with meaningful venues for teaching that extend beyond the traditional lecture to include interactive learning (e.g., small group discussions of vignettes or case studies, computer-based modules, role plays, etc.) will meet this requirement.

Multi-source feedback that includes patients/families and allied health professionals is critical to the professional formation of fellows. Since the fellow will relate to each

individual in a unique way it is important to have team members (including the patient and family as part of the team) contribute to the assessment of a fellow's professionalism. The program should provide a mechanism to ensure that patients/families and representatives of the health care team assess appropriate aspects of the fellow's professionalism and that this feedback is given to the fellows, preferably as aggregate data, that preserves the anonymity of the evaluators. These evaluations should supplement the evaluations of faculty and peers. A structured mechanism for dissemination and collection of evaluations as well as delivery of feedback to the fellows is required. Timeliness of feedback is also important particularly when there has been a breach of professionalism. A structured mechanism for timely documentation, such as the use of critical incidents or instant evaluations, should be in place. In cases where remediation is needed, the steps should include immediate feedback, the development of an action plan with the fellow that specifically addresses the infraction, ongoing monitoring of behavior, and an identified consequence if improvement is not demonstrated.

Systems-Based Practice (Section IV.A.5.f..)

In order to best serve a patient population, one must develop a familiarity with the natural history and epidemiology of major health problems in the community. A background understanding of the health literacy of the community, along with knowledge of the cultural norms and health beliefs, will improve care delivery. This information becomes helpful in improving patient/family compliance as well. The program must provide a structured curriculum to address all of the elements of this competency as well as opportunities to apply this learning. Particularly relevant to subspecialty fellows is their ability to apply the elements of this competency (e.g., preventive care, resource allocation, cost-effective care, etc.) to help patients navigate the complexities of the health care delivery system. A clinical setting that particularly lends itself to experiential learning and demonstration of the requisite skills is a continuity clinic setting where the fellow has an ongoing therapeutic relationship with patients.

In addition, for three year fellowship programs, fellows must have exposure to the administrative aspects of the delivery of care appropriate to their subspecialty discipline. The required elements may be addressed by having fellows be active participants in division meetings and division conferences where these issues are discussed and solutions to identified problems developed and/or by participating with designated faculty in carrying out administrative responsibilities within the division.

Programs must provide a safe environment that encourages practitioners to identify weaknesses, deficiencies, and errors. The program must ensure that each fellow is actively engaged in activities, under the guidance of experienced faculty, to identify system problems/errors, and to develop and implement system solutions. Morbidity and mortality conference provides an ideal venue for a structured approach to the examination of system errors and the development of system solutions provided the

interdisciplinary team that represents the system is involved and the fellow is an active participant in identifying and addressing the problems/errors.

Evaluation (Section V)

An important consideration in the evaluation of competence is that multiple methods of assessment provide a more comprehensive and valid assessment of the learner. Global evaluations are helpful when used in conjunction with other methods but should not be used as the only method of assessment. The type of assessment methods/tools should be paired in a meaningful way to the tasks of real world practice to be evaluated. For example, if it is important for learners to demonstrate competence as evidence-based practitioners then they need to demonstrate competence in systematically accessing, analyzing and applying evidence which can be accomplished in activities like journal club and care delivery in the clinical setting. The former task may be assessed using direct observation of performance in delivering an evidence-based journal club while the latter may be best assessed using a global assessment of the learner by a faculty member directly interacting with the fellow over some period of time such as a block rotation or several months of a longitudinal experience. The learner and the evaluator should be clear about the criteria on which the judgment of competence will be based. Formative feedback is critical in helping the learner meet the bar that has been set to define competence. Faculty development becomes important for those who will serve as evaluators, ensuring that they understand how to use the assessment tools. Training evaluators has been shown to improve the consistency of the assessment process. Self-assessment is critical in the evaluation of competence. Multi source feedback from various stakeholders such as peers, patients, families and other health care professionals provides valuable feedback to the learner and should be used to inform the process of self-assessment.