Massachusetts General Hospital Child Neurology Residency Program

General Competencies

The ACGME has endorsed general competencies for residents in the areas of:
1. Patient Care
2. Medical Knowledge
3. Practice-Based Learning and Improvement
4. Interpersonal and Communication Skills
5. Professionalism
6. Systems-Based Practice

Identification of general competencies is the first step in a long-term effort designed to emphasize educational outcome assessment in residency and fellowship programs and in the accreditation process. During the next several years, the ACGME’s Residency Review and Institutional Review Committees will incorporate the general competencies into their Requirements. The Adult Neurology and Child Neurology residency programs must require its members to develop the competencies in these six areas to the level expected of a new practitioner. Toward this end, programs must define the specific knowledge, skills, and attitudes required and provide educational experiences as needed in order for their residents and fellows to demonstrate the competencies.

Specialty-Specific Competencies for Child Neurology [modified and updated from ACGME and ABPN guidelines]:

1. PATIENT CARE SKILLS

1. Child Neurology residents must be able to provide scientific, evidenced-based, comprehensive and effective diagnosis and management for patients with developmental neurological disease. Residents are expected to master the following skills and abilities by completion of training:

Clinical Skills

- Elicit a complete neurological, family and psychosocial history from adults and children, and complete review of systems [ROS] using collateral sources if necessary
- Perform an appropriate general and neurological examination.
- Determine whether a patient’s symptoms and signs are the result of organic or psychogenic disease, and provide localization of possible organic pathologies
- Generate a rational formulation, differential diagnosis, laboratory investigation and management plan
**Technical Skills**

- Lumbar puncture, edrophonium, caloric testing and skin biopsy.
- Identify and describe abnormalities seen in common neurologic disorders on radiographic testing, including plain films, cranial ultrasound [neonatal], myelography, angiography, CT, isotope, MRI/MRA/MRS, and PET imaging of the neuraxis.
- Evaluate the application and relevance of investigative procedures and their interpretation in the diagnosis of neurologic disease, including electroencephalogram, motor and sensory nerve conduction studies, electromyography, evoked potentials, electronystagmogram, audiometry, perimetry, psychometry, polysomnography, autonomic testing, CSF analysis, and radiographic studies as outlined above.
- Identify and describe gross and microscopic specimens taken from the normal nervous system and from children with neurological disorders.


3. Evaluate, assess, and recommend cost-effective management of patients with neurological symptoms and disease.

**EDUCATION**

- Supervised experience in patient care with graduated increases in responsibility, including inpatient and outpatient populations:
  - Eliciting history from patients and family members or other proxies
  - Performance of physical and neurological examinations
  - Development of a differential diagnosis, including probable neurological localizations and/or genetic or metabolic abnormalities
  - Development and implementation of laboratory, radiological, and electrophysiological evaluation to address the diagnostic questions
  - Interpretation of test results
  - Development and implementation of therapeutic plan
  - Coordination of care plan in cooperation with pediatric team, nursing, physical and occupational therapy, and other allied health consultants
- Consultation in the Pediatric Emergency Department and in the Neonatal and Pediatric ICUs managing patients with life-threatening neurological disease
- Supervised performance of neurological procedures on wards, ICUs and in clinics, including:
  - Lumbar puncture
  - Caloric testing
  - Edrophonium testing
  - Skin biopsy
- Rotation on the Neuropathology services, with duties including:
  - Removal of brain and spinal cord at autopsy and proper preservation
  - Preparation and presentation of case histories for Pediatric Neuropathology conferences
- Attendance at Adult and Pediatric Neuropathology conferences, including gross brain cutting and microscopic pathology
- Active participation in clinical case-based conferences, including
  - Neuroradiology Rounds
  - Weekly Divisional Clinical Case Conferences
  - Pediatric Neuropathology Conferences
  - Epilepsy/EEG Rounds and conferences
  - Weekly Chief of Service Rounds

ASSESSMENT
- Global and competency-based ratings by attending physicians on wards and in clinic sessions
- Global and competency-based ratings by senior fellows of the junior fellows and rotating Adult Neurology residents on their ward teams
- Supervised “boards-style” history and examination sessions by staff physicians

Performance and assessment checklist for Patient Care Competency
- Participate in child neurology inpatient teams, outpatient continuity clinics, Emergency Dept, Intensive Care Unit [NICU, PICU], Shriners Burn Institute and Spaulding Rehabilitation consultations
- Participate in clinical conferences, including Wednesday clinical case conference, Thursday Chief of Service rounds, EEG conference, Neuropathology conference, Neuroradiology conference, Child Neurology Subspecialty and Pediatric conferences relevant to child neurology.
- Demonstrate knowledge of history and neurological examination and diagnosis and management on rounds and in yearly boards-style examinations.
- Complete procedure checklist.
- Demonstrate knowledge of costs of CT, MRI, EEG, EMG, specialized biochemical/genetic testing, neuropsychiatric testing and relative costs of AEDs and psychopharmacologic medications

2. MEDICAL KNOWLEDGE SKILLS
1. Child Neurology residents must be able to demonstrate knowledge and understanding of the pathophysiology of major neurological and psychiatric disorders, and be familiar with the scientific basis of neurologic disease as outlined and regularly updated by the American Board of Psychiatry and Neurology (ABPN)
2. Demonstrate the ability to reference and utilize electronic information systems to access medical, scientific, and patient information

EDUCATION
- Clinical teaching by senior residents and attending physicians teaching rounds on the inpatient and consult services
• Clinical teaching on Pediatric Rehabilitation, Child Psychiatry; Epilepsy Service; Neurophysiology and Pediatric Neurology Subspecialty rotations
• Case conferences in neurology, neuroradiology, neuropathology, and EEG/neurophysiology
• Didactic lectures in clinical neurology and neuroscience, including weekly departmental Grand Rounds
• Self-directed learning from printed texts, journals, and computer-based media, following a directed core curriculum of subject matter in child neurology (see Neuro2 Partners Intranet site)
• Use of internet-based tools for clinical work and education: PubMed, Ovid; Harvard Medical School eCommons digital library; Longitudinal Medical Record; AMICAS and MITRA online Neuroradiology; formulary resources; Pediatric Neurology Digital Library
• Active participation in educational courses and conferences at the local [MGH-CHMC/HMS annual Child Neurology CME course] and national level [Child Neurology Society, American Neurologic Association and other Subspecialty annual meetings]

ASSESSMENT
• Global and competency-based ratings by attending physicians on wards and in clinic sessions
• Global and competency-based ratings by senior fellows of the junior fellows and rotating Adult Neurology residents on their ward teams
• Annual performance on the Resident In-service Training Examination (RITE) administered by the ABPN
• Programmatic assessment of computer/database skills*

Performance and Assessment Checklist for Medical Knowledge Competency
• Participate in neurology inpatient teams, consultations to Emergency room, Intensive Care Units [NICU, PICU], Spaulding Rehabilitation Hospital and Shriners Burn Institute.
• Participate in child neurology continuity outpatient clinic.
• Participate in clinical conferences including Wednesday clinical cases conference, Thursday Chief of Service rounds, Pediatrics morning report [for child neurology cases], Neuropathology conference, Neuroradiology conference, EEG conferences, subspecialty conferences and Pediatric conferences relevant to child neurology.
• Attend weekly Neurology Grand Rounds and Pediatric Grand Rounds [topics relevant to Child Neurology].
• Complete the Resident In-service Training Examination (RITE)
• Demonstrate knowledge of the CAS and LMR systems and the radiology Amicas and Centricity systems for patient information, recordkeeping and lab/imaging data reporting.
• Demonstrate knowledge of medical and scientific resources, including libraries, electronic databases for diagnosis, management and treatment [eCommons,
PubMed, Ovid, UpToDate, GeneClinics.org] and patient/family or disease-oriented support groups and resources.

3. INTERPERSONAL SKILLS AND COMMUNICATION SKILLS

1. Child Neurology residents must be able to counsel colleagues, children, and their families and other caregivers regarding diagnostic and therapeutic options for the effective management of neurological symptoms and disorders with specific regard to:

   • Interdisciplinary care and involvement of allied health professionals
   • Meeting the educational needs of children with neurological disorders
   • Genetic and/or prenatal counseling
   • Palliative care when appropriate
   • Consideration and compassion for families in providing accurate medical information and prognosis
   • Effective enfranchisement of families and other caregivers to assure continuity of longitudinal care

2. Child Neurology residents must demonstrate interpersonal skills and documentation habits needed for effective communication with colleagues, children, and their families and other caregivers including:

   • Effective listening and use of non-verbal questioning and explanatory techniques
   • Use of informed consent of legal guardians when ordering investigative procedures
   • Maintenance of accurate, timely, and legible medical records

3. Child Neurology residents must be able to counsel children and their caregivers about the prevention of neurological disorders, including behavioral, genetic, and environmental risk factors

EDUCATION

• Participation in the interdisciplinary care team on wards
• Communication with consulting services in patient management
• Leadership of family meetings to communicate patient information, make level-of-care decisions, make end-of-life decisions, and make decisions concerning continuity of care
• Maintenance of daily progress notes, clinic notes, and discharge summaries

ASSESSMENT

• Global and competency-based ratings by attending physicians on wards and in clinics
• Global and competency-based ratings by senior residents of the junior residents and rotating Adult Neurology residents on their ward teams
• Systematic chart reviews
• Observed patient/family interviews and examinations [NEX]*
Performance and Assessment Checklist for Interpersonal Skills and Communication Competency

- Participate in neurology inpatient teams, consultations to Emergency Dept, Intensive Care Units [NICU, PICU], Spaulding Rehabilitation Hospital and Shriners Burn Institute.
- Participate in child neurology outpatient continuity clinic, including presentation of all patients to the clinic attending physicians and communications with referring physicians, other allied health care professionals, school teachers, consultants and parents/family members.
- Present and discuss cases in clinical conferences including Wednesday clinical case conference, Chief of Service rounds, EEG conference, Neuroradiology conference, Neuropathology conference, EEG conference and subspecialty conferences.
- Prepare and present M&M conferences.
- Present child neurology cases to Pediatric morning report.

4. PRACTICE-BASED LEARNING AND IMPROVEMENT SKILLS

Child Neurology residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their practice. Residents are expected to demonstrate skill in the following areas:

- Case-based learning
- Use of best practices through practice guidelines or clinical pathways
- Collection and analysis of patient data
- Interpretation and application of epidemiological and other clinical studies from the medical literature relevant to their patient population
- Knowledge of common methodologies in neurological research

EDUCATION

- Participation in divisional case-based conferences
- Use of clinical pathways in patient care when indicated
- Review of published practice parameters

ASSESSMENT

- Global and competency-based ratings by attending physicians on wards and in clinics
- Global and competency-based ratings by senior fellows of the junior fellows and rotating Adult Neurology residents on their ward teams
- Participation in divisional and departmental case-based conferences
- M&M conference participation

Performance/Assessment Checklist for Practice-Based Learning and Improvement of Competency

- Participate in neurology inpatient teams and consultations to the Emergency Dept, Intensive Care Units [NICU, PICU], Spaulding Rehabilitation Hospital, and Shriners Burn Institute, including family meetings, communications with pediatric
residents and staff physicians, nurses and other allied health professionals, social workers, and other consultants.

- Participate in child neurology continuity outpatient clinic, including presentations to clinic attending staff physicians and communications with referring physicians, allied health professionals, social teachers, consultants and parents/family.
- Use protocols and pathways for patient care.
- Demonstrate knowledge of published Practice Parameters.
- Present and discuss cases in clinical conferences, including Wednesday case conference, Thursday Chief of Service rounds, EEG conferences, Neuroradiology conference, Neuropathology conference, Subspecialty conferences.
- Prepare, present and attend M&M conferences
- Demonstrate knowledge of the CAS and LMR systems and the radiology Amicas and Centricity systems for patient information, lab and imaging data reporting and recordkeeping.
- Demonstrate knowledge of medical and scientific resources, including libraries, electronic libraries and databases [eCommons, PubMed, Ovid, UpToDate, GeneClinics.org, OMIM] and pharmacologic/medication formularies/databases.

5. PROFESSIONALISM

SKILLS

Child Neurology residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Residents are expected to:

- Demonstrate personal and professional attitudes of integrity, honesty, and compassion in the delivery of patient care
- Regularly review one’s own skills and knowledge, realize limitations and respond to others evaluation of his/her professional performance
- Demonstrate a commitment to excellence in clinical practice through the establishment of life-long learning habits and continuing medical education
- Demonstrate respect for the cultural, ethnic, religious, and socioeconomic backgrounds of parents and other caregivers in providing patient care
- Demonstrate appreciation of end-of-life care and issues regarding provision or withholding of care in the neonatal and pediatric intensive care settings
- Timely response to communications from patients, family members and healthcare professionals
- Develop skills in providing continuity of care, including appropriate consultation, transfer or referral for patients
- Learn skills necessary to avoid medical errors and to remediate or correct them when identified.

EDUCATION

- Participation in the interdisciplinary care team on wards
- Ethics library on Neuro2 Partners Intranet site (including relevant hospital policies, e.g. end-of-life and palliative care, DNR orders, brain death determination, etc.)
ASSESSMENT

• Global ratings by attending physicians on wards and in clinic sessions
• Global ratings by senior fellows of the junior fellows and rotating Adult Neurology residents on their ward teams

Performance and Assessment Checklist for Professionalism Competency

• Participate in neurology inpatient teams and consultations to Emergency Dept, Intensive Care Units [NICU, PICU], Spaulding Rehabilitation Hospital, and Shriners Burn Institute. Including family meetings, communications with nurses, consultants and allied health services

• Participate in child neurology continuity outpatient clinic, including presentations to clinical attending physicians and communications with referring physicians, allied health care professionals and consultants

• Present and discuss cases in clinical conferences, including Wednesday care conference, Chief of Service rounds, EEG conference, Neuroradiology conference, Neuropathology conference. Attend weekly Neurology Grand Rounds and Partners institutional lectures on relevant medical delivery and health care topics

• Prepare, present and attend M&M conferences

• Complete semi-annual reviews

• Demonstrate knowledge of the CAS and LMR systems and the radiology Amicas and Centricity systems for patient information, lab and imaging reporting and recordkeeping

• Demonstrate knowledge of medical and scientific resources including national and regional professional meetings, libraries [both hard copy and electronic] and electronic databases for medical and pharmacologic topics [eCommons, PubMed, Ovid, UpToDate, GeneClinics.org, OMIM, pharmacologic formularies]

• Complete Partners Ethical Issues in Neurology curriculum and MGH Pediatrics Ethics curriculum.

6. SYSTEMS-BASED PRACTICE SKILLS

Child Neurology residents must be trained to recognize that they are part of a large and intricate health system and that this has many implications for their ability to care for patients and, more importantly, has an impact upon their patients’ human needs and financial resources. This broad awareness of the context in which Child Neurologists practice, beyond diagnosis and treatment planning, requires expertise in the following areas:

• Recognize the limitation of resources for health care and demonstrate the ability to act as an advocate for children and their families within their social and financial constraints

• Willingness to participate in utilization review and comply with documentation requirements in medical records

• Develop awareness of practice guidelines, community, national, and allied health professional resources which may enhance the quality of life of children with chronic neurological illnesses or developmental disabilities
• Develop the ability to lead and delegate authority to health care teams needed to provide comprehensive care for children with neurological disease
• Develop skills for the practice of ambulatory medicine, including time management, clinic scheduling, and efficient communication with referring physicians
• Develop knowledge of community systems of care

EDUCATION
• Work on wards in teams on the behalf of children and their families, with gradually-increasing leadership roles
• Periodic review of the Practice Guidelines section of Neuro1/Pediatric Neurology Partners Intranet site
• Familiarity with disease-related and other organizations for patient advocacy section on Partners Pediatric Neurology web-site (e.g. MDA, UCP, Easter Seals, Kids-Move, etc.)
• Maintain longitudinal general child neurology outpatient clinic

ASSESSMENT
• Global and competency-based ratings by attending physicians on wards and in clinic sessions
• Global and competency-based ratings by senior fellows of the junior fellows and rotating Adult Neurology residents on their ward teams
• Medical records review

Performance and Assessment Checklist for Systems-based Practice Competency
• Participate in neurology healthcare teams.
• Participate in child neurology outpatient clinic managing patients and communicating with attending and referring physicians and allied health care professionals.
• Demonstrate knowledge of the components of the healthcare team, including nursing, physical therapy, occupational therapy, speech and language therapy, social services, educators, case management.
• Demonstrate knowledge of hospital-based resources for social service and patient advocacy: case managers, social service, chaplaincy services, Optimal Care Committee (MGH), Ethics Committee (BWH), Palliative Care, Partners Neurology and MGH Pediatrics ethics curriculum.
• Demonstrate knowledge of consensus practice guidelines and resources for access to guidelines [AAN website, ASA website, CNS website].

Demonstrate knowledge of local, state, national patient advocacy organizations and ability to access such organizations [web-based resources including AAN, CNS website and various disease-based patient/family support organization web sites].