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  E. Specific Major Clinical Neurophysiology Disorders
  F. American Academy of Neurology Code of Professional Conduct
  G. ACGME Common Program Requirements
  H. Evaluation Forms
  I. Leave Form
  J. Supervisory Lines of Responsibility
  K. GMEC Fatigue Guidelines
WELCOME FROM THE CLINICAL NEUROPHYSIOLOGY
FELLOWSHIP TRAINING PROGRAM

Welcome to the University of Kansas Clinical Neurophysiology fellowship training program. We look forward to another academic year with excellent fellows. Our continued focus on clinical, diagnostic, procedural and technical skills essential to the performance of clinical neurophysiology is reflected in both our didactic and clinical experiences.

This is an ACGME accredited fellowship that spans one year at the University of Kansas Medical Center and affiliated hospitals. We offer a variety of experiences in many different settings. The experience includes opportunities to observe, evaluate, and manage inpatients and outpatients of all ages with a wide variety of disorders of the nervous system and muscles as well as to learn the effectiveness of procedures. Experiences at the University of Kansas Hospital, Children’s Mercy Hospital, and the Kansas City Veterans Administration Medical Center provide opportunities to work with medical professionals as well assist patients with medical problems. Neurologists successfully completing this program, once certified in Neurology, will be eligible for certification by the American Board of Psychiatry and Neurology in Clinical Neurophysiology.

We believe our program will prepare fellows for careers in private practice as well as academic settings. We look forward to working with you this year!

Mamatha Pasnoor, MD
Program Director
FELLOWSHIP ROTATIONS

The emphasis of the fellowship training is on neurophysiological studies in adults and children with direct patient care responsibilities. Fellows actively participate in weekly Muscle Biopsy/Journal Club, Neuromuscular, Clinical Neurophysiology, Epilepsy/EEG, EMG, and Sleep lecture series. Sign-in sheets document attendance. Fellows are similarly expected to attend Neurology/Neurosurgery Grand Rounds, and Case Presentations preceding that.

The fellowship consists of three rotations:

1. **Neuromuscular/EMG Rotation:**
   4 months participating in the evaluation of patients in the ALS Association clinic (1/week), in the Neuromuscular clinic (2/week), performing EMGs daily (5/week), and participation in the evaluation of inpatients on the Neuromuscular Consult service. There are over 1,100 EMG studies per year that are available to rotating fellows. These supervised activities take place at the Landon Center on Aging and at the University of Kansas Hospital.

2. **Epilepsy, EEG and Evoked Potentials:**
   4 months of daily reading of EEGs, care of patients on the Epilepsy Monitoring Unit, Epilepsy clinics and weekly EP reading. These supervised activities take place at the University of Kansas Hospital (over 1,500 EEGs per year) and at Children’s Mercy Hospital.

3. **Kansas City Veterans Administration Medical Center:**
   4 months include Neuromuscular/EMG clinics (6/year) chemodenervation, epilepsy and EEG clinics and weekly remote intraoperative monitoring (UKH).
PROGRAM GOALS, OBJECTIVES AND COMPETENCIES BY ROTATION

The goal of the training in clinical neurophysiology is to provide the resident with the opportunity to develop the expertise necessary to evaluate and manage patients using the procedures and techniques of neurophysiology.

It is the intent of the neurophysiology training program to develop neurologists into competent clinical neurophysiologists. Neurologists successfully completing the program will be eligible for certification by the American Board of Psychiatry and Neurology. Our objective is to provide the fellow with the opportunity to develop the expertise necessary to evaluate and manage patients using the procedures and techniques of clinical neurophysiology and that all trainees will pass the examination.

Clinical neurophysiology includes the assessment of selective neurological disorders involving central, peripheral and autonomic nervous systems and muscles. Assessment, monitoring and treatment is involved in electrophysiological testing in combination with clinical evaluation.

The goals of our training program include extensive experience in clinical neuromuscular disorders and epilepsy, motor and sensory conduction studies, diagnostic electromyography, electroencephalography, video EEG and polysomnography. Familiarity with single fiber electromyography, Electrodiagnostic movement disorder assessment, intraoperative monitoring, evoked potential studies and autonomic function is included. Clinical competence in clinical neurophysiology requires:

a. A solid fund of basic clinical knowledge and the ability to maintain it at current levels for a lifetime of continuous education
b. The ability to perform an adequate history and physical examination
c. The ability to appropriately order and interpret diagnostic tests
d. Adequate technical skills to carry out selected diagnostic procedures
e. Clinical judgment to critically apply the above data to individual patients
f. Attitudes conducive to the practice of neurology, including appropriate interpersonal interactions with patients, professional colleagues, and supervisory faculty and all paramedical personnel
g. Personal integrity
h. Regular, timely attendance at educational activities in the Department of Neurology
i. Timely generation of test reports and appropriate letters and phone calls to referring physicians
j. Recognition of professional limits. Controversial issues require direct and immediate participation of the responsible attending supervising physician
Basic neuroscience pertaining to clinical neurophysiology includes knowledge in neuroanatomy, neuropharmacology, neurophysiology, neurochemistry and neuropathology in normal and disease states.

The fellow will have instruction and practical experience to permit him or her to develop diagnostic, procedural, technical and interventional skills essential to the performance of clinical neurophysiology. The experience includes opportunities to observe, evaluate and manage inpatients and outpatients of all ages with a wide variety of disorders of the nervous system and muscles as well as to learn the effectiveness of procedures. The opportunity includes experience in clinical diagnosis and accumulation/interpretation of laboratory data relevant to these disorders as part of the outpatient and inpatient diagnostic evaluations with good support from pathology and radiology. Basic clinical knowledge should include the neurophysiology aspects of the following disease processes of the nervous system:

- Epilepsies,
- Cerebrovascular disease,
- Dementia and encephalopathies (coma, stupor, confusion, developmental delay, regression),
- Multiple sclerosis (including other demyelinating disorders),
- Movement disorders,
- Brain tumors and other mass lesions,
- Encephalitis/meningitis,
- Sleep disorders,
- Myelopathies,
- Motor neuron disease,
- Radiculopathies and plexopathies,
- Mononeuropathies,
- Polyneuropathies, and
- Myopathies and neuromuscular transmission disorders

Another application of increasing importance is the use of intraoperative monitoring to guide surgical interventions.

Basic and clinical neurophysiology topics will be covered during the one-year training period through a combination of clinical experience of both inpatient and outpatient, basic neuroscience conferences, EMG/neuromuscular disease conferences, and EEG/epilepsy conferences including evoked potentials, intraoperative monitoring, and other areas of clinical neurophysiology such as autonomic testing, single fiber EMG, and the basic physiology of sleep.
The Clinical Neurophysiology program consists of three rotations. Goals for the competency Clinical Science/Medical Knowledge are listed by rotation in the appendix.

1. Neuromuscular/Electromyography Service
2. Epilepsy, EEG and Evoked Potentials
   a) University of Kansas Medical Center
   b) Children’s Mercy Hospital
3. Kansas City VA Medical Center
FELLOW SUPERVISION POLICY

A. Supervision of Residents

- Each patient must have an identifiable, appropriately credentialed and privileged attending physician (or licensed independent practitioner as specified by each Review Committee) who is responsible and accountable for that patient’s care. VI.A.2.a).(1)
- This information must be available to residents, faculty members, other members of the healthcare team, and patients. VI.A.2.a).(1)(a)
  - Inpatient: Patient information sheet included in the admission packet and listed on the “white board” in each patient room
  - Outpatient: Provided during introduction verbally by residents and/or faculty
- Residents and faculty members must inform patients of their respective roles in each patient’s care when providing direct patient care. VI.A.2.a).(1)(b)
- The program must demonstrate that the appropriate level of supervision in place for all residents is based on each resident’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. VI.A.2.b).(1)

B. Methods of Supervision

- Supervision may be exercised through a variety of methods.
- For many aspects of patient care, the supervising physician may be a more advanced resident or fellow.
- Other portions of care provided by the resident can be adequately supervised by the appropriate availability of the supervising faculty member, fellow or senior resident physician, and 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 resident delivered care with feedback. VI.A.2.b)
- The program must demonstrate that the appropriate level of supervision in place for all residents is based on each resident’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. VI.A.2.b).(1)
- The Review Committee may specify which activities require different levels of supervision. VI.A.2.b).(1)
- The program must define when physical presence of a supervising physician is required. (Core) VI.A.2.b).(2)

C. Levels of Supervision Defined

To promote appropriate resident supervision while providing for graded authority and responsibility, the program must use the following classification of supervision:

**Direct Supervision:**

- **Direct A**: The supervising physician is physically present with the resident during the key portions of the patient interaction or, VI.A.2.c).(1).(a) PGY-1 residents must initially be supervised directly only as described in VI.A.2.c).(1).(a) [The Review Committee may describe the conditions under which PGY-1 residents progress to be supervised indirectly]
• **Direct B:** The supervising physician and/or patient is not physically present with the resident and the supervising physician is concurrently monitoring the patient care through appropriate telecommunication technology. [The Review Committee must further specify if VI.A.2.c).(1).(b) is permitted] [The Review Committee will choose to require either VI.A.2.c).(1).(a), or both VI.A.2.c).(1).(a) and VI.A.2.c).(1).(b)]

VI.A.2.c).(1).(b)

**Indirect Supervision:**

The supervising physician is not providing physical or concurrent visual or audio supervision but is immediately available to the resident for guidance and is available to provide appropriate direct supervision. VI.A.2.c).(2)

**Oversight:**

• The supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered. VI.A.2.c).(3)

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

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<tr>
<th>Each patient must have an identifiable and appropriately-credentialed and privileged attending physician (or RRC APPROVED LICENSED INDEPENDENT PRACTITIONER SUPERVISOR) who is responsible and accountable for the patients care, and this information must be available to the residents, faculty members, other members of the health care team and patients. (PR VI.A.2.a (1))</th>
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<tr>
<td>VI.A.2.a).(1) Each patient must have an identifiable and appropriately credentialed and privileged attending physician (or licensed independent practitioner as specified by the applicable Review Committee) who is responsible and accountable for the patient’s care. (core)</td>
</tr>
<tr>
<td>VI.A.2.a).(1).(a) This information must be available to fellows, faculty members, other members of the health care team, and patients. (core)</td>
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<td>VI.A.2.a).(1).(b) Fellows and faculty members must inform each patient of their respective roles in that patient’s care when providing direct patient care. (core)</td>
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All members of the health care team introduce themselves to the patients and describe their role and identify the attending physician and other important team members.

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<tr>
<th>Residents and Faculty members must inform each patient of their respective roles in patient care, when providing direct patient care. VI.A.2.a). (1).(b.)</th>
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<td>All members of the health care team introduce themselves to the patients and describe their role and identify the attending physician and other important team members.</td>
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VI.A.2.b) Supervision may be exercised through a variety of methods. For many aspects of patient care, the supervising physician may be a more advanced fellow. Other portions of care provided by the fellow can be adequately supervised by the appropriate availability of the supervising faculty member or fellow, either on site or by means of telecommunication technology. Some activities require the physical presence of the supervising faculty member. In some circumstance, supervision may include post-hoc review of fellow-delivered care with feedback.

VI.A.2.b).1) The program must demonstrate that the appropriate level of supervision in place for all fellows is based on each fellow’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.

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

The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each resident must be assigned by the Program Director and faculty members. (PR VI.A.2.d).1,2,3)

VI.A.2.d).1) The program director must evaluate each fellow’s abilities based on specific criteria, guided by the Milestones.

VI.A.2.d).2) Faculty members functioning as supervising physicians must delegate portions of care to fellows based on the needs of the patient and skills of each fellow.

VI.A.2.d).3) Fellows should serve in a supervisory role to junior fellows and residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident or fellow.

RARE CIRCUMSTANCES WHEN RESIDENTS may elect to stay or return to the clinical site: (PR VI.F.4.a.)

VI.F.4.a) In rare circumstances, after handing off all other responsibilities, a fellow, on their own initiative, may elect to remain or return to the clinical site in the following circumstances:

VI.F.4.a).1) to continue to provide care to a single severely ill unstable patient;

VI.F.4.a).2) humanistic attention to the needs of a patient or family; or,

VI.F.4.a).3) to attend unique educational events.

DEFINED MAXIMUM NUMBER OF CONSECUTIVE WEEKS OF NIGHT FLOAT AND MAXIMUM NUMBER OF MONTHS PER YEAR OF IN-HOUSE NIGHT FLOAT (PR VI.F. 6.)

VI.F.6 Night float must occur within the context of the 80-hour and one-day-off-in-seven requirements.

VI.F.7. Fellows must be scheduled for in-house call no more frequently than every third night (when averaged over a four-week period).

Program-specific guidelines for circumstances and events in which residents must communicate with appropriate supervising faculty (PR VI.A.2.e)

1. Admission to Hospital
2. Transfer of patient to a higher level of care
3. Clinical deterioration, especially if unexpected
4. End-of-life decisions  
5. Change in code status  
6. Red Events  
7. Change in plan of care, unplanned emergent surgery or planned procedure that does not occur  
8. Procedural complication  
9. Unexpected patient death

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

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<tr>
<th>LEVEL of SUPERVISION</th>
<th>ACTIVITIES /PROCEDURES (as defined by RRC &amp; Program)</th>
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<tr>
<td>DIRECT A</td>
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<td>DIRECT B</td>
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<td>INDIRECT</td>
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<tr>
<th>LEVEL of SUPERVISION</th>
<th>ACTIVITIES /PROCEDURES (as defined by RRC &amp; Program)</th>
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<tbody>
<tr>
<td>DIRECT A</td>
<td>Tissue biopsy, EMG/NCS, consultation, research visits, IOM, chemodenervation</td>
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<tr>
<td>DIRECT B</td>
<td>N/A</td>
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<tr>
<td>INDIRECT</td>
<td>Tissue biopsy, EMG/NCS, consultation, research visits, EEG call</td>
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<tr>
<td>OVERSIGHT</td>
<td>N/A</td>
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PROGRAM ADMINISTRATION

The Program Director develops and oversees the implementation of curriculum to educate fellows and other health care professionals in clinical neurophysiologic disease. To this end, the Program Director reviews applications, oversees the interview process, interviews and selects applicants for positions in the fellowship program, ensures fellow evaluations are completed at least every other month, and quarterly evaluates the fellows with feedback on the individual fellows, identifies fellows who are academically or emotionally troubled and require intervention, chairs the Fellowship Coordinating Committee, performs direct care of clinical neurophysiologic patients, participates in teaching activities by preceptoring inpatient and outpatient clinical neurophysiology services and delivering lectures, and performs clinical neurophysiologic research and ensures that fellows participate in departmental research.

The Program Director is accountable for the operations of the fellowship program; together with the clinical neurophysiology faculty, he/she is responsible for the general administration of the program as well as for establishing and maintaining a stable educational environment. This includes all activities related to recruitment, selection, instruction, supervision, counseling, evaluation and advancement of the fellow(s), as well as maintenance of all records relevant to program accreditation.

Qualifications of the Program Director include Board certification in clinical neurophysiology, licensure in the State of Kansas, an active medical staff appointment and demonstrated educational and administrative expertise.

Administration and maintenance of the educational environment in each of the ACGME competency areas includes, but is not limited to:

- Oversight of the quality of all didactic and clinical education, including preparing and implementing a comprehensive, well-organized and effective curriculum that includes the presentation of core specialty knowledge supplemented by the addition of current information
- Ensures clinical neurophysiology fellows are provided with direct experience in progressive responsibility for patient management
- Ensures that a formal curriculum exists for bioethics, cost-effective care, and palliative care as well as psychological support and counseling for patients and families
- Participation in the evaluation of program faculty
- Monitoring and oversight of participating sites
- Preparation and timely submission of all information required or requested by the ACGME
- Documented semi-annual and final performance evaluations, with feedback, of each clinical neurophysiology fellow
- Ensuring compliance with grievance and due process procedures
• Monitors clinical neurophysiology policies and procedures to ensure they are consistent with institutional and program requirements for fellow work hours and the working environment, including moonlighting
• Monitors the need for, and ensures, the provision of back-up support systems in case patient care responsibilities are unusually difficult or prolonged
• Complies with sponsoring institution policies and procedures, including those for selection, evaluation and promotion of residents, disciplinary action and supervision of fellows
• Complies with all ACGME policies and procedures
• Monitors the well-being of the fellows, including stress and impairment, and ensures that appropriate confidential help is available

Additionally, the Program Director ensures that faculty and fellows meet on a yearly basis to review and complete the Program Outcomes Assessment and Action Plan Report which includes:

1. Program Quality
   • ACGME common and specialty RRC requirements
   • ACGME institutional requirements
   • ACGME accreditation letter and correspondence
   • Most recent GMEC internal review report
   • Previous annual Program Outcomes Assessment and Action Plan Reports
   • Overall program educational goals
   • Competency-based goals and objectives for each rotation assignment at each PGY-level
   • Department Policy and Procedure manual
   • KUMC GME Policy and Procedure manual
   • Program letters of agreement
   • Department curriculum including conference and didactics schedule
   • Annual program, rotation and curriculum evaluations by fellows
   • Annual program, rotation and curriculum evaluations by faculty
   • Work hour violation reports/work hour monitoring system
   • ACGME and GME Resident/Fellow Survey Summary Data Report and national percentile results

2. Resident Performance
   • End-of-rotation competency-based resident evaluations by faculty
   • 360° evaluations of fellows
   • Individual fellow patient case and/or procedure logs
   • Reports of quarterly Program Director evaluation meetings with fellows
   • Final summative evaluations of graduating fellows
   • In-training examination results

3. Faculty Development
   • Faculty evaluations by fellows
   • Annual Program Director evaluative review of fellows
• Annual faculty and resident/fellow publication list
• Annual faculty and resident/fellow presentation list
• Annual faculty and resident/fellow peer-reviewed grant list
• Annual faculty and resident/fellow national committee and educational organization participation list

4. Graduate Performance
• Board certification examination first time pass rate
EDUCATIONAL PROGRAMS

Basic clinical neurophysiology topics will be covered during the one-year training period through a combination of both inpatient and outpatient clinical experiences, basic neuroscience conferences, EMG/neuromuscular disease conferences, and EEG/epilepsy conferences including evoked potentials, intraoperative monitoring and other areas of clinical neurophysiology such as autonomic testing, single fiber EMG and the basic physiology of sleep. Fellows are expected to participate in the Introduction of Biostatistics for Clinical and Translational Researchers and Introduction to Clinical Research courses offered through the University of Kansas School of Medicine.

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<td>Neuromuscular Lecture Series*</td>
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<td>EBM Lecture Series*</td>
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<td>Neurology/Neurosurgery Grand Rounds*</td>
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<td>Muscle, Skin &amp; Nerve Biopsy Conference or Journal Club**</td>
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* Attendance is required

** Neuromuscular Journal Club 2nd Monday of each month: Fellows and clinical neurophysiology faculty present and critically review an article, analyze study design, statistical methods and conclusions using the principles of evidence-based medicine.
**ROTATION SCHEDULES**

**KCVA Schedule:**

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<td>AM</td>
<td>EMG - PMR</td>
<td>EMG - Nayak</td>
<td>EMG – Johnson</td>
<td>EMG – PMR/ Botox (Jan-Jun Dubinsky)</td>
<td>Sleep Clinic - Stevens</td>
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<td>PM</td>
<td>Seizure Clinic – Singh</td>
<td>Neuromuscular Clinic – Johnson</td>
<td>Neuromuscular Clinic – Nayak</td>
<td>EMG – Johnson</td>
<td>Seizure Clinic</td>
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- EEG

- There are three to five EEGs performed daily. Fellows will read the EEG with the inpatient attending at the end of the day or the next morning depending on the length of clinic.
- Weekends are off
- There are no clinics or procedures on federal holidays including July 4th, Labor Day, Thanksgiving Day, Christmas Day, New Year’s Day, Martin Luther King Day, Columbus Day, Veteran’s Day and Memorial Day.
- EEG and MN labs are located on the 11th floor (Room M11-227 onward)
- Neurology Clinics are in the Silver Clinic – first floor.
- Currently there are three EMGs performed/clinic.
- Fellows are required to present at KUMC grand rounds once a year.

- **KCVA Contact Information:**
  - Main Line:  (816) 861-4700
  - EEG Tech:  Rhonda Reliford, Ext. 56755
  - EMG Tech:  Felicia Patrick, Ext. 56760
  - Neurology Nurse Manager: Lynne Bailey-Hammel, Ext. 52437

**Overall Sample Individual Schedule:**

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<tr>
<td>EEG</td>
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**LONGITUDINAL EXPERIENCES - PG5**

<table>
<thead>
<tr>
<th>Type Of Experience*</th>
<th>Weekly Structured</th>
<th>Amount of Time (FTE)</th>
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<tbody>
<tr>
<td>Sleep</td>
<td>1 hr/week/48 weeks</td>
<td>2.5%</td>
</tr>
<tr>
<td>IOM/Evoked Potentials</td>
<td>4 hrs/week/17 weeks</td>
<td>3%</td>
</tr>
<tr>
<td>Autonomic Studies and Single Fiber EMG</td>
<td>2 hrs/week/17 weeks</td>
<td>2%</td>
</tr>
<tr>
<td>ALSA Clinic</td>
<td>4 hrs/week/17 weeks</td>
<td>3%</td>
</tr>
<tr>
<td>Neuromuscular Clinic</td>
<td>8 hrs/week/17 weeks</td>
<td>6%</td>
</tr>
<tr>
<td>Neuromuscular Medicine Hospital Consultations</td>
<td>5 hrs/week/17 weeks</td>
<td>4%</td>
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## CLINICAL NEUROPHYSIOLOGY ROTATION SCHEDULE

### July 2020 – June 2021

<table>
<thead>
<tr>
<th></th>
<th>NMM 1</th>
<th>NMM 2</th>
<th>EEG/Epilepsy-KU/CMH</th>
<th>VA-Neurophysiology</th>
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<tbody>
<tr>
<td>JULY 2020</td>
<td></td>
<td>Mingbunjerdsuk</td>
<td>Rahman</td>
<td></td>
</tr>
<tr>
<td>AUGUST</td>
<td></td>
<td>Mingbunjerdsuk (CMH)</td>
<td>Rahman (KU)</td>
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<tr>
<td>SEPTEMBER</td>
<td>Rahman</td>
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<tr>
<td>OCTOBER</td>
<td>Rahman</td>
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<tr>
<td>NOVEMBER</td>
<td></td>
<td>Rahman</td>
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<tr>
<td>DECEMBER</td>
<td>Rahman (CMH)</td>
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<tr>
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<td>Rahman</td>
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<tr>
<td>FEBRUARY</td>
<td>Rahman</td>
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</tr>
<tr>
<td>MARCH</td>
<td></td>
<td>Rahman</td>
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<tr>
<td>APRIL</td>
<td>Rahman</td>
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<tr>
<td>MAY</td>
<td>Rahman</td>
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<tr>
<td>JUNE 2021</td>
<td>Rahman</td>
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</tr>
</tbody>
</table>

**NMM 1 = includes inpatient consults**

**NMM 2 = includes inpatient EMG**

**EEG/Epilepsy = last month of two-month block is spent at CMH, MO & KS locations**
# NEUROMUSCULAR MEDICINE ROTATION SCHEDULE

## July 2020 – June 2021

<table>
<thead>
<tr>
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<th>NMM 1</th>
<th>NMM 2</th>
<th>NMM 3</th>
<th>VA - Neuromuscular</th>
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<td>McGraw</td>
<td></td>
<td>Fullam</td>
<td></td>
</tr>
<tr>
<td>AUGUST</td>
<td>Fullam</td>
<td></td>
<td>McGraw</td>
<td></td>
</tr>
<tr>
<td>SEPTEMBER</td>
<td>Fullam</td>
<td></td>
<td>McGraw</td>
<td></td>
</tr>
<tr>
<td>OCTOBER</td>
<td>McGraw</td>
<td></td>
<td>Fullam</td>
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</tr>
<tr>
<td>NOVEMBER</td>
<td>McGraw</td>
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</tr>
<tr>
<td>DECEMBER</td>
<td>Fullam</td>
<td></td>
<td>McGraw</td>
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</tr>
<tr>
<td>JANUARY 2021</td>
<td></td>
<td>Fullam</td>
<td>McGraw</td>
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<tr>
<td>FEBRUARY</td>
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<td>McGraw</td>
<td>Fullam</td>
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<tr>
<td>MARCH</td>
<td>Fullam</td>
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<td>McGraw</td>
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<tr>
<td>APRIL</td>
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<tr>
<td>MAY</td>
<td>Fullam</td>
<td></td>
<td>McGraw</td>
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</tr>
<tr>
<td>JUNE 2021</td>
<td>McGraw</td>
<td></td>
<td>Fullam</td>
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</tr>
</tbody>
</table>

**NMM 1 = include inpatient consults**

**NMM 2 = includes inpatient EMG**

**NMM 3 = includes research elective**

**Muscle/Nerve/Skin Biopsy included on Neuromuscular 1, 2, 3 and VA (MO) rotations**
## CONFERENCE SCHEDULE

### Neuromuscular Lecture Series

**July 1, 2020 - June 30, 2021**

**Tuesday 7:00 - 8:00 am - Room 270, Landon Center on Aging**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Topic</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/7/20</td>
<td>7:00</td>
<td>Muscle Anatomy for EMG/Designing an EMG Study</td>
<td>Farmakidis</td>
</tr>
<tr>
<td></td>
<td>7:30</td>
<td>Facial Nerve &amp; Blink Reflex</td>
<td>Jawdat</td>
</tr>
<tr>
<td>7/14/20</td>
<td>7:00</td>
<td>Nerve Conduction Studies</td>
<td>Jawdat</td>
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<tr>
<td></td>
<td>7:30</td>
<td>Myasthenia Gravis</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>7/21/20</td>
<td>7:00</td>
<td>Introduction to Muscle Biopsies</td>
<td>Dimachkie</td>
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<tr>
<td></td>
<td>7:30</td>
<td>Introduction to Muscle Biopsies</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>7/28/20</td>
<td>7:00</td>
<td>IOM Education Session</td>
<td>IOM</td>
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<tr>
<td></td>
<td>7:30</td>
<td>CK/AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
</tr>
<tr>
<td>8/4/20</td>
<td>7:00</td>
<td>Auditory Evoked Potentials</td>
<td>Pasnoor</td>
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<td></td>
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<td>CK/AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
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<tr>
<td>8/11/20</td>
<td>7:00</td>
<td>Weakness in ICU</td>
<td>Dimachkie</td>
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<tr>
<td></td>
<td>7:30</td>
<td>Weakness in ICU</td>
<td>Dimachkie</td>
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<tr>
<td>8/18/20</td>
<td>7:00</td>
<td>Synaptic Transmissions</td>
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<td>Somatosensory Evoked Potentials</td>
<td>Pasnoor</td>
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<td>8/25/20</td>
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<td>IOM Education Session</td>
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<td>CK/AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
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<tr>
<td>9/1/20</td>
<td>7:00</td>
<td>Anamalous Innervation: Common Errors in Nerve and</td>
<td>FELLOW/Jawdat</td>
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<td></td>
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<td>Temperature Effect</td>
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<td>7:30</td>
<td>Visual Evoked Potentials</td>
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<tr>
<td>9/8/20</td>
<td>7:00</td>
<td>Excitable Cells: The Ionic Basis of Membrane Potentials</td>
<td>Dimachkie</td>
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<td>7:30</td>
<td>CK/AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
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<tr>
<td>9/15/20</td>
<td>7:00</td>
<td>Introduction to Nerve Biopsies</td>
<td>Dimachkie</td>
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<td>7:30</td>
<td>Introduction to Nerve Biopsies</td>
<td>Dimachkie</td>
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<tr>
<td>9/22/20</td>
<td>7:00</td>
<td>IBM/Inflammatory Myopathies</td>
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<td></td>
<td>7:30</td>
<td>IBM/Inflammatory Myopathies</td>
<td>Dimachkie</td>
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<tr>
<td>9/29/20</td>
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<td>IOM Education Session</td>
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<td>CK/AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
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<tr>
<td>10/6/20</td>
<td>7:00</td>
<td>Plexopathies</td>
<td>Jabari</td>
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<td>7:30</td>
<td>Plexopathies</td>
<td>Jabari</td>
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<tr>
<td>10/13/20</td>
<td>7:00</td>
<td>ALS</td>
<td>Jawdat</td>
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<td>CK/AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
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<tr>
<td>10/20/20</td>
<td>7:00</td>
<td>Needle EMG Part I: Principles &amp; Spontaneous Activity</td>
<td>Jawdat</td>
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<td>Needle EMG Part II: Voluntary Activity</td>
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<td>CK/AAN Planning Meeting</td>
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<tr>
<td>11/3/20</td>
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<td>Mononeuropathies</td>
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<tr>
<td>11/10/20</td>
<td>7:00</td>
<td>Neuromuscular Ultrasound</td>
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<td>Excitable Membranes: Local Responses &amp; Propagation</td>
<td>Dimachkie</td>
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<tr>
<td>Date</td>
<td>Time</td>
<td>Event</td>
<td>Presenter</td>
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<tr>
<td>11/17/20</td>
<td>7:00</td>
<td>Axonal vs Demyelinating Nerve Conduction Studies: Acquired vs Hereditary Demyelinating Polyneuropathy</td>
<td>Farmakidis</td>
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<td>Radiculopathies</td>
<td>FELLOW/Jawdat</td>
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<tr>
<td>11/24/20</td>
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<tr>
<td>12/1/20</td>
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<td>Neuromuscular Junction Physiology</td>
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<tr>
<td>12/8/20</td>
<td>7:00</td>
<td>Diabetic Polyneuropathy</td>
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<td>Pasnoor</td>
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<td>Faculty/Fellows</td>
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<tr>
<td>12/22/20</td>
<td>7:00</td>
<td>Waveform Analysis &amp; Near- and Far-Field Concepts</td>
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<td>CK/AAN Planning Meeting</td>
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<tr>
<td>1/5/21</td>
<td>7:00</td>
<td>Adult Muscular Dystrophy</td>
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<td>Statland</td>
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<tr>
<td>1/12/21</td>
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<td>Vasculitic Neuropathy</td>
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<td>Cryptogenic Sensory Polyneuropathy</td>
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<td>Quantitative Electromyography &amp; Special Electromyography</td>
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<td>Signal Conditioning of Neurophysiologic Signals: Amplifiers and Filters</td>
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<td>7:00</td>
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<td>AAN Planning Meeting</td>
<td>Faculty/Fellows</td>
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<tr>
<td>3/2/21</td>
<td>7:00</td>
<td>CIDP &amp; Related Disorders</td>
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<td>7:00</td>
<td>Channelopathies</td>
<td>Statland</td>
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<td>Entrapment Mononeuropathies, Part I</td>
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<td>Entrapment Mononeuropathies, Part II</td>
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<td>Epidermal Nerve Biopsy</td>
<td>Pasnoor</td>
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<td>4/6/21</td>
<td>7:00</td>
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<td>Dimachkie</td>
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<td>4/13/21</td>
<td>7:00</td>
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<td>Staff/Fellows</td>
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<td>AAN Planning</td>
<td>Staff/Fellows</td>
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<tr>
<td>4/20/21</td>
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<td>AAN Annual Meeting (4/17-4/23 @ San Francisco)</td>
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<tr>
<td>Date</td>
<td>Time</td>
<td>Title</td>
<td>Speaker</td>
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</tr>
<tr>
<td>5/4/21</td>
<td>7:00</td>
<td>Spinal Muscular Atrophy</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>5/4/21</td>
<td>7:30</td>
<td>Spinal Muscular Atrophy</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>5/11/21</td>
<td>7:00</td>
<td>Pediatric Muscular Dystrophies</td>
<td>Statland</td>
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<tr>
<td>5/11/21</td>
<td>7:30</td>
<td>Pediatric Muscular Dystrophies</td>
<td>Statland</td>
</tr>
<tr>
<td>5/18/21</td>
<td>7:00</td>
<td>Neurologic Complications of Vitamin B12 Deficiency</td>
<td>FELLOWS/Pasnoor</td>
</tr>
<tr>
<td>5/18/21</td>
<td>7:30</td>
<td>Neurologic Complications of Vitamin B12 Deficiency</td>
<td>FELLOWS/Pasnoor</td>
</tr>
<tr>
<td>5/25/21</td>
<td>7:00</td>
<td>IOM Education Session</td>
<td>IOM</td>
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<td>5/25/21</td>
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<td>6/1/21</td>
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<td>Metabolic Myopathy Evaluation</td>
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<td>Metabolic Myopathy Evaluation</td>
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<tr>
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<td>7:30</td>
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*Schedule subject to change based on provider availability. Refer to MedHub for latest schedules.

**Evidence-Based Medicine Lecture Series**

Thursday, 8:00-9:00 AM; Support Services Ste 112. Chair Office

The Department Chair holds regular evidence-based medicine lectures to provide training in the use of evidence in making decisions about the care of patients through the quantitative integration of clinical experience and patient values with the best available research information. Using systematic reviews and meta-analyses, fellows will learn identify multiple studies on a topic and critically analyze the research to use evidence summaries in their clinical practice.
WORK HOURS MONITORING POLICY

Work hours are defined as all clinical and academic activities related to the residency program, i.e., patient care (both inpatient and outpatient), administrative duties related to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled academic activities such as conferences. Work hours do not include reading and preparation time spent away from the work site.

Work hours are limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.

Residents are provided with one day in seven free from all educational and clinical responsibilities, averaged over a four-week period, inclusive of call. One day is defined as one continuous 24-hour period of time free from all clinical, educational and administrative activities. Adequate time for rest and personal activities must be provided. This should consist of an eight-hour time period provided between all daily work periods and at least 14 hours after in-house call.

The institutional policy on work hours is detailed in the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine. Fellows are required to log their work hours weekly in MedHub.

Monitoring and review of the fellow work hour submissions is performed by both the Program Director and Program Coordinator to ensure work hours are in balance to meet ACGME guidelines and to address any potential violations.

HAND-OFF PROCEDURE

It is important to have, for patient safety and continuity of care, a solid transition of case performance for any absence and at the end of each of the three rotations.

Transitions in care are difficult. Every effort must be made by our fellows for smooth transitions in care. The key elements in care transitions are:

- The patient knows who is providing care for them at the fellow and at the faculty levels
  - The fellows introduce themselves to the patient when they first meet and when another fellow takes over
  - The faculty introduce themselves to the patient when they first meet
- Service hand-off is handled in person at the end of each rotation and during absences
- The fellow checks out daily to the service resident. At the end of the day, the fellows may also check out to the on-call resident if need be on a case by case basis

CNP Fellow Handbook 2020-2021
• The hand-off has the pertinent demographic information, urgent test results to be followed up, and current treatment. It is preferred that this be kept electronically and then wiped from memory. If a paper copy is used, it must be placed in a shred box when done.

FELLOW CALL DUTIES

There is no in-house call. The institutional policy on work hours is detailed in the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine.

During the EEG rotation, the fellow will be expected to be on call from home for two non-consecutive weeks of the rotation. The duties of the fellow on call will be to:
1. Determine the necessity for a STAT EEG
2. Interpret STAT EEGs within one hour of completion
3. Notify the EEG attending on call of any STAT EEGs performed
4. The fellow will be the first call for any problems or questions that arise with the patients admitted to the Epilepsy Monitoring Unit
5. The fellow will have an attending available to call for any questions or concerns

FATIGUE MITIGATION POLICY

GMEC Fatigue (Transportation/Swing Room) Guidelines
• If you are fatigued and unable to perform your patient care duties, contact your supervisor (i.e., faculty supervisor, program director, Chair and/or GME Office/DIO). Please inform your supervisor of your situation so that they can arrange for alternate coverage to ensure continuity of patient care.
• Program call rooms should be utilized for fatigued residents/fellows for rest and/or power napping.
• If your program does not have a call room, or if your assigned call room is not available or in use, residents can use the Cambridge Second Floor Call Rooms Suite.
  o To check out a sleep room on Cambridge Second Floor, please utilize the following process:
    1. Resident will call the support operations main line (913-945-9535)
    2. Provides the dispatcher that they need a call room
       • Dispatcher will then assign a call room to the resident over the phone
• Dispatcher will give them a unique code to use to access the room
• Dispatcher will place the residents name and information into the SDC system
3. Resident check out will be by 0900am the next day
4. Check in for these rooms will be at 1100am
5. Housekeeping will be cleaning these rooms after 0900am and 1100am.
6. Rooms should be reserved the entire duration unless the resident notifies the call room person of no longer needing the room then it could be turned over sooner.

Please note that these rooms are priority for residents who are with Neurosurgery, Stroke, Neurology, ENT, and Surgical Oncology.

Call rooms on CA5-ICU are managed separately through the ICU Team.

*If you need a call room for Fatigue Mitigation, please call the support operations main line 5-9535 to check Call Room availability.*

• If adequate rest facilities are not available, then you may use taxi or other transportation service for a trip home and to return to the hospital.
• The transportation service is allowed to pick you up from the KUH Hospital Main Entrance and drop you off at our home address, without any interval stops. This also applies for the return trip from your home to back to the hospital main entrance the next morning.
• The resident is responsible for discussing the event and fatigue issues with their program leadership the following day. This must be documented by the program leadership the following day. This must be documented by the program leadership in the “Fatigue/Transportation Incident Report.” This is available in MedHub – Fatigue/Transportation Incident Report. Submit receipts of the trips to and from home to GME. Reimbursement will be processed once required documentation is complete. The purpose is to track both individual and program-wide episodes of fatigue and additional duty in order to mitigate future recurrences.

Section 30.1 of the University of Kansas School of Medicine Graduate Education Policy and Procedure Manual details the complete GMEC Fatigue Guidelines

WORK ENVIRONMENT STATEMENT

1. Programs and sponsoring institutions must educate fellows and faculty members concerning the professional responsibilities of physicians to appear for duty appropriately rested and fit to provide the services required by their patients
2. The program must be committed to and responsible for promoting patient safety and fellow well-being in a supportive educational environment.

3. The program director must ensure that fellows are integrated and actively participate in interdisciplinary clinical quality improvement and patient safety programs.

4. The learning objectives of the program must:
   a) be accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events; and
   b) not be compromised by excessive reliance on fellows to fulfill non-physician service obligations.

5. The program director and sponsoring institution must ensure a culture of professionalism that supports patient safety and personal responsibility.

6. Fellows and faculty members must demonstrate an understanding and acceptance of their personal role in the following:
   a) assurance of the safety and welfare of patients entrusted to their care;
   b) provision of patient- and family-centered care;
   c) assurance of their fitness for duty;
   d) management of their time before, during, and after clinical assignments;
   e) recognition of impairment, including illness and fatigue, in themselves and in their peers;
   f) attention to lifelong learning;
   g) the monitoring of their patient care performance improvement indicators; and
   h) honest and accurate reporting of work hours, patient outcomes and clinical experience data.

7. All fellows and faculty members must demonstrate responsiveness to patient needs that supersedes self-interest. They must recognize that under certain circumstances, the best interests of the patient may be served by transitioning that patient’s care to another qualified and rested provider.

**LIBRARY AND FELLOW OFFICES**

Fellows have access to the Dykes Medical Library, within brief walking distance. Library services also include on-site electronic retrieval from medical databases. There is on-site access to textbooks and journals through the neurophysiology laboratories as well as the Department of Neurology’s Ziegler Library. These are available during nights and weekends as well. Computer access for fellows to perform journal searches is available in the clinics, neurophysiology laboratories, and in the resident office of the Department of Neurology (PC with online access, desks, designated patient contact computer, phone with voicemail).
DAILY PATIENT LIST/PATIENT ENCOUNTER DOCUMENTATION

Fellows are required to maintain a Patient Encounter Log. Booklets and actual report copies allow fellows to document patient demographics, diagnoses, hospital or clinic setting. Fellows are encouraged to log procedures in MedHub.

MEDICAL RECORDS GENERATION AND DICTATION

Fellows are responsible for the dictation and/or completion of all patient reports on the day of service for all cases in which he/she has participated. Medical records must be completed in a timely fashion on the same day of interaction. This includes clinic visits as well as EMG and EEG studies.

EVALUATIONS

FACULTY & PROGRAM EVALUATIONS

Fellows are required to evaluate each faculty member and the rotations on a bi-monthly basis. Fellows evaluate the program and perform a 360° evaluation every six months. We do our best to maintain fellow anonymity. Candid feedback is strongly encouraged. Strength and weakness analysis are also requested.

The performance of the faculty must be evaluated by the program no less frequently than at the midpoint of the accreditation cycle, and again prior to the next site visit. The evaluations should include a review of their teaching abilities, commitment to the educational program, clinical knowledge, and scholarly activities. This evaluation must include written confidential evaluations by the residents.

FELLOW EVALUATIONS

Faculty members evaluate fellows bi-monthly. Evaluations include judging the fellow’s knowledge, basic clinical competence, both general skills in the primary specialty and specific technical skills, overall performance, the development of professional attitudes consistent with being a physician, ethical behavior and professionalism. The Program Director will review evaluations with the fellow on a quarterly basis. The summary and final evaluation of the resident in clinical neurophysiology will be prepared by the Program Director of the Clinical Neurophysiology training program and will reflect the periodic evaluation by all teaching faculty and is signed by the fellow. These may be reviewed upon request. Each fellow is required to be
proficient in the clinical and technical skills determined to be necessary for a clinical neurophysiology specialist and any related standards relevant to neurology. Advancement to positions of higher responsibility is in accordance to performance. A permanent record is kept of the final evaluations.

MILESTONES

Outcomes based milestones have been developed as a framework for determining resident and fellow performance within the six ACGME core competencies. Each milestone is a competency based developmental outcome that can be demonstrated progressively by residents and fellows from the beginning of their education through graduation to the unsupervised practice of their specialties.

For program accreditation, milestones allow for continuous monitoring of programs, provide public accountability by reporting on aggregate competency outcomes by specialty at a national level and focus on continuous improvement of graduate medical education. For the educational program, milestones provide a framework for clinical competency committees, guide curriculum development, support better assessment practices, and enhance opportunities for early identification of struggling residents and fellows. For the residents and fellows, milestones provide more explicit and transparent expectations of performance, support better self-directed assessment and learning, and facilitate better feedback for professional development.

EXAMS

At the beginning and midway through the fellowship, the fellows will be administered an examination to test their baseline knowledge in clinical neurophysiology and progress at midyear. It is the program’s expectation that fellows will score 35% or more correct answers on the initial exam and 50% or better on the follow-up exam. Fellows who score below these thresholds will be required to have a remediation plan with an assigned faculty mentor. Fellows who score 65% or more on the exam will be commended.

Fellows are also required to sit for two multiple-choice written examinations. The ACNS in-service examination measures knowledge in the evaluation and management of patients with basic sciences, pharmacology, epilepsy, EEG, evoked potentials and sleep. EMG and neuromuscular knowledge are also tested through an American Board of Electrodiagnostic Medicine written examination (AANEM). There will be a post-examination review. This series of
examinations will assist faculty and fellows in gauging fellow medical knowledge and application of basic sciences.

Throughout the year, fellow investigatory and analytic thinking of medical knowledge will be evaluated at the bedside using an oral examination on randomly selected cases. The fellow addresses a clinical problem relating to a patient case scenario and the examiner asks the fellow to manage the case. Fellows should anticipate being asked questions about the reasons for the clinical findings, interpretation of clinical findings, and the treatment plan. These brief (< 5 minute) sessions will total at least 90 minutes per evaluation interval. Performance on the oral examination will be reflected in the periodic evaluation by the Program Director and will be verbally discussed with the fellow.

FELLOWSHIP COORDINATING COMMITTEE

The Director of the Neuromuscular Medicine fellowship program, Dr. Mazen M. Dimachkie, chairs the Fellowship Coordinating Committee (FCC) meeting which includes CNP faculty, fellows, and the fellowship coordinator. The FCC convenes at least three times a year to address policies and administrative matters. The teaching staff and fellows meet periodically to evaluate the utilization of resources available to the program, the contribution of each institution participating in the program, the financial and administrative support of the program, the volume and variety of patients available to the program for educational purposes, the performance of members of the teaching staff, and the quality of supervision of residents. Dr. Dimachkie also reviews cumulative fellow performance individually at least twice a year and anonymous faculty evaluations.

At the end of the year meeting, the FCC reviews the fellow evaluation of the program, fellow performance on metric tests (see EXAMS section above), and new regulatory policies as promulgated by the sponsoring institution and the ACGME RRC. The FCC discusses and votes on changes to the curriculum to continually improve on and maintain the excellence of the program and submits a yearly APE Outcomes Report to the GME.

CLINICAL COMPETENCY COMMITTEE

A Clinical Competency Committee (CCC) has been established under the ACGME guidelines to provide a process for early identification of residents who are having difficulties. To this end the CCC, composed of no less than three members of the program faculty, meets at least twice a year to use the clinical neurophysiology Milestones to achieve a more objective assessment of
each resident, to get better feedback, earlier detection of a resident having difficulty, and earlier intervention and remediation when necessary.

The purpose of the CCC is to review all resident evaluations at least semi-annually, to prepare and assure the reporting of Milestones evaluations of each resident semi-annually to the ACGME, and to advise the program director regarding resident progress, including promotion, remediation and dismissal.

**CNP Fellowship CCC 2020-2021 Members**

- Mamatha Pasnoor, MD – Professor, Program Director
- Mazen Dimachkie, MD – Professor, Associate Program Director, Committee Chair
- Utku Uysal, MD – Associate Professor, Associate Program Director
- Patrick Landazuri, MD – Associate Professor, Teaching faculty
- Omar Jawdat, MD – Associate Professor, Teaching faculty
- Constantine Farmakidis, MD – Assistant Professor, Associate Program Director

**PROGRAM EVALUATION COMMITTEE**

The Program Evaluation Committee (PEC), composed of at least two faculty members and one resident, is appointed by the program director and actively participates in planning, developing, implementing and evaluating the educational activities of the program. The program monitors and tracks resident performance, faculty development, graduate performance (including performance on certification examinations), and program quality. Faculty and residents are given the opportunity to confidentially evaluate the program, in writing, annually. These results, along with progress on the previous year’s action plans, are used to track ongoing program improvements and help document progress for the Self-Study visits required by the ACGME.

**CNP Fellowship PEC 2020-2021 Members**

- Mamatha Pasnoor, MD – Professor, Program Director, Committee Chair
- Mohammed Ilyas, MD – Assistant Professor, CMH Site Director
- Mazen Dimachkie, MD – Professor, Associate Program Director
- Constantine Farmakidis, MD – Assistant Professor, Associate Program Director
- Nancy Hammond, MD – Associate Professor, Teaching Faculty
- Duaa Jabari, MD – Assistant Professor, Teaching Faculty
- Omar Jawdat, MD – Associate Professor, Teaching Faculty
- Patrick Landazuri, MD – Associate Professor, Teaching Faculty
- Carol Ulloa, MD – Associate Professor, Teaching Faculty
- Vikas Singh, MD – Assistant Professor, KCVA Site Director
- Mohammed Rahman, DO – Fellow
FELLOW CODE OF PROFESSIONAL CONDUCT

Clinical Neurophysiology is a clinically, research and procedurally oriented discipline that requires professional conduct and decorum at all times when interacting with patients, nurses, technicians, attendings, residents, and administrative and support personnel of the department. It is expected that fellows carry out their clinical and administrative responsibilities in a timely, courteous and trustworthy manner at all times. If a personal conflict or problem arises with another individual (faculty, fellow, resident, student or staff), the resident has the right to file an official grievance with the Program Director. Please see the “Resident Code of Professional and Personal Conduct” section in the GME policy and procedure manual (section 7).

RESPONSIBILITIES TO RESIDENT EDUCATION

Fellows are responsible for actively teaching and supervising neurology residents rotating on clinical neurophysiology. Fellows should cover the basics of clinical neurophysiology at the start of the rotation. Fellows instruct residents on required conferences and expectations. Moreover, fellows and residents must set aside time throughout the month to review clinical neurophysiology case studies. This is a learning experience for the residents and fellows, so feedback and constructive criticism is mandatory throughout the month. If problems arise that cannot be resolved between the fellow and resident, they should be brought to the attention of the Program Director.

PROMOTIONAL GUIDELINES

Clinical Neurophysiology training is a one-year program with progressively increased fellow responsibility. Clinical neurophysiology fellows are supervised in their responsibilities by faculty who allow the fellows to evaluate and treat patients under close supervision, with faculty always in attendance. As their competence increase according to the milestones, fellows are given increasing degrees of independence in patient evaluation and management. By the end of the year, clinical neurophysiology fellows can function independently and competently. Failure to satisfactorily complete the rotations will lead to formal counseling sessions and a sequence of disciplinary actions that may lead to probation and subsequent dismissal from the program. Disciplinary action will be administered in accordance with the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine (Section 10) and in compliance with ACGME guidelines. Promotion to the next fellow year, for the interested candidate, is dependent on satisfactory completion of the rotations with favorable faculty evaluations (see Fellow Evaluations).
DISCIPLINARY ACTION POLICY

Fellow evaluations, in addition to the annual AANEM, EDX and ACNS in-service examinations and biannual clinical neurophysiology examinations, will be used to monitor a fellow’s progress and performance. Occasionally, it is necessary to counsel a fellow regarding their weaknesses and problem areas in an effort to address these issues early. Failure to rectify problems may lead to a formal sequence of disciplinary actions, which can lead to probation or dismissal from the program. Disciplinary action will be administered according to the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine (Section 12).

Fair procedures for academic discipline and resident complaints or grievances are in accordance with institutional policies. The Program Director is responsible for monitoring resident stress, including mental or emotional conditions inhibiting performance or learning and drug- or alcohol-related dysfunction. The Program Director and teaching staff will be sensitive to the need for timely provision of confidential counseling and psychological support services to residents. Training situations that consistently produce undesirable stress on fellows will be evaluated and modified.

FELLOW STIPENDS

All residents in ACGME accredited programs must receive stipends as prescribed in the Resident Agreement and the Policies and Procedures Governing Graduate Medical Education. All residents at a given postgraduate year level of training will receive the same stipend. The base stipend is determined by the resident’s PGY level and is set during the state government’s annual budgetary process. Stipends are subject to yearly revision, and all residents will be granted revised stipends appropriate for their PGY level when and if such revisions are made effective.

LEAVE POLICY

All requests for any form of leave (vacation, professional, sick, funeral, leave of absence, FMLA, etc.) must be approved by the Program Director in accordance with applicable state and federal laws and accreditation requirements. For more details, please refer to the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine (Section 5.5). Fellows are required to complete a request form for absence when planning any leave including vacation or professional leave (to attend meetings). The fellow must complete the absence form, get the signatures from the supervising faculty and Program Director and turn
them in to the Program Coordinator at least 30 days in advance. The fellow should notify, in writing, affected faculty members of their absence at least 30 days in advance. Further questions should be addressed to the Program Director.

The program will provide up to a maximum of three weeks (15 working days) of vacation per contract year, which is covered by the resident stipend.

Vacation must be requested from, and approved by, the Program Director or a designee in advance in a manner proscribed by the program. Denial of a specific request for vacation is a management decision on the part of the program and is not a grievable matter.

Residents are required to report to work during periods of inclement weather unless directed otherwise by their Program Director. Absent extenuating circumstances, a resident who is unable to report to work, must coordinate with their Program Director to arrange for coverage.

The University will provide up to ten workdays of sick leave per year, covered by the resident’s stipend, to cover personal illness or illness in the resident’s immediate family (spouse, parents or children). The use of sick leave must be approved by the Program Director or the Department Chair. At the discretion of the Chair or Program Director, a physician’s written statement may be required as a condition of approval for sick leave. The University may also require a certification that the resident is released to return to work following three more consecutive days of absence resulting from the resident’s own illness.

Paid leave, (e.g., vacation, sick) cannot be accumulated or carried over from contract year to contract year.

A resident eligible for FMLA leave may request FMLA designation pursuant to the University’s FMLA policy for up to twelve weeks of leave per academic year or contract year (please refer to Section 5 of the GME Policy and Procedure Manual for details).

A resident who does not qualify for FMLA or who has used the maximum amount of FMLA for the year but who still requires relief from the responsibilities of the program, may request a Leave of Absence (please refer to Section 5 of the GME Policy and Procedure Manual for details).

For more information on the available State of Kansas Paid Parental Leave Benefit, please refer to Section 5.5.12 of the GME Policy and Procedure Manual.

RESIDENT ASSISTANCE AND ACCESS TO COUNSELING

The University is interested in the health and well-being of all residents and provides assistance to those with personal problems involving alcohol, drugs, family, marriage, financial, emotional or other conditions that may interfere with work attendance, productivity, and the ability to get
along with co-workers. The Assistance Program is designed to provide information, assessment and referral services to help faculty, staff, residents and students identify problems and develop lifestyles that are physically and emotionally healthy. Many of these services are without cost or on a sliding-fee basis depending on the facility used (*please refer to Section 18 of the GME Policy and Procedure Manual for details*).

**BENEFITS**

All residents in ACGME accredited programs must receive benefits as prescribed in the Policies and Procedures Governing Graduate Medical Education. All residents are given the following benefits (*please refer to Section 5.5 of the GME Policy and Procedure Manual for details*):

1. **Health, Dental and Vision Insurance and Flexible Spending and Health Savings Account**
   House staff and their families are eligible for the State of Kansas Employee’s Group Health, Dental and Vision Insurance and Flexible Spending and Health Savings Account. Coverage begins the first day of the month following the first 30 days of employment. Premiums are deducted from the paycheck.

2. **Professional Liability Insurance**
   Kansas Statutes Annotated (KSA 40-3401 et seq) provides professional liability coverage and tail coverage for residents for acts committed while carrying out their program responsibilities in the amounts of $1,000,000 per occurrence and $3,000,000 annual aggregate. Tail coverage assures that, even after residents and fellows have completed their training at KUMC, any claims brought as a result of those training activities will continue to be covered by their resident/fellow policy.

3. **Worker’s Compensation**
   Through the Kansas Self-Insurance Fund, benefits are provided to residents and fellows who are injured performing their job duties.

4. **ACLS, PALS, NRP or ATLS Training**
   Residents are provided initial certification fees (including books) for ACLS, PALS, NRP or ATLS certification. Programs are responsible for renewal costs during the course of the residency program. However, charges assessed for residents who do not attend their scheduled sessions, or for repeat classes after failing a certification course, are the responsibility of the resident.

5. **Pagers/VOALTE/Phones**
   Pagers are provided at no cost. Charges may be assessed if pagers are lost or damaged. Residents must acquire and/or use in performance of their duties, a personal smart phone that meets University of Kansas Hospital’s technical requirements. Residents
receive a smart phone stipend, the amount of which is determined and communicated to residents on a yearly basis.

7. **Parking**  
Fellows are provided parking in P5 as part of the Standardized Benefits package.

8. **White Coats**  
Programs are provided a stipend for resident White Coats as part of the Standardized Benefits.

**TRAVEL PROCEDURES**

Fellows are able to use their Educational Fund allotments for travel expenses to regional, national, or international meetings. Fellows are required to obtain permission by the Program Director for travel, and fellows must complete an absence form at least one month in advance. Expenses will be reimbursed according to KU policy which requires original receipts for reimbursement. The fellow will notify, in writing, faculty members affected by their absence. This should be done 30 days in advance. Questions should be addressed to the Program Director.

For international travel, fellows should consult at least two months in advance with the Office of International Programs (Kimberly Connelly or Irina Aris). *Please refer to Section 21 of the GME Policy and Procedure Manual for guidelines on international travel.*

**HOLIDAYS**

The Clinical Neurophysiology program and the Department of Neurology at the University of Kansas Medical Center observe eight holidays each academic year. These holidays are as follows:

a) Independence Day  
b) Labor Day  
c) Thanksgiving Day  
d) The day after Thanksgiving
e) Christmas Day
f) New Year’s Day
g) Martin Luther King Day
h) Memorial Day

**IF you are scheduled for patient care on these days, you must receive approval for time off by your Program Director.**

**MOONLIGHTTING POLICY**

Professional activities outside the program (moonlighting) are generally discouraged. Fellows are not required to engage in moonlighting. If a fellow chooses to moonlight, the time spent in doing so must be personal free time away from the training program. The moonlighting workload must not interfere with the ability of the fellow to achieve the goals and objectives of the training program. Time spent by fellows must be counted towards the 80-hour maximum weekly work hour limit. The Program Director will monitor fellow performance to assure that factors such as fatigue are not contributing to diminished learning or performance or detracting from patient safety. Under the institutional requirements, there must be written acknowledgement by the Program Director that a fellow is engaged in moonlighting and signed by the GME. In it, the fellows are required to report the hours spent moonlighting. The acknowledgement must be kept in the fellow’s file. All fellows engaged in moonlighting must be licensed for unsupervised medical practice in the state where the moonlighting occurs. It is the responsibility of the institution hiring the fellow to moonlight to determine whether such licensure is in place, adequate liability coverage is provided, and whether the resident has the appropriate training and skills to carry out assigned duties. For more details, please consult Section 16 of the GME Policy and Procedure Manual.

**GENERAL POLICIES AND PROCEDURES**

Please see the GME Policy and Procedure Manual

**RISK MANAGEMENT**

Please see Section 19 of the GME Policy and Procedure Manual
DEPOSITIONS AND MEDICAL/LEGAL ISSUES

Do **NOT** communicate (verbal or written) with attorneys, give depositions, or sign documents of a medical/legal nature without first discussing the matter with the Program Director and/or involved faculty member. Generally, any contact by a lawyer regarding a patient or anyone affiliated with the medical center must be reported to the Risk Manager. If contact is made by phone, the caller is to be directed to contact the Risk Manager in the Office of Legal Counsel.

MANDATORY ANNUAL IMMUNIZATIONS

Fellows are required to submit to a series of immunizations on a regular annual basis. These immunizations are provided at no cost to the fellows at the time of orientation. Fellows who remain in non-compliance may be removed from service.
CLINICAL NEUROPHYSIOLOGY ALUMNI

2020-2021 Academic Year
Mohammed Rahman

2019-2020 Academic Year
Chaitanya Amrutkar
Prompan Mingbunjersduk

2018-2019 Academic Year
Siva Pesala
David Shirilla

2017-2018 Academic Year
Ernesto Alonso
Tekalign Burka
Bhavana Sharma

2016-2017 Academic Year
Anai Hamasaki
Daniel Kimple
Robert Murphy

2015-2016 Academic Year
Karthika Veerapaneni

2014-2015 Academic Year
Ahmad Abuzinadah
Kimberly Johnson
Tara Quesnell

2013-2014 Academic Year
Dipika Aggarwal
Lipika Nayak

2012-2013 Academic Year
Brennen Bittel
Behrouz Zamani Fekri

2011-2012 Academic Year
No fellow

2010-2011 Academic Year
Iryna Muzyka
Remia Paduga

2009-2010 Academic Year
Dobrin Dobrev
Samiullah Kundi
Samir Macwan

2008-2009 Academic Year
Farhan Ahmed
Srinivas Bandi

2007-2008 Academic Year
Ziad Haddad
Faisal Raja
James Southwell

2006-2007 Academic Year
Dan Dimitru
Gary Miller
Kazi Syed

2005-2006 Academic Year
Saud Khan
Reddiah Mummaneni
Mamatha Pasnoor

2004-2005 Academic Year
Sarab Alseoudi
Heather Anderson
Ijaz Rashid

2003-2004 Academic Year
Sanjeev Kumar
Yunxia Wang

2002-2003 Academic Year
Hazem Ali
Blanca Marky
Christopher Milford

2001-2002 Academic Year
Ziad El-Chami
Haidar Kabbani
Gary Lian

2000-2001 Academic Year
Francis Obi Okonkwo-Onuigo
NEUROMUSCULAR MEDICINE ALUMNI

2020-2021 Academic Year
Timothy Fullam
Nathan McGraw

2019-2020 Academic Year
Swathy Chandrashekhar
David Shirilla

2018-2019 Academic Year
Matthew Varon

2017-2018 Academic Year
Anai Hamasaki

2016-2017 Academic Year
No fellow

2015-2016 Academic Year
No fellow

2014-2015 Academic Year
Duaa Jabari

2013-2014 Academic Year
Ahmad Abuzinadah
Omar Jawdat

2012-2013 Academic Year
Maryam Tahmasbi Sohi

2011-2012 Academic Year
Iryna Muzyka

2010-2011 Academic Year
Bachir Estephan Dajdaj

2009-2010 Academic Year
No fellow

2008-2009 Academic Year
Faisal Raja
CLINICAL NEUROPHYSIOLOGY FACULTY

Mohamed Aman, MD  
Assistant Professor, Kansas City VA Medical Center  
*KCVA Neuromuscular Medicine*

Mazen M. Dimachkie, MD  
Professor, Department of Neurology  
Executive Vice Chair  
Associate Program Director, Clinical Neurophysiology Fellowship Program  
Program Director, Neuromuscular Medicine Fellowship  
Neuromuscular Division Chief  
*EMG/Neuromuscular Disease/Research/Pathology*

Richard Dubinsky, MD, MPH  
Professor, Department of Neurology  
Vice Chair, Outpatient Services  
*EMG/Movement Disorders*

Constantine Farmakidis, MD  
Assistant Professor, Department of Neurology  
Associate Program Director, Clinical Neurophysiology Fellowship Program  
*EMG/Neuromuscular Disease/Research*

Ara Hall, MD  
Clinical Assistant Professor, Children’s Mercy Hospital  
*CMH EEG*

Nancy Hammond, MD  
Associate Professor, Department of Neurology  
*EEG/Epilepsy*

Mohammed Ilyas, MD  
Assistant Professor, Children’s Mercy Hospital  
*CMH EEG/Epilepsy*

Duaa Jabari, MD  
Assistant Professor, Department of Neurology  
Associate Program Director, Neuromuscular Medicine Fellowship Program  
*EMG/Neuromuscular Disease/Pathology/Research*

Omar Jawdat, MD  
Assistant Professor, Department of Neurology  
ALSA Clinic Director  
*EMG/Neuromuscular Disease/ALSA/Rehabilitation/Research/Pathology/Neuromuscular Ultrasound*
Kimberly Johnson, MD  Assistant Professor, Kansas City VA Medical Center  
  *KCVA*

Patrick Landazuri, MD  Clinical Assistant Professor, Department of Neurology  
  Program Director, Epilepsy Fellowship Program  
  *EEG/Epilepsy*

Mamatha Pasnoor, MD  Professor, Department of Neurology  
  Program Director, Clinical Neurophysiology Fellowship  
  Program Director, Neurology Residency  
  *EMG/Neuromuscular Disease/Research/Pathology*

Kailash Pawar, MD  Clinical Assistant Professor, Children’s Mercy Hospital  
  *CMH EEG*

Vishal Shah, MD  Assistant Professor, Department of Neurology  
  Associate Program Director, Epilepsy Fellowship Program  
  *EEG/Epilepsy*

Vikas Singh, MD  Assistant Professor, Kansas City VA Medical Center  
  KCVA Site Director  
  *KCVA Epilepsy*

Jeff Statland, MD  Associate Professor, Department of Neurology  
  Neuromuscular Disease  
  Co-Director, Adult MDA Clinic  
  Co-Director, Pediatric MDA Clinic  
  *Neuromuscular Disease/ALSA/Research/Rehabilitation*

Suzanne Stevens, MD  Assistant Professor, Department of Neurology  
  Director, Sleep Laboratory  
  *Sleep*

Carol Ulloa, MD  Associate Professor, Department of Neurology  
  *EEG/Epilepsy*

Utku Uysal, MD  Associate Professor, Department of Neurology  
  Associate Program Director, Clinical Neurophysiology Fellowship Program  
  *EEG/Epilepsy*
Activities on the Neuromuscular/Electromyography Services Rotation

1) Discuss with the attending physician, interpret and generate clinic notes on the day of service for attending physician to review on the mornings of Monday (ALSA clinic), Tuesday (NM clinic) and Thursday (NM clinic) until 12 noon

2) Perform nerve conduction studies and EMG:
   a. from 1 to 4 pm on Monday (Drs. Pasnoor and Jawdat), Wednesday (Dr. Dubinsky) and Friday (Dr. Dubinsky)
   b. from 12 noon to 4 pm on Tuesday (Drs. Dimachkie and Jawdat) and Thursday (Drs. Pasnoor and Dimachkie)
   c. on Wednesday mornings (Dr. Pasnoor) starting at 8:30 am

3) Discuss with the attending physician, interpret and type NCS/EMG study reports on the day of service, considering clinical presentation for attending physician review

4) Round on the neuromuscular inpatient service daily from 4 to 5 pm

5) Attend Muscle and Nerve Biopsy Conferences

6) Attend and present at Neuromuscular Conference on a rotational basis

7) Participate in monthly Journal Club

8) Present at the Carrell-Krusen Symposium and the annual meeting of the American Academy of Neurology

9) Give one Grand Rounds per year

10) Participate in and attend all the educational curriculum

11) Read the basic science chapters in Clinical Neurophysiology by Jasper Daube

12) Additional reading suggestions:
    - Brown and Bolton: Clinical Electromyography
    - Levin and Luders: Comprehensive Clinical Neurophysiology
    - Preston and Shapiro: Electromyography and Neuromuscular Disorders
    - Kimura: Electrodiagnosis in Disease of Nerve and Muscle

I. CORE COMPETENCY: Clinical Science/Medical Knowledge

Goal: Fellows must demonstrate knowledge about established and evolving neuroscience that would be critical to the practice of neuromuscular disorders and electromyography and nerve conduction studies.

Knowledge: Fellows will demonstrate knowledge of:

1) The theoretical basis for clinical interventions used in neuromuscular disorders and electromyography and nerve conduction studies

2) Major neuromuscular disorders, including:
    a. the epidemiology of the disorder
    b. the etiology of the disorder, including contributing medical, genetic and social factors
    c. the phenomenology of the disorder
    d. diagnostic criteria
e. appropriate evaluation
f. course and prognosis
g. effective treatment strategies

3) Pathophysiology of major clinical neurophysiology disorders and familiarity with the scientific basis of neurological diseases, including (see Appendix A for more specific disorders):
   a. neuroanatomy
   b. neuropathology
   c. neurochemistry
   d. neurophysiology
   e. neuropharmacology
   f. neuroimmunology/neurovirology
   g. neurogenetics/molecular neurology and neuroepidemiology
   h. neuroimaging
   i. neuro-ophthalmology
   j. neuro-otology
   k. cerebrospinal fluid
   l. neurological rehabilitation
   m. issues related to neuromuscular disorders

4) Gross and microscopic specimens taken from the normal nervous system and from patients with major neuromuscular disorders

Skills: Fellows will demonstrate the ability to:
1) Perform a detailed neuromuscular history and physical exam
2) Discuss the differential diagnosis, work up plan, and prognosis
3) Perform and document a comprehensive history and examination to include, as appropriate:
   a. chief complaint
   b. history of present illness
   c. developmental history
   d. past medical history
   e. review of systems
   f. family history
   g. mental status
   h. neurologic examination
   i. Create differential diagnoses:
4) to determine if a patient’s symptoms are the result of a disease affecting the central and/or peripheral system or are of another origin
5) to make a formulation, laboratory investigation, and cost-effective management plan
6) To develop and maintain the technical skills to:
   a. perform edrophonium testing
   b. identify and describe abnormalities seen in common clinical neurophysiology
   c. disorders on radiographic testing, including plain films, myelography, angiography, CT, isotope, and MRI
   d. evaluate the application and relevance of investigative procedures and interpretation in the diagnosis of neurologic disease, including the following:
      i. electroencephalogram
      ii. motor and sensory nerve conduction studies
      iii. electromyography
      iv. evoked potentials
v. polysomnography  
vi. electronystagmogram  
vii. perimetry  
viii. psychometry  
ix. CSF analysis  
x. vascular imaging (Duplex, transcranial Doppler)  
xi. radiographic studies as outlined above  
e. identify and describe gross and microscopic specimens taken from the normal nervous system and from patients with major neuromuscular or epileptic disorders

7) To recognize and treat major neuromuscular disorders
8) Use common devices to perform good quality:  
a. nerve conduction studies  
b. electromyography

9) Perform:  
a. an abbreviated history and physical examination within 5 to 10 minutes to develop a plan for the nerve conduction studies  
b. nerve conduction studies in 10 to 30 minutes per limb, assisted by a technologist and progressing to independence as determined by the faculty evaluations  
c. needle exams of appropriate muscles in 10 to 30 minutes per limb with attending supervision and progressive independence based on the level of skills as evidenced from the faculty evaluations

10) To assess major disorders, including:  
a. disorders of anterior horn cell, root, plexus, nerve, neuromuscular junction and muscle

11) To use electrophysiological methods in the evaluation and treatment of a wide range of diseases

Attitudes: Fellows must maintain and apply an investigatory and analytic thinking approach to clinical situations

Demonstrated by: Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning

Evaluation: Fellow evaluation, Formal and informal evaluations

Remediation:  
1) Identify any specific deficits  
2) Document all areas requiring remediation or additional concentration  
3) Provide additional recommendations for remediation of specific deficiencies

II. CORE COMPETENCY: Patient Care

Goal: Fellows must be able to provide patient care that is compassionate, appropriate and effective for the treatment of neurological problems.

Knowledge: Fellows will demonstrate knowledge of:  
1) The neuromuscular disorders and epilepsies  
2) The interpretation of EEGs, NCS, EMGs and sleep studies/MSLTs  
3) Available treatment methods for the major clinical neurophysiology disorders and the evidence which supports their use
4) Preventive interventions used in clinical neurophysiology

**Skills:** Fellows will demonstrate the ability to:

1) Perform and document a comprehensive history and examination to include, as appropriate:
   a. chief complaint
   b. history of present illness
   c. developmental history
   d. past medical history
   e. review of systems
   f. family history
   g. social history
   h. mental status

2) Create differential diagnoses

3) Evaluate, assess and recommend cost-effective management of patients

4) Recognize and treat clinical neurophysiology disorders including:
   a. epilepsies
   b. cerebrovascular disease
   c. dementia and encephalopathies (coma, stupor, confusion, developmental
      i. delay, regression)
   d. multiple sclerosis (including other demyelinating disorders)
   e. movement disorders
   f. brain tumors and other mass lesions
   g. encephalitis/meningitis
   h. sleep disorders
   i. traumatic disorders
   j. myelopathies
   k. motor neuron disease
   l. radiculopathies and plexopathies
   m. mononeuropathies
   n. polyneuropathies
   o. myopathies and neuromuscular disorders
   p. Apply the use of electrical, magnetic and mechanical methods in the evaluation and
      treatment of a wide variety of diseases

**Attitudes:** Fellows will:

1) Be strong advocates for the patient’s best interests

2) Strive to provide quality care within available resources

3) Be sensitive to patient’s cultural differences

4) Be sensitive to confidentiality and consent issues

**Demonstrated by:** Clinical care of patients; teaching residents and other professionals, formal
presentations at conferences; self-initiated independent learning; direct observation by faculty during
clinics and on clinic rotations; case conferences; chart review with supervisors

**Evaluation:** Supervision and rotation evaluations, Formal and informal observations

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1) Identify any specific deficits
2) Document all areas requiring remediation or additional concentration
3) Provide additional recommendations for remediation of specific deficiencies

III. CORE COMPETENCY: Interpersonal and Communication Skills

Goal: Fellows must demonstrate the knowledge, skills, and attitudes necessary to develop and maintain appropriate interpersonal relationships and to communicate effectively with patients, families, colleagues and the public

Knowledge: Fellows will demonstrate knowledge of:
1) Interviewing techniques
2) Communication techniques

Skills: Fellows will be able to:
1) Demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
   a. knowing when to solicit consultations and having sensitivity to assess the need for consultation
   b. discussing consultation findings with patients and their families
   c. evaluating the consultation findings
2) Serve as an effective consultant to other medical specialists and community agencies. This shall include:
   a. communicating effectively with the requesting party to refine the consultation question
   b. maintain the role of consultant
   c. communicate clear and specific recommendations
   d. respect the knowledge and expertise of the requesting party
3) Demonstrate the ability to communicate effectively with patients and their families by:
   a. gearing all communication to the educational/intellectual levels of patients and their families
   b. providing explanations of clinical neurophysiology disorders and treatment (both verbally and in written form) that are jargon-free and geared to the educational/intellectual level of patients and their families
   c. providing preventive education that is understandable and practical as well as applicable
   d. respecting the patient’s cultural, ethnic and economic backgrounds
   e. developing and enhancing rapport and a working alliance with patient and families
4) Maintain medical records and written prescriptions that are legible and up-to-date. These records must capture essential information with simultaneously respecting patient privacy and be useful to health professionals outside clinical neurophysiology
5) Recognize the need for and effectively use interpreters when necessary
6) Give one Grand Rounds per year and/or present at a national or regional meeting
7) Present up-to-date information to students and residents in an organized fashion
8) Provide feedback to students, residents and other professionals

Attitudes: Fellows will:
1) Maintain an attitude of respect for others, even those with differing points of view
2) Exhibit culturally sensitive, professional, ethically sound behavior in all patient and professional interactions
3) Maintain an attitude of interdisciplinary collaboration
4) Maintain a polite and courteous attitude always

**Demonstrated by:** Chart documentation; direct observation; teaching others; professional relationships; formal presentations; independent learning; seeking feedback on communication and performance

**Evaluation:** Direct observation, Rotation evaluations

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:
1) Identify any specific deficits
2) Document all areas requiring remediation or additional concentration
3) Provide additional recommendations for remediation of specific deficiencies

IV. **CORE COMPETENCY: Practice Based Learning and Improvement**

**Goal:** Fellows must demonstrate the knowledge, skills, and attitudes necessary to initiate self-directed and independent learning. Fellows must keep abreast of current information and practices relevant to clinical neurophysiology.

**Knowledge:** Fellows will demonstrate knowledge of:
1) Research methodology, including critical assessment of professional journal articles
2) Principles of evidence-based medicine
3) Awareness of available information technologies and the ability to access them

**Skills:** Fellows will be able to:
1) Demonstrate the ability to obtain, interpret, and evaluate up-to-date information from the scientific and practice literature to assist in the quality care of patients. This shall include:
   a. use of medical libraries
   b. use of information technology, including internet-based searches and literature databases (e.g., Medline)
   c. use of drug information databases
   d. active participation, as appropriate, in educational courses, conferences, and other organized educational activities both at the local and national levels
   e. conducting and presenting reviews of current research in such formats as Journal Clubs, Grand Rounds and/or original publications
   f. participation in funded research projects
2) Assess the generalizability or applicability of research findings to patients in relation to their sociodemographic and clinical characteristics. The physician shall demonstrate an ability to critically evaluate the relevant medical literature
3) Evaluate caseload and practice experience in a systematic manner. This may include:
   a. case-based learning
   b. the review of patient records and outcomes
   c. obtaining appropriate supervision and consultation
   d. maintain a system for examining errors in practice and initiating improvements to eliminate or reduce errors

**Attitudes:** Fellows will:
1) Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning
2) Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others

**Evaluation:** The Program Director will regularly review the fellow’s performance and will:
1) Identify specific deficits
2) Document all areas requiring remediation or additional concentration

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:
1) Identify any specific deficits
2) Document all areas requiring remediation or additional concentration
3) Provide additional recommendations for remediation of specific deficiencies

V. **CORE COMPETENCY: Professional and Ethical Behavior**

**Goal:** *Fellows must demonstrate the knowledge, skills, and attitudes necessary to practice professionally responsible, ethical and compassionate care in clinical neurophysiology*

**Knowledge:** Fellows will demonstrate knowledge of:
1) The impact of gender, culture, religion, socioeconomic factors, and family structures and systems on issues pertaining to clinical neurophysiology
2) The different roles a clinical neurophysiologist must fulfill in different settings
3) Legal issues relevant to clinical neurophysiology
4) Ethical issues in clinical neurophysiology. This includes knowledge of the American Academy of Neurology Code of Ethics (see Appendix B)
5) Ethical issues important in the conducting of research with humans and the role of the Committee for the Protection of Human Subjects

**Skills:** Fellows will be able to:
1) Respond to communications from patients and health professionals in a timely manner. If unavailable, the physician shall establish and communicate back-up arrangements
2) Use medical records for appropriate documentation of the course of the illness and its treatment
3) Provide continuity of care including appropriate consultation, transfer or termination of patients (clinic rotation)
4) Demonstrate ethical behavior, integrity, honesty, professional conduct, compassion and confidentiality in the delivery of patient care, including obtaining informed consent/assent and declaring conflict of interest
5) Demonstrate respect for patients and colleagues as individuals by showing sensitivity to their age, culture, disabilities, ethnicity, gender, socioeconomic background, religious beliefs, political affiliations, and sexual orientation
6) Demonstrate appreciation of end-of-life issues regarding provision or withholding of care
7) Acknowledge responsibility for his or her decisions and demonstrate commitment to the review and remediation of his or her professional conduct
8) Promote the highest standards of medical healthcare to the public and participate in the review of the professional conduct of his or her colleagues
**Attitudes:** Fellows will:
1) Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning
2) Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others

**Evaluation:** Rotation evaluations, Regular review by the Program Director

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:
1) Identify any specific deficits
2) Document all areas requiring remediation or additional concentration
3) Provide additional recommendations for remediation of specific deficiencies

VI. **CORE COMPETENCY: Systems Based Practice**

**Goal:** *Fellows must demonstrate the knowledge, skills, and attitudes necessary to manage effectively in multiple, diverse, complex systems of care to provide effective treatment, consultation and referrals for patients*

**Knowledge:** Fellows will demonstrate knowledge of:
1) Basic concepts of systems theory
2) How patient care practices and related actions of fellows and residents impact component units of health care delivery
3) Systems-based approaches for controlling health care costs and allocating resources

**Skills:** Fellows will be able to:
1) Advocate for patients within a variety of systems
2) Partner with insurance and managed care companies to meet patient needs
3) Strive to practice cost-effective health care and resource allocation that does not compromise the quality of care

**Attitudes:** Fellows will:
1) Maintain an attitude of interdisciplinary collaboration, advocacy and cooperation
2) Maintain flexibility in adapting to the needs and expectations of different settings and systems
3) Maintain the patient’s best interests as the top priority

**Demonstrated by:** Care of patients; interactions with other agencies involved in the care of patients; consultation with other professionals; participation in Quality Assurance, Utilization Review and Performance Improvement committees; self-directed independent learning; teaching others

**Evaluation:** Rotation evaluations, Regular review by the Program Director

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:
1) Identify any specific deficits
2) Document all areas requiring remediation or additional concentration
3) Provide additional recommendations for remediation of specific deficiencies
KUMC EPILEPSY/ELECTROENCEPHALOGRAPHY/EMU ROTATION

KUH Fellow Expectations on EEG/Epilepsy Rotation

1. Video-EEG Patients
   a. We have an NP who the admitting H&P on epilepsy patients. However, the fellow is expected to be familiar with the epilepsy monitoring patients. They should be familiar with the patient’s epilepsy history, previous EEGs, and imaging.
   b. The fellow will be expected to admit and follow patients with daily notes when the NP is not available.
   c. The fellow should have reviewed video-EEG from the previous day and all events from the previous day prior to rounds. Rounds are usually in the morning. The fellow should discuss rounding time with the attending.
   d. The fellow should generate a daily report of video-EEG monitoring per template after review with the attending.

2. Routine inpatient and outpatient EEGs.
   a. These are usually reviewed in the afternoon. The fellow should have reviewed EEGs prior to rounds. The fellow should discuss review time with the attending.

3. The fellow is expected to take pager call one week/month while on the EEG rotation. The fellow should inform Dr. Ulloa of the call week at the beginning of the rotation.
   a. Call duties include being the first call for STAT EEG studies. If the EEG is not ordered by neurology or the Neuro ICU, the fellow should determine appropriateness of STAT EEG studies in consultation with the epilepsy attending as needed. The fellow should perform first review of the EEG and then confirm with the attending.
   b. All requests for video-EEG monitoring should be directed to the epilepsy attending on call.

4. During the day (8 AM to 5 PM), the fellow will be first call regarding STAT EEG studies and emergent video-EEG studies.

OTHER ACTIVITIES ON THE KUMC EPILEPSY/ELECTROENCEPHALOGRAPHY/EMU ROTATION:

1. Pre-read and dictate all EEGs and video EEGs as instructed by the attending. This is, in general, within 24 hours of EEG performance at KU.
2. Review and discuss all EEGs and video EEGs as instructed by the attending within 24 hours working time of when they are performed with the supervising EEG attending at KU.

3. Evaluate and treat patients in the Epilepsy Clinic, Epilepsy Monitoring Unit and Epilepsy inpatient consults at KUH. Fellows will be expected to attend Epilepsy Clinic one half-day per week.

4. Edit dictated reports when available for attending physician review.

5. Assist the technicians in difficult cases and go with the technicians to perform the EEG when requested.

6. Discuss findings of all STAT EEGs and EEGs done in the Neuro-ICU with the appropriate patient care team after review with the EEG attending and enter preliminary report into O2.

7. Present the epilepsy lectures on a rotational basis using slides with a handout and faculty mentoring.

8. Attend all Epilepsy conferences.

9. Attend the monthly Epilepsy Surgery Case Conference and prepare cases for presentation as instructed by the attending.

10. Fellows are expected to pick up EEGs done at the Landon Center from the EEG technician on Thursday morning and review with appropriate attendings on Thursday or Friday afternoon.

11. Additional reading suggestions:

- Daube *Clinical Neurophysiology*
- Levin and Luders *Comprehensive Clinical Neurophysiology*
- Daly and Current *Practice of Clinical EEG*
- Fisch and Spehlmann *EEG Primer: Basic Principles of Digital and Analog EEG*

12. Be on call and read STAT EEGs from home one week each with available back-up attending.

I. **Clinical Science/Medical Knowledge**

**Goal:** Fellows must demonstrate knowledge about established and evolving neuroscience that would be critical to the practice of electroencephalography, epilepsy monitoring, evoked potentials and epilepsy.

**Knowledge:** Fellows will demonstrate knowledge of:

1. The theoretical basis for clinical interventions used in electroencephalography, epilepsy monitoring and evoked potentials

2. Major epileptic disorders, including:
   a) the epidemiology of the disorder
   b) the etiology of the disorder, including contributing medical, genetic and social factors
   c) the phenomenology of the disorder
   d) diagnostic criteria
e) appropriate evaluation  
f) course and prognosis  
g) effective treatment strategies

3. Pathophysiology of major clinical neurophysiology disorders requiring evoked potentials and familiarity with the scientific basis of neurological diseases, including (see Appendix A for more specific disorders):
   a) neuroanatomy  
b) neuropathology  
c) neurochemistry  
d) neurophysiology  
e) neuropharmacology  
f) neuroimmunology/neurovirology  
g) neurogenetics/molecular neurology and neuroepidemiology  
h) neuroimaging  
i) neuro-ophthalmology  
j) neuro-otology  
k) cerebrospinal fluid  
l) neurological rehabilitation  
m) issues related to neuromuscular disorders

4. Gross and microscopic specimens taken from the normal nervous system and from patients with major epileptic disorders

Skills: Fellows will demonstrate the ability to:

1. Perform a detailed epilepsy history and physical exam
2. Discuss the differential diagnosis, work up plan, and prognosis
3. Perform and document a comprehensive history and examination to include, as appropriate:
   a) chief complaint  
b) history of present illness  
c) developmental history  
d) past medical history  
e) review of systems  
f) family history  
g) social history  
h) mental status  
i) neurologic examination
4. Create differential diagnoses:
   a) to determine if a patient’s symptoms are the result of a disease affecting the central and/or peripheral system or are of another origin  
b) to make a formulation, laboratory investigation, and cost-effective management plan
5. To develop and maintain the technical skills to:
a) identify and describe abnormalities seen in common clinical neurophysiology disorders on radiographic testing including plain films, myelography, angiography, CT, isotope and MRI

b) evaluate the application and relevance of investigative procedures and interpretation in the diagnosis of neurologic disease, including the following:
   i. electroencephalogram
   ii. motor and sensory nerve conduction studies
   iii. electromyography
   iv. evoked potentials
   v. polysomnography
   vi. electronystagmogram
   vii. perimetry
   viii. psychometry
   ix. CSF analysis
   x. vascular imaging (Duplex, transcranial Doppler)
   xi. radiographic studies as outlined above

d) identify and describe gross and microscopic specimens taken from the normal nervous system and from patients with epileptic disorders

6. To recognize and treat major epileptic disorders

7. Use common devices to perform good quality:
   a) EEG
   b) video EEG
   c) evoked potentials

8. Perform and/or interpret:
   a) EEG
   b) neuroimaging techniques including:
      i. MRA
      ii. angiography
      iii. SPECT/PET
      iv. WADA test
      v. electrocorticography

9. To assess major epilepsies

10. To use electrophysiological methods in the evaluation and treatment of a wide range of diseases

**Attitudes:** Fellows must maintain and apply an investigatory and analytic thinking approach to clinical situations

**Demonstrated by:** Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning

**Evaluation:** Fellow evaluation, Formal and informal evaluations

**Remediation:**
1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

II. Patient Care

Goal: Fellows must be able to provide patient care that is compassionate, appropriate and effective for the treatment of neurological problems.

Knowledge: Fellows will demonstrate knowledge of:

1. The epileptic and non-epileptic disorders
2. The interpretation of EEGs and prolonged video-EEG monitoring
3. Available treatment methods for the major clinical neurophysiology disorders and the evidence which supports their use
4. Preventive interventions used in clinical neurophysiology

Skills: Fellows will demonstrate the ability to:

1. Perform and document a comprehensive history and examination to include, as appropriate:
   a) chief complaint
   b) history of present illness
   c) developmental history
   d) past medical history
   e) review of systems
   f) family history
   g) social history
   h) mental status

2. Create differential diagnoses

3. Evaluate, assess and recommend cost-effective management of patients

4. Recognize and treat clinical neurophysiology disorders including:
   a) epilepsies
   b) cerebrovascular disease
   c) dementia and encephalopathies (coma, stupor, confusion, developmental delay, regression)
   d) multiple sclerosis (including other demyelinating disorders)
   e) movement disorders
   f) brain tumors and other mass lesions
   g) encephalitis/meningitis
   h) sleep disorders
i) traumatic disorders
j) myelopathies
k) motor neuron disease
l) radiculopathies and plexopathies
m) mononeuropathies
n) polyneuropathies
o) myopathies and neuromuscular disorders

5. Apply the use of electrical, magnetic and mechanical methods in the evaluation and treatment of a wide variety of diseases

**Attitudes:** Fellows will:

1. Be strong advocates for the patient’s best interests
2. Strive to provide quality care within available resources
3. Be sensitive to patient’s cultural differences
4. Be sensitive to confidentiality and consent issues

**Demonstrated by:** Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning; direct observation by faculty during clinics and on clinic rotations; case conferences; chart review with supervisors.

**Evaluation:** Supervision and rotation evaluations, Formal and informal observations.

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

### III. Interpersonal and Communication Skills

**Goal:** Fellows must demonstrate the knowledge, skills, and attitudes necessary to develop and maintain appropriate interpersonal relationships and to communicate effectively with patients, families, colleagues and the public.

**Knowledge:** Fellows will demonstrate knowledge of:

1. Interviewing techniques
2. Communication techniques

**Skills:** Fellows will be able to:

1. Demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
1. Understand the role of the consultant to clinical neurophysiology:
   a) knowing when to solicit consultations and having sensitivity to assess the need for consultation
   b) discussing consultation findings with patients and their families
   c) evaluating the consultation findings

2. Serve as an effective consultant to other medical specialists and community agencies. This shall include:
   a) communicating effectively with the requesting party to refine the consultation question
   b) maintain the role of consultant
   c) communicate clear and specific recommendations
   d) respect the knowledge and expertise of the requesting party

3. Demonstrate the ability to communicate effectively with patients and their families by:
   a) gearing all communication to the educational/intellectual levels of patients and their families
   b) providing explanations of clinical neurophysiology disorders and treatment (both verbally and in written form) that are jargon-free and geared to the educational/intellectual level of patients and their families
   c) providing preventive education that is understandable and practical as well as applicable
   d) respecting the patient’s cultural, ethnic and economic backgrounds
   e) developing and enhancing rapport and a working alliance with patient and families

4. Maintain medical records and written prescriptions that are legible and up-to-date. These records must capture essential information with simultaneously respecting patient privacy and be useful to health professionals outside clinical neurophysiology

5. Recognize the need for and effectively use interpreters when necessary

6. Give one Grand Rounds per year and/or present at a national or regional meeting

7. Present up-to-date information to students and residents in an organized fashion

8. Provide feedback to students, residents and other professionals

Attitudes: Fellows will:

1. Maintain an attitude of respect for others, even those with differing points of view
2. Exhibit culturally sensitive, professional, ethically sound behavior in all patient and professional interactions
3. Maintain an attitude of interdisciplinary collaboration
4. Maintain a polite and courteous attitude always

Demonstrated by: Chart documentation; direct observation; teaching others; professional relationships; formal presentations; independent learning; seeking feedback on communication and performance

Evaluation: Direct observation, Rotation evaluation
Remediation: The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

IV. Practice Based Learning and Improvement

Goal: Fellows must demonstrate the knowledge, skills, and attitudes necessary to initiate self-directed and independent learning. Fellows must keep abreast of current information and practices relevant to clinical neurophysiology.

Knowledge: Fellows will demonstrate knowledge of:

1. Research methodology, including critical assessment of professional journal articles
2. Principles of evidence-based medicine
3. Awareness of available information technologies and the ability to access them

Skills: Fellows will be able to:

1. Demonstrate the ability to obtain, interpret, and evaluate up-to-date information from the scientific and practice literature to assist in the quality care of patients. This shall include:
   a) use of medical libraries
   b) use of information technology, including internet-based searches and literature databases (e.g., Medline)
   c) use of drug information databases
   d) active participation, as appropriate, in educational courses, conferences, and other organized educational activities both at the local and national levels
   e) conducting and presenting reviews of current research in such formats as Journal Clubs, Grand Rounds and/or original publications
   f) participation in funded research projects

2. Assess the generalizability or applicability of research findings to patients in relation to their sociodemographic and clinical characteristics. The physician shall demonstrate an ability to critically evaluate the relevant medical literature

3. Evaluate caseload and practice experience in a systematic manner. This may include:
   a) case-based learning
   b) the review of patient records and outcomes
   c) obtaining appropriate supervision and consultation
   d) maintain a system for examining errors in practice and initiating improvements to eliminate or reduce errors

Attitudes – Fellows will:
1. Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning
2. Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others

**Evaluation:** The Program Director will regularly review the fellow’s performance and will:
1. Identify specific deficits
2. Document all areas requiring remediation or additional concentration

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:
1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

V. Professional and Ethical Behavior

**Goal:** Fellows must demonstrate the knowledge, skills, and attitudes necessary to practice professionally responsible, ethical and compassionate care in clinical neurophysiology.

**Knowledge:** Fellows will demonstrate knowledge of:
1. The impact of gender, culture, religion, socioeconomic factors, and family structures and systems on issues pertaining to clinical neurophysiology
2. The different roles a clinical neurophysiologist must fulfill in different settings
3. Legal issues relevant to clinical neurophysiology
4. Ethical issues in clinical neurophysiology. This includes knowledge of the American Academy of Neurology Code of Ethics (see Appendix B)
5. Ethical issues important in the conducting of research with humans and the role of the Committee for the Protection of Human Subjects

**Skills:** Fellows will be able to:
1. Respond to communications from patients and health professionals in a timely manner. If unavailable, the physician shall establish and communicate back-up arrangements
2. Use medical records for appropriate documentation of the course of the illness and its treatment
3. Provide continuity of care including appropriate consultation, transfer or termination of patients (clinic rotation)
4. Demonstrate ethical behavior, integrity, honesty, professional conduct, compassion and confidentiality in the delivery of patient care, including obtaining informed consent/assent and declaring conflict of interest

5. Demonstrate respect for patients and colleagues as individuals by showing sensitivity to their age, culture, disabilities, ethnicity, gender, socioeconomic background, religious beliefs, political affiliations, and sexual orientation

6. Demonstrate appreciation of end-of-life issues regarding provision or withholding of care

7. Acknowledge responsibility for his or her decisions and demonstrate commitment to the review and remediation of his or her professional conduct

8. Promote the highest standards of medical healthcare to the public and participate in the review of the professional conduct of his or her colleagues

**Attitudes:** Fellows will:

1. Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning

2. Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others

**Evaluation:** Rotation evaluation, Regular review by the Program Director

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits

2. Document all areas requiring remediation or additional concentration

3. Provide additional recommendations for remediation of specific deficiencies

**VI. Systems Based Practice**

**Goal:** *Fellows must demonstrate the knowledge, skills, and attitudes necessary to manage effectively in multiple, diverse, complex systems of care to provide effective treatment, consultation and referrals for patients.*

**Knowledge:** Fellows will demonstrate knowledge of:

1. Basic concepts of systems theory

2. How patient care practices and related actions of fellows and residents impact component units of health care delivery

3. Systems-based approaches for controlling health care costs and allocating resources
**Skills:** Fellows will be able to:

1. Advocate for patients within a variety of systems
2. Partner with insurance and managed care companies to meet patient needs
3. Strive to practice cost-effective health care and resource allocation that does not compromise the quality of care

**Attitudes:** Fellows will:

1. Maintain an attitude of interdisciplinary collaboration, advocacy and cooperation
2. Maintain flexibility in adapting to the needs and expectations of different settings and systems
3. Maintain the patient’s best interests as the top priority

**Demonstrated by:** Care of patients; interactions with other agencies involved in the care of patients; consultation with other professionals; participation in Quality Assurance, Utilization Review and Performance Improvement committees; self-directed independent learning; teaching others

**Evaluation:** Rotation evaluation, Regular review by the Program Director

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies
Clinical Neurophysiology Fellowship
Rotation Goals & Objectives
2020-2021

Children’s Mercy Epilepsy Rotation

Description of Educational Experience
Inpatient and Outpatient pediatric epilepsy services at the Children’s Mercy Hospital in Kansas City, MO and Overland Park, KS.

Supervising Pediatric Epilepsy Faculty for fellowship, responsible for review of Goals & Objectives: Mohammed Ilyas, MD

Additional Pediatric Epilepsy Faculty: Lalit Bansal, MD, Lines Vargas Collado, MD, Ara Hall, MD, Kaliash Pawar, MD, Ahmed Abdelmoity, MD.

Overall Goals:
The epilepsy fellow will become proficient in the inpatient and outpatient evaluation and treatment of pediatric patients with epilepsy, selection of pediatric patients for epilepsy monitoring and epilepsy surgery, evaluation of those pediatric patients, and in the programming of neuromodulation devices.

Over the course of their training the Epilepsy Fellow will handle increasing responsibility as demonstrated by managing pediatric patients with more complex disorders, providing care for a higher number of pediatric patients, and effectively teaching Neurology residents and medical students about epilepsy.

KUH Fellow Expectations on CMH EEG/Epilepsy Rotation

1. One month of pediatric epilepsy will be spent at Children’s Mercy Hospital.
   a. Pre-read and dictate all pediatric EEGs
   b. Review and discuss all pediatric EEGs with the CMH supervising EEG attending
   c. Participate in the epilepsy clinics, EMU and epilepsy conferences

COMPETENCIES

I. Clinical Science/Medical Knowledge

Goal: Fellows must demonstrate knowledge about established and evolving neuroscience that would be critical to the practice of electroencephalography, epilepsy monitoring, evoked potentials and epilepsy.

Knowledge: Fellows will demonstrate knowledge of:

1. The theoretical basis for clinical interventions used in electroencephalography, epilepsy monitoring and evoked potentials

2. Major epileptic disorders, including:
   a) the epidemiology of the disorder
   b) the etiology of the disorder, including contributing medical, genetic and social
factors

c) the phenomenology of the disorder
d) diagnostic criteria
e) appropriate evaluation
f) course and prognosis
g) effective treatment strategies

3. Pathophysiology of major clinical neurophysiology disorders requiring evoked potentials and familiarity with the scientific basis of neurological diseases, including (see Appendix A for more specific disorders):

a) neuroanatomy
b) neuropathology
c) neurochemistry
d) neurophysiology
e) neuropharmacology
f) neuroimmunology/neurovirology
g) neurogenetics/molecular neurology and neuroepidemiology
h) neuroimaging
i) neuro-ophthalmology
j) neuro-otology
k) cerebrospinal fluid
l) neurological rehabilitation
m) issues related to neuromuscular disorders

4. Gross and microscopic specimens taken from the normal nervous system and from patients with major epileptic disorders

Skills: Fellows will demonstrate the ability to:

1. Perform a detailed epilepsy history and physical exam

2. Discuss the differential diagnosis, work up plan, and prognosis

3. Perform and document a comprehensive history and examination to include, as appropriate:

a) chief complaint
b) history of present illness
c) developmental history
d) past medical history
e) review of systems
f) family history
g) social history
h) mental status
i) neurologic examination

4. Create differential diagnoses:

a) to determine if a patient’s symptoms are the result of a disease affecting the central and/or peripheral system or are of another origin
b) to make a formulation, laboratory investigation, and cost-effective management plan

5. To develop and maintain the technical skills to:

   a) identify and describe abnormalities seen in common clinical neurophysiology disorders on radiographic testing including plain films, myelography, angiography, CT, isotope and MRI

   b) evaluate the application and relevance of investigative procedures and interpretation in the diagnosis of neurologic disease, including the following:
      i. electroencephalogram
      ii. motor and sensory nerve conduction studies
      iii. electromyography
      iv. evoked potentials
      v. polysomnography
      vi. electronystagmogram
      viii. perimetry
      ix. psychometry
      x. CSF analysis
      xi. vascular imaging (Duplex, transcranial Doppler)
      xii. radiographic studies as outlined above

   d) identify and describe gross and microscopic specimens taken from the normal nervous system and from patients with epileptic disorders

6. To recognize and treat major epileptic disorders

7. Use common devices to perform good quality:

   a) EEG
   b) video EEG
   c) evoked potentials

8. Perform and/or interpret:

   a) EEG
   b) neuroimaging techniques including:
      i. MRA
      ii. angiography
      iii. SPECT/PET
      iv. WADA test
      v. electrocorticography

9. To assess major epilepsies

10. To use electrophysiological methods in the evaluation and treatment of a wide range of diseases

**Attitudes:** Fellows must maintain and apply an investigatory and analytic thinking approach to clinical situations

**Demonstrated by:** Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning
**Evaluation**: Fellow evaluation, Formal and informal evaluations

**Remediation**:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

**II. Patient Care**

**Goal**: *Fellows must be able to provide patient care that is compassionate, appropriate and effective for the treatment of neurological problems.*

**Knowledge**: Fellows will demonstrate knowledge of:

1. The epileptic and non-epileptic disorders
2. The interpretation of EEGs and prolonged video-EEG monitoring
3. Available treatment methods for the major clinical neurophysiology disorders and the evidence which supports their use
4. Preventive interventions used in clinical neurophysiology

**Skills**: Fellows will demonstrate the ability to:

1. Perform and document a comprehensive history and examination to include, as appropriate:
   
   a) chief complaint
   b) history of present illness
   c) developmental history
   d) past medical history
   e) review of systems
   f) family history
   g) social history
   h) mental status

2. Create differential diagnoses

3. Evaluate, assess and recommend cost-effective management of patients

4. Recognize and treat clinical neurophysiology disorders including:
   
   a) epilepsies
   b) cerebrovascular disease
   c) dementia and encephalopathies (coma, stupor, confusion, developmental delay, regression)
   d) multiple sclerosis (including other demyelinating disorders)
5. Apply the use of electrical, magnetic and mechanical methods in the evaluation and treatment of a wide variety of diseases

**Attitudes:** Fellows will:

1. Be strong advocates for the patient’s best interests
2. Strive to provide quality care within available resources
3. Be sensitive to patient’s cultural differences
4. Be sensitive to confidentiality and consent issues

**Demonstrated by:** Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning; direct observation by faculty during clinics and on clinic rotations; case conferences; chart review with supervisors.

**Evaluation:** Supervision and rotation evaluations, Formal and informal observations.

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

**III. Interpersonal and Communication Skills**

**Goal:** Fellows must demonstrate the knowledge, skills, and attitudes necessary to develop and maintain appropriate interpersonal relationships and to communicate effectively with patients, families, colleagues and the public.

**Knowledge:** Fellows will demonstrate knowledge of:

1. Interviewing techniques
2. Communication techniques
Skills: Fellows will be able to:

1. Demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
   a) knowing when to solicit consultations and having sensitivity to assess the need for consultation
   b) discussing consultation findings with patients and their families
   c) evaluating the consultation findings

2. Serve as an effective consultant to other medical specialists and community agencies. This shall include:
   a) communicating effectively with the requesting party to refine the consultation question
   b) maintain the role of consultant
   c) communicate clear and specific recommendations
   d) respect the knowledge and expertise of the requesting party

3. Demonstrate the ability to communicate effectively with patients and their families by:
   a) gearing all communication to the educational/intellectual levels of patients and their families
   b) providing explanations of clinical neurophysiology disorders and treatment (both verbally and in written form) that are jargon-free and geared to the educational/intellectual level of patients and their families
   c) providing preventive education that is understandable and practical as well as applicable
   d) respecting the patient’s cultural, ethnic and economic backgrounds
   e) developing and enhancing rapport and a working alliance with patient and families

4. Maintain medical records and written prescriptions that are legible and up-to-date. These records must capture essential information with simultaneously respecting patient privacy and be useful to health professionals outside clinical neurophysiology

5. Recognize the need for and effectively use interpreters when necessary

6. Give one Grand Rounds per year and/or present at a national or regional meeting

7. Present up-to-date information to students and residents in an organized fashion

8. Provide feedback to students, residents and other professionals

Attitudes: Fellows will:

1. Maintain an attitude of respect for others, even those with differing points of view

2. Exhibit culturally sensitive, professional, ethically sound behavior in all patient and professional interactions

3. Maintain an attitude of interdisciplinary collaboration

4. Maintain a polite and courteous attitude always
Demonstrated by: Chart documentation; direct observation; teaching others; professional relationships; formal presentations; independent learning; seeking feedback on communication and performance

Evaluation: Direct observation, Rotation evaluation

Remediation: The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

IV. Practice Based Learning and Improvement

Goal: Fellows must demonstrate the knowledge, skills, and attitudes necessary to initiate self-directed and independent learning. Fellows must keep abreast of current information and practices relevant to clinical neurophysiology.

Knowledge: Fellows will demonstrate knowledge of:

1. Research methodology, including critical assessment of professional journal articles
2. Principles of evidence-based medicine
3. Awareness of available information technologies and the ability to access them

Skills: Fellows will be able to:

1. Demonstrate the ability to obtain, interpret, and evaluate up-to-date information from the scientific and practice literature to assist in the quality care of patients. This shall include:
   a) use of medical libraries
   b) use of information technology, including internet-based searches and literature databases (e.g., Medline)
   c) use of drug information databases
   d) active participation, as appropriate, in educational courses, conferences, and other organized educational activities both at the local and national levels
   e) conducting and presenting reviews of current research in such formats as Journal Clubs, Grand Rounds and/or original publications
   f) participation in funded research projects
2. Assess the generalizability or applicability of research findings to patients in relation to their sociodemographic and clinical characteristics. The physician shall demonstrate an ability to critically evaluate the relevant medical literature
3. Evaluate caseload and practice experience in a systematic manner. This may include:
   a) case-based learning
   b) the review of patient records and outcomes
c) obtaining appropriate supervision and consultation
d) maintain a system for examining errors in practice and initiating improvements to eliminate or reduce errors

Attitudes – Fellows will:

1. Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning
2. Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices

Demonstrated by: Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others

Evaluation: The Program Director will regularly review the fellow’s performance and will:

1. Identify specific deficits
2. Document all areas requiring remediation or additional concentration

Remediation: The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

V. Professional and Ethical Behavior

Goal: Fellows must demonstrate the knowledge, skills, and attitudes necessary to practice professionally responsible, ethical and compassionate care in clinical neurophysiology.

Knowledge: Fellows will demonstrate knowledge of:

1. The impact of gender, culture, religion, socioeconomic factors, and family structures and systems on issues pertaining to clinical neurophysiology
2. The different roles a clinical neurophysiologist must fulfill in different settings
3. Legal issues relevant to clinical neurophysiology
4. Ethical issues in clinical neurophysiology. This includes knowledge of the American Academy of Neurology Code of Ethics (see Appendix B)
5. Ethical issues important in the conducting of research with humans and the role of the Committee for the Protection of Human Subjects

Skills: Fellows will be able to:
1. Respond to communications from patients and health professionals in a timely manner. If unavailable, the physician shall establish and communicate back-up arrangements.

2. Use medical records for appropriate documentation of the course of the illness and its treatment.

3. Provide continuity of care including appropriate consultation, transfer or termination of patients (clinic rotation).

4. Demonstrate ethical behavior, integrity, honesty, professional conduct, compassion and confidentiality in the delivery of patient care, including obtaining informed consent/assent and declaring conflict of interest.

5. Demonstrate respect for patients and colleagues as individuals by showing sensitivity to their age, culture, disabilities, ethnicity, gender, socioeconomic background, religious beliefs, political affiliations, and sexual orientation.

6. Demonstrate appreciation of end-of-life issues regarding provision or withholding of care.

7. Acknowledge responsibility for his or her decisions and demonstrate commitment to the review and remediation of his or her professional conduct.

8. Promote the highest standards of medical healthcare to the public and participate in the review of the professional conduct of his or her colleagues.

**Attitudes:** Fellows will:

1. Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning.

2. Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices.

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others.

**Evaluation:** Rotation evaluation, Regular review by the Program Director.

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits.

2. Document all areas requiring remediation or additional concentration.

3. Provide additional recommendations for remediation of specific deficiencies.

**VI. Systems Based Practice**

**Goal:** Fellows must demonstrate the knowledge, skills, and attitudes necessary to manage effectively in multiple, diverse, complex systems of care to provide effective treatment, consultation and referrals for patients.

**Knowledge:** Fellows will demonstrate knowledge of:
1. Basic concepts of systems theory
2. How patient care practices and related actions of fellows and residents impact component units of health care delivery
3. Systems-based approaches for controlling health care costs and allocating resources

**Skills:** Fellows will be able to:
1. Advocate for patients within a variety of systems
2. Partner with insurance and managed care companies to meet patient needs
3. Strive to practice cost-effective health care and resource allocation that does not compromise the quality of care

**Attitudes:** Fellows will:
1. Maintain an attitude of interdisciplinary collaboration, advocacy and cooperation
2. Maintain flexibility in adapting to the needs and expectations of different settings and systems
3. Maintain the patient’s best interests as the top priority

**Demonstrated by:** Care of patients; interactions with other agencies involved in the care of patients; consultation with other professionals; participation in Quality Assurance, Utilization Review and Performance Improvement committees; self-directed independent learning; teaching others

**Evaluation:** Rotation evaluation, Regular review by the Program Director

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:
1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies
VAMC ROTATION

ACTIVITIES ON THE NEUROMUSCULAR/ELECTROMYOGRAPHY SERVICE ROTATION:

1. Discuss with the attending physician, interpret and generate clinic notes on the day of service for attending physician to review
2. Perform intraoperative monitoring at KUH each Monday morning and keep a case log
3. Perform nerve conduction studies on Monday, Tuesday, Wednesday and Friday mornings
4. Attend Sleep Clinic on Friday mornings with Dr. Suzanne Stevens
5. Discuss with the attending physician, interpret and type NCS/EMG study reports on the day of service, considering clinical presentation, for attending physician review on Tuesday, Wednesday and Friday
6. On Thursday mornings, observe, learn and perform chemodenervation at KU with Dr. Dubinsky during the first rotation, then EEG reading during the second two-month block
7. Participate in Epilepsy clinic. Once each month set up an EEG with the certified EEG technologist. Routinely observe EEGs performed
8. Participate in weekly Muscle and Nerve Biopsy Conferences
9. Present at Neuromuscular Conference on a rotational basis
10. Participate in monthly Journal Club
11. Present at Carrell-Krusen Symposium
12. Give one Grand Rounds lecture per year
13. Participate in and attend all the educational curriculum
14. In case of absence of one of the teaching faculty, the fellow is to report immediately to Dr. Dimachkie for reassignment. Failure to comply may lead to disciplinary action
15. Read the basic science chapters in *Clinical Neurophysiology* by Jasper Daube
16. Additional reading suggestions:
   - **Brown and Bolton** *Clinical Electromyography*
   - **Levin and Luders** *Comprehensive Clinical Neurophysiology*
   - **Preston and Shapiro** *Electromyography and Neuromuscular Disorders*
I. Clinical Science/Medical Knowledge

**Goal:** Fellows must demonstrate knowledge about established and evolving neuroscience that would be critical to the practice of clinical neurophysiology.

**Knowledge:** Fellows will demonstrate knowledge of:

1. The theoretical basis for clinical interventions used in clinical neurophysiology disorders

2. Major disorders, including:
   a) the epidemiology of the disorder
   b) the etiology of the disorder, including contributing medical, genetic and social factors
   c) the phenomenology of the disorder
   d) diagnostic criteria
   e) appropriate evaluation
   f) course and prognosis
   g) effective treatment strategies

3. Pathophysiology of major clinical neurophysiology disorders and familiarity with the scientific basis of neurological diseases, including (see Appendix A for more specific disorders):
   a) neuroanatomy
   b) neuropathology
   c) neurochemistry
   d) neurophysiology
   e) neuropharmacology
   f) neuroimmunology/neurovirology
   g) neurogenetics/molecular neurology and neuroepidemiology
   h) neuroimaging
   i) neuro-ophthalmology
   j) neuro-otology
   k) cerebrospinal fluid
   l) neurological rehabilitation
   m) issues related to neuromuscular disorders
4. Gross and microscopic specimens taken from the normal nervous system and from patients with major neuromuscular disorders

**Skills:** Fellows will demonstrate the ability to:

1. Perform a detailed neuromuscular history and physical exam
2. Discuss the differential diagnosis, work up plan, and prognosis
3. Perform and interpret:
   a) NCS
   b) EMG
   c) EEG
4. To assess major clinical neurophysiology disorders
5. To use electrophysiological methods in the evaluation and treatment of a wide range of diseases

**Attitudes:** Fellows must maintain and apply an investigatory and analytic thinking approach to clinical situations.

**Demonstrated by:** Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning.

**Evaluation:** Fellow evaluation, Formal and informal evaluations.

**Remediation:**

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

II. **Patient Care**

**Goal:** Fellows must be able to provide patient care that is compassionate, appropriate and effective for the treatment of neurological problems.

**Knowledge:** Fellows will demonstrate knowledge of:

1. The neuromuscular disorders and epilepsies
2. The interpretation of EEGs, NCS, EMGs and sleep studies/MSLTs
3. Available treatment methods for the major clinical neurophysiology disorders and the evidence which supports their use

4. Preventive interventions used in clinical neurophysiology

**Skills:** Fellows will demonstrate the ability to:

1. Perform and document a comprehensive history and examination to include, as appropriate:
   a) chief complaint
   b) history of present illness
   c) developmental history
   d) past medical history
   e) review of systems
   f) family history
   g) social history
   h) mental status

2. Create differential diagnoses

3. Evaluate, assess and recommend cost-effective management of patients

4. Recognize and treat clinical neurophysiology disorders including:
   a) epilepsies
   b) cerebrovascular disease
   c) dementia and encephalopathies (coma, stupor, confusion, developmental delay, regression)
   d) multiple sclerosis (including other demyelinating disorders)
   e) movement disorders
   f) brain tumors and other mass lesions
   g) encephalitis/meningitis
   h) sleep disorders
   i) traumatic disorders
   j) myelopathies
   k) motor neuron disease
   l) radiculopathies and plexopathies
   m) mononeuropathies
   n) polynuropathies
   o) myopathies and neuromuscular disorders

5. Apply the use of electrical, magnetic and mechanical methods in the evaluation and treatment of a wide variety of diseases

**Attitudes** – Fellows will:
1. Be strong advocates for the patient’s best interests
2. Strive to provide quality care within available resources
3. Be sensitive to patient’s cultural differences
4. Be sensitive to confidentiality and consent issues

Demonstrated by: Clinical care of patients; teaching residents and other professionals, formal presentations at conferences; self-initiated independent learning; direct observation by faculty during clinics and on clinic rotations; case conferences; chart review with supervisors

Evaluation: Supervision and rotation evaluations, Formal and informal observations

Remediation: The Program Director will quarterly review the fellow’s performance and will:
1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

III. Interpersonal and Communication Skills

Goal: Fellows must demonstrate the knowledge, skills, and attitudes necessary to develop and maintain appropriate interpersonal relationships and to communicate effectively with patients, families, colleagues and the public.

Knowledge: Fellows will demonstrate knowledge of:

1. Interviewing techniques
2. Communication techniques

Skills: Fellows will be able to:

1. Demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
   a) knowing when to solicit consultations and having sensitivity to assess the need for consultation
   b) discussing consultation findings with patients and their families
   c) evaluating the consultation findings
2. Serve as an effective consultant to other medical specialists and community agencies. This shall include:
a) communicating effectively with the requesting party to refine the consultation question  
b) maintain the role of consultant  
c) communicate clear and specific recommendations  
d) respect the knowledge and expertise of the requesting party  

3. Demonstrate the ability to communicate effectively with patients and their families by:  
a) gearing all communication to the educational/intellectual levels of patients and their families  
b) providing explanations of clinical neurophysiology disorders and treatment (both verbally and in written form) that are jargon-free and geared to the educational/intellectual level of patients and their families  
c) providing preventive education that is understandable and practical as well as applicable  
d) respecting the patient’s cultural, ethnic and economic backgrounds  
e) developing and enhancing rapport and a working alliance with patient and families  

4. Maintain medical records and written prescriptions that are legible and up-to-date. These records must capture essential information with simultaneously respecting patient privacy and be useful to health professionals outside clinical neurophysiology  

5. Recognize the need for and effectively use interpreters when necessary  

6. Give one Grand Rounds per year and/or present at a national or regional meeting  

7. Present up-to-date information to students and residents in an organized fashion  

8. Provide feedback to students, residents and other professionals  

Attitudes – Fellows will:  
1. Maintain an attitude of respect for others, even those with differing points of view  
2. Exhibit culturally sensitive, professional, ethically sound behavior in all patient and professional interactions  

3. Maintain an attitude of interdisciplinary collaboration  
4. Maintain a polite and courteous attitude at all times  

Demonstrated by: Chart documentation; direct observation; teaching others; professional relationships; formal presentations; independent learning; seeking feedback on communication and performance  

Evaluation: Direct observation, Rotation evaluation  

Remediation: The Program Director will quarterly review the fellow’s performance and will:
1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

IV. Practice Based Learning and Improvement

**Goal:** Fellows must demonstrate the knowledge, skills, and attitudes necessary to initiate self-directed and independent learning. Fellows must keep abreast of current information and practices relevant to clinical neurophysiology.

**Knowledge:** Fellows will demonstrate knowledge of:

1. Research methodology, including critical assessment of professional journal articles
2. Principles of evidence-based medicine
3. Awareness of available information technologies and the ability to access them

**Skills:** Fellows will be able to:

1. Demonstrate the ability to obtain, interpret, and evaluate up-to-date information from the scientific and practice literature to assist in the quality care of patients. This shall include:
   a) use of medical libraries
   b) use of information technology, including internet-based searches and literature databases (e.g., Medline)
   c) use of drug information databases
   d) active participation, as appropriate, in educational courses, conferences, and other organized educational activities both at the local and national levels
   e) conducting and presenting reviews of current research in such formats as Journal Clubs, Grand Rounds and/or original publications
   f) participation in funded research projects

2. Assess the generalizability or applicability of research findings to patients in relation to their sociodemographic and clinical characteristics. The physician shall demonstrate an ability to critically evaluate the relevant medical literature

3. Evaluate caseload and practice experience in a systematic manner. This may include:
   a) case-based learning
   b) the review of patient records and outcomes
   c) obtaining appropriate supervision and consultation
d) maintain a system for examining errors in practice and initiating improvements to eliminate or reduce errors

**Attitudes:** Fellows will:

1. Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning
2. Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others

**Evaluation:** The Program Director will regularly review the fellow’s performance and will:

1. Identify specific deficits
2. Document all areas requiring remediation or additional concentration

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies

V. Professional and Ethical Behavior

**Goal:** *Fellows must demonstrate the knowledge, skills, and attitudes necessary to practice professionally responsible, ethical and compassionate care in clinical neurophysiology.*

**Knowledge:** Fellows will demonstrate knowledge of:

1. The impact of gender, culture, religion, socioeconomic factors, and family structures and systems on issues pertaining to clinical neurophysiology
2. The different roles a clinical neurophysiologist must fulfill in different settings
3. Legal issues relevant to clinical neurophysiology
4. Ethical issues in clinical neurophysiology. This includes knowledge of the American Academy of Neurology Code of Ethics (see Appendix B)
5. Ethical issues important in the conducting of research with humans and the role of the Committee for the Protection of Human Subjects

**Skills:** Fellows will be able to:
1. Respond to communications from patients and health professionals in a timely manner. If unavailable, the physician shall establish and communicate back-up arrangements.

2. Use medical records for appropriate documentation of the course of the illness and its treatment.

3. Provide continuity of care including appropriate consultation, transfer or termination of patients (clinic rotation).

4. Demonstrate ethical behavior, integrity, honesty, professional conduct, compassion and confidentiality in the delivery of patient care, including obtaining informed consent/assent and declaring conflict of interest.

5. Demonstrate respect for patients and colleagues as individuals by showing sensitivity to their age, culture, disabilities, ethnicity, gender, socioeconomic background, religious beliefs, political affiliations, and sexual orientation.

6. Demonstrate appreciation of end-of-life issues regarding provision or withholding of care.

7. Acknowledge responsibility for his or her decisions and demonstrate commitment to the review and remediation of his or her professional conduct.

8. Promote the highest standards of medical healthcare to the public and participate in the review of the professional conduct of his or her colleagues.

**Attitudes:** Fellows will:

1. Maintain an attitude of inquiry and scholarship, recognizing the need for lifelong learning.

2. Maintain openness and flexibility in treatment approaches with patients, assimilating new knowledge in patient care practices.

**Demonstrated by:** Self-directed inquiry guiding clinical care of patients; formal presentations which include literature review; teaching others.

**Evaluation:** Rotation evaluation, Regular review by the Program Director.

**Remediation:** The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits.

2. Document all areas requiring remediation or additional concentration.

3. Provide additional recommendations for remediation of specific deficiencies.

**VI. Systems Based Practice**
Goal: Fellows must demonstrate the knowledge, skills, and attitudes necessary to manage effectively in multiple, diverse, complex systems of care to provide effective treatment, consultation and referrals for patients.

Knowledge: Fellows will demonstrate knowledge of:

1. Basic concepts of systems theory
2. How patient care practices and related actions of fellows and residents impact component units of health care delivery
3. Systems-based approaches for controlling health care costs and allocating resources

Skills: Fellows will be able to:

1. Advocate for patients within a variety of systems
2. Partner with insurance and managed care companies to meet patient needs
3. Strive to practice cost-effective health care and resource allocation that does not compromise the quality of care

Attitudes: Fellows will:

1. Maintain an attitude of interdisciplinary collaboration, advocacy and cooperation
2. Maintain flexibility in adapting to the needs and expectations of different settings and systems
3. Maintain the patient’s best interests as the top priority

Demonstrated by: Care of patients; interactions with other agencies involved in the care of patients; consultation with other professionals; participation in Quality Assurance, Utilization Review and Performance Improvement committees; self-directed independent learning; teaching others

Evaluation: Rotation evaluation, Regular review by the Program Director

Remediation: The Program Director will quarterly review the fellow’s performance and will:

1. Identify any specific deficits
2. Document all areas requiring remediation or additional concentration
3. Provide additional recommendations for remediation of specific deficiencies
Specific Major Clinical Neurophysiology Disorders

1.0 Neuroanatomy
   1.1 Cerebral cortex
   1.2 Connecting systems
   1.3 Basal ganglia/thalamus
   1.4 Brainstem
   1.5 Cerebellum
   1.6 Cranial nerves
   1.7 Spinal cord
   1.8 Spinal roots/peripheral nerves
   1.9 Ventricular system/CSF pathways
   1.10 Vascular
   1.11 Neuromuscular junction/muscles
   1.12 Autonomic nervous system
   1.13 Embryology
   1.14 Pain pathways
   1.15 Radiologic anatomy/cerebral blood vessels (angio or MRA)

2.0 Neuropathology
   2.1 Basic patterns of reaction
   2.2 Epilepsies
   2.3 Cerebrovascular disease
   2.4 Dementia and encephalopathies (coma, stupor, confusion, developmental delay, regression)
   2.5 Multiple sclerosis (including other demyelinating disorders)
   2.6 Movement disorders
   2.7 Brain tumors and other mass lesions
   2.8 Encephalitis/meningitis
   2.9 Sleep disorders
   2.10 Traumatic disorders
   2.11 Myelopathies
   2.12 Motor neuron disease
   2.13 Radiculopathies and plexopathies
   2.14 Mononeuropathies
   2.15 Polyneuropathies
   2.16 Myopathies and neuromuscular transmission disorders
   2.17 Another application of increasing importance is the use of intraoperative monitoring to guide surgical interventions
   2.18 Radiologic pathology pertinent to assigned pathology sections

3.0 Neurochemistry
   3.1 Carbohydrate metabolism
   3.2 Lipid metabolism
   3.3 Protein metabolism
   3.4 Neurotransmitters
   3.5 Axonal transport
   3.6 Energy metabolism
3.7 Blood-brain barrier
3.8 Biochemistry of membranes/receptors/ion channels
3.9 Neuronal excitation
3.10 Vitamins (general aspects)
3.11 Inborn errors of metabolism
3.12 Electrolytes and minerals
3.13 Neurotoxins
3.14 Free radical scavengers
3.15 Excitotoxicity

4.0 Neurophysiology
4.1 Basic
4.2 Membrane physiology
4.3 Synaptic transmission
4.4 Sensory receptors and perception
4.5 Special senses
4.6 Reflexes
4.7 Segmental and suprasegmental control of movement
4.8 Cerebellar function
4.9 Reticular system/mechanisms of sleep and arousal/consciousness/circadian rhythms
4.10 Rhinencephalon/limbic system/the visceral brain
4.11 Learning and memory
4.12 Cortical organizations and function
4.13 Pathophysiology of epilepsy
4.14 Cerebral blood flow
4.15 Autonomic function
4.16 Blood-brain barrier
PREFACE

The American Academy of Neurology developed the Code of Professional Conduct to formalize the standards of professional behavior for neurologist members of the Academy. The primary goal of the Code is to promote the highest quality of neurologic care. The Code is framed to outline the set of professional standards that neurologists must observe in their clinical and scientific activities.

The Code embodies traditional medical ethical standards dating from the time of Hippocrates as well as more contemporary standards. It includes general principles of medical ethics and provides their application to the specific demands of neurologic practice. The Code is delineated to be generally consistent with the American Medical Association Code of Medical Ethics and the American Medical Association Current Opinions of the Council on Ethical and Judicial Affairs.

The Code is written in relatively broad language. It is designed to be a dynamic instrument that can grow and change in response to future developments in the practice and science of neurology. While ethical principles do not change with time, developments in science, technology, and clinical practice may lead to a change in application of these ethical principles.

The Code outlines the standards of professional conduct for Academy members. Violations of these standards may serve as the basis for disciplinary action as provided in the Bylaws of the Academy.

If any provision of this code conflicts with state or federal law, the state or federal laws will govern.

1.0 The Neurologist-Patient Relationship

1.1 The Practice of Neurology

The profession of neurology exists primarily to study, diagnose and treat disorders of the nervous system. The neurologist-patient relationship forms the foundation for neurologic care.
1.2 Fiduciary and Contractual Basis
The neurologists has fiduciary and contractual duties to patients. As a fiduciary, the neurologist has an ethical duty to consider the interests of the patient first. As a party to an implied contract, the neurologist has a duty to practice competently and to respect patients' autonomy, confidentiality, and welfare.

1.3 Beginning and Ending the Relationship
The neurologist is free to decide whether or not to undertake medical care of a particular person. The neurologist must not decline a patient on the basis of race, religion, nationality, sexual orientation, or gender. Once the relationship has begun, the neurologist must provide care until care is complete, the patient ends the relationship, or the neurologist returns the patient to the care of the referring physician. If the neurologist justifiably desires to end the relationship, and if continued neurologic care is appropriate, he/she should assist in arranging care by another neurologist.

1.4 Informed Consent
The neurologist must obtain the patient's consent for tests or treatment. The neurologist should disclose information that the average person would need to know to make an appropriate medical decision. This information should include benefits, risks, costs, and alternatives to the proposed treatment. If the patient lacks medical decision-making capacity, the neurologist must obtain informed consent from an appropriate proxy.

1.5 Communication
The neurologist has a duty to communicate effectively with the patient. The neurologist should convey relevant information in terms the patient can understand and allow adequate opportunity for the patient to raise questions and discuss matters related to treatment.

1.6 Emergency Care
In an emergency situation, the neurologist should render services to the patient to the best of his/her ability. While obtaining informed consent is desirable before beginning treatment, the neurologist should not delay urgently needed treatment because of concerns about informed consent.

1.7 Medical Risk to the Physician
A neurologist should not refuse to care for a patient solely because of the real or perceived medical risk to the neurologist. The neurologist should take appropriate precautions to minimize his/her medical risk.

1.8 Medical Decision-Making
The patient has the ultimate right to accept or reject the neurologist's recommendation about medical treatment. The neurologist should respect decisions made by patients with decision-making capacity and by the lawful proxy of patients who lack decision-making capacity. If the neurologist cannot honor the patient's or proxy's decision, the neurologist should seek to arrange transfer of the patient's care to another physician.
2.0 General Principles of Neurologic Care

2.1 Professional Competence
The neurologist must practice only within the scope of his/her training, experience, and competence. The neurologist should provide care that represents the prevailing standards of neurologic practice. To this end, neurologists should participate in a regular program of continuing education.

2.2 Consultation
The neurologist should obtain consultations when indicated. The neurologist should refer patients only to competent practitioners and should assure that adequate information is conveyed to the consultant. Any differences of opinion between the neurologist and consultant or between the neurologist and their referring physician should be resolved in the best interest of the patient.

2.3 Confidentiality
The neurologist must maintain patient privacy and confidentiality. Details of the patient's life or illness must not be publicized.

2.4 Patient Records
The neurologist should prepare records that include relevant history, neurologic findings, assessment, and plan of evaluation and treatment. Patients are entitled to information within their medical records.

2.5 Professional Fees
The neurologist is entitled to reasonable compensation for medical services to or on behalf of patients. The neurologist should receive compensation only for services actually rendered or supervised. The neurologist must not receive a fee for making a referral ("fee-splitting") or receive a commission from anyone for an item or service he/she has ordered for a patient ("kickback"). The agreed upon division of practice income among members of an organized medical group is acceptable.

2.6 Appropriate Services
The neurologist should order and perform only those services that are medically indicated.

3.0 Special Categories of Neurologic Care

3.1 The Dying Patient
The neurologist should strive to relieve the suffering of dying patients. The neurologist should respect the expressed wishes of dying patients about life-prolonging therapy, including lawful advance directives.

3.2 The Profoundly Paralyzed Patient
The neurologist should attempt to enhance the independence and communication of
profoundly paralyzed patients. Patients with advanced degrees of paralysis who retain decision-making capacity should be encouraged and assisted to participate in decisions about their medical care including decisions about withdrawing life-support.

3.3 The Demented Patient
The neurologist should define a course of treatment that respects the wishes expressed by the patient before dementia has impaired decision-making capacity. If such wishes are not ascertainable, the neurologist should be guided about appropriate treatment by the patient's lawful proxy.

3.4 The Patient in a Persistent Vegetative State
The neurologist managing the patient in a persistent vegetative state should follow the provisions of lawful advance directives for medical care and, in their absence, the health care decisions of a lawfully authorized proxy.

3.5 The Brain-Dead Patient
The neurologist should determine brain death using accepted tests and techniques. The neurologist should be mindful that some patients may have religious or other strongly held objections to the concept of brain death. Compassionate management in these situations is desirable.

4.0 Personal Conduct

4.1 Respect for the Patient
The neurologist must treat patients with respect, honesty, and conscientiousness. The neurologist must not abuse or exploit the patient psychologically, sexually, physically, or financially.

4.2 Respect for Agencies and the Law
The neurologist should observe applicable laws. Because agencies may impact on patients' welfare, the neurologist should cooperate and comply with reasonable requests from insurance, compensation, reimbursement, and government agencies within the constraints of patient privacy and confidentiality.

4.3 Maintenance of the Neurologist's Personal Health
The neurologist should strive to maintain physical and emotional health. The neurologist should refrain from practices that may impair capacities to provide adequate patient care.

5.0 Conflicts Of Interest

5.1 The Patient's Interest is Paramount
Whenever a conflict of interest arises, the neurologist must attempt to resolve it in the best interest of the patient. If the conflict cannot be eliminated, the neurologist should withdraw from the care of the patient.
5.2 Avoidance and Disclosure of Potential Conflicts
The neurologist must avoid practices and financial arrangements that would, solely because of personal gain, influence decisions in the care of patients. Financial interests of the neurologist that might conflict with appropriate medical care should be disclosed to the patient.

5.3 Dispensing Medication
The neurologist may dispense medication, assistive devices, and related patient-care items as long as this practice provides a convenience or an accommodation to the patient without taking financial advantage of the patient. The patient should be given a choice to accept the dispensed medication or device or to have a prescription filled outside the neurologist's office.

5.4 Health-Care Institutional Conflicts
The neurologist generally should support his patient's medical interests when they are compromised by policies of a health-care institution or agency. Physicians employed by healthcare institutions should represent the patient's medical interests and serve as their medical advocate to the institutional administration.

5.5 Conflicting Ethical Duties
While a neurologist ordinarily must respect a patient's confidentiality, there are circumstances in which a breach of confidentiality may be justified. When the neurologist is aware that an identifiable third party is endangered by a patient, the neurologist must take reasonable steps to warn the third party. When the neurologist is aware that members of the general public are endangered by a patient, the neurologist must take reasonable steps to advise responsible public officials or agencies of that danger.

6.0 Relationships With Other Professionals

6.1 Cooperation with Health Care Professionals
The neurologist should cooperate and communicate with other health care professionals, including other physicians, nurses, and therapists, in order to provide the best care possible to patients.

6.2 Peer Review
The neurologist should participate in peer review activities in order to promote the best care possible of patients.

6.3 Criticism of a Colleague
The neurologist should not unjustifiably criticize a colleague's judgment, training, knowledge, or skills. Neurologists should not knowingly ignore a colleague's incompetence or professional misconduct, thus jeopardizing the safety of the colleague's present and future patients.
6.4 Legal Expert Testimony
The neurologist called upon to provide expert medical testimony should testify only about those subjects for which the neurologist is qualified as an expert by training and experience. Before giving testimony the neurologist should carefully review the relevant records and facts of the case and the prevailing standards of practice. In providing testimony, the neurologist should provide scientifically correct and clinically accurate opinions. Compensation for testimony should be reasonable and commensurate with time and effort spent, and must not be contingent upon outcome.

6.5 Health Care Organizations
The neurologist may enter into contractual agreements with managed health care organizations, prepaid practice plans, or hospitals. The neurologist should retain control of medical decisions without undue interference. The patient's welfare must remain paramount.

6.6 The Impaired Physician
The neurologist should strive to protect the public from an impaired physician and to assist the identification and rehabilitation of an impaired colleague.

7.0 Relationships With The Public And Community

7.1 Public Representation
The neurologist should not represent himself/herself to the public in an untruthful, misleading, or deceptive manner. A patient's medical condition must not be discussed publicly without the patient's consent.

7.2 Duties to Community and Society
Neurologists should work toward improving the health of all members of society. This may include participation in educational programs, research, public health activities, and the provision of care to patients who are unable to pay for medical services. The neurologist should be aware of the limitation of society's health care resources and should not squander those finite resources by ordering unnecessary tests and ineffective treatments.

7.3 Disclosure of Potential Conflicts
Neurologists who make written or oral public statements concerning a product of a company from which they receive compensation or support, or in which they hold a significant equity position, have a duty to disclose their financial relationship with the company in that public statement.

7.4 Prohibition Against Participating in Legally Authorized Executions
A neurologist should not be a participant in a legally authorized execution.
8.0 Clinical Research and Scholarly Works

8.1 Institutional Review
The neurologist who participates in clinical research must ascertain that the research has been approved by an Institutional Review Board (IRB) or other comparable body and must observe the requirements of the approved protocol.

8.2 Disclosure of Potential Conflicts
The neurologist who is paid for treating patients in a clinical research project should inform the patient of any compensation the neurologist receives for the patient’s participation. The compensation for patient treatment should be reasonable in amount. The neurologist should not bill the patient or the insurer for services already compensated by the study sponsor.

8.3 Individual Patient Experimentation
The neurologist who begins a patient on an experimental therapy that has not been approved as a valid clinical study by an IRB should obtain informed consent from the patient.

8.4. Reporting Research Results
The neurologist should publish research results truthfully, completely, and without distortion. In reporting research results to the news media, the neurologist should make statements that are clear, understandable, and supportable by the facts. Neurologists should not publicize results of research until after the data have been subjected to appropriate peer review.

8.5 Misrepresentation of authorship (ghostwriting)
The neurologist should not claim authorship of any scholarly work submitted for publication if an undisclosed author wrote that work in whole or in part. The neurologist who authors a scholarly work, in whole or in part, must disclose this fact when the work is submitted for publication. Scholarly work includes, but is not limited to, work that claim research findings or carry recommendations for diagnosis, treatment or prevention of medical conditions.

History:

The AAN General Counsel edited the Code to reflect the governance changes adopted by the Membership in April 2010 and the Board of Directors on December 2, 2010 (effective December 6, 2010).

MGS:20101221
ACGME Program Requirements for
Graduate Medical Education
in Clinical Neurophysiology
(Subspecialty of Neurology and Child Neurology)

Editorial revision: effective July 1, 2019
Currently in Effect Program Requirements incorporated into the 2019 Common Program Requirements
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ACGME Program Requirements for Graduate Medical Education
in Clinical Neurophysiology

Common Program Requirements (Fellowship) are in BOLD

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.

Background and Intent: These fellowship requirements reflect the fact that these learners have already completed the first phase of graduate medical education. Thus, the Common Program Requirements (Fellowship) are intended to explain the differences.

Introduction

Int.A. Fellowship is advanced graduate medical education beyond a core residency program for physicians who desire to enter more specialized practice. Fellowship-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.

Fellows who have completed residency are able to practice independently in their core specialty. The prior medical experience and expertise of fellows distinguish them from physicians entering into residency training. The fellow’s care of patients within the subspecialty is undertaken with appropriate faculty supervision and conditional independence. Faculty members serve as role models of excellence, compassion, professionalism, and scholarship. The fellow develops deep medical knowledge, patient care skills, and expertise applicable to their focused area of practice. Fellowship is an intensive program of subspecialty clinical and didactic education that focuses on the multidisciplinary care of patients. Fellowship education is often physically, emotionally, and intellectually demanding, and occurs in a variety of clinical learning environments committed to graduate medical education and the well-being of patients, residents, fellows, faculty members, students, and all members of the health care team.

In addition to clinical education, many fellowship programs advance fellows’ skills as physician-scientists. While the ability to create new knowledge within medicine is not exclusive to fellowship-educated physicians, the fellowship experience expands a physician’s abilities to pursue hypothesis-driven scientific inquiry that results in contributions to the medical literature and patient care. Beyond the clinical subspecialty expertise achieved, fellows develop mentored relationships built on an infrastructure that promotes collaborative research.

Int.B. Definition of Subspecialty
Clinical neurophysiology is an area of medicine in which selected neurological disorders involving central, peripheral, and autonomic nervous systems and muscles are assessed, monitored, and treated using a combination of clinical evaluation and electrophysiological testing. A derangement of the normal physiology of the nervous system underlies these selected disorders, and an assessment of the electrophysiological abnormalities is an integral part of the evaluation process.

**Int.C. Length of Educational Program**

The educational program in clinical neurophysiology must be 12 months in length. *(Core)*

**I. Oversight**

**I.A. Sponsoring Institution**

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

*When the Sponsoring Institution is not a rotation site for the program, the most commonly utilized site of clinical activity for the program is the primary clinical site.*

**Background and Intent:** Participating sites will reflect the health care needs of the community and the educational needs of the fellows. A wide variety of organizations may provide a robust educational experience and, thus, Sponsoring Institutions and participating sites may encompass inpatient and outpatient settings including, but not limited to a university, a medical school, a teaching hospital, a nursing home, a school of public health, a health department, a public health agency, an organized health care delivery system, a medical examiner’s office, an educational consortium, a teaching health center, a physician group practice, federally qualified health center, or an educational foundation.

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

**I.B. Participating Sites**

A participating site is an organization providing educational experiences or educational assignments/rotations for fellows.

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

**I.B.1.a) Relation to Core Program**

The Sponsoring Institution must also sponsor an Accreditation Council for Graduate Medical Education (ACGME)-accredited residency program in child neurology or neurology. *(Core)* [Moved
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 10 years; and, (Core)

I.B.2.a).(2) be approved by the designated institutional official (DIO). (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 fellow education for that site, in collaboration with the program director. (Core)

Background and Intent: While all fellowship programs must be sponsored by a single ACGME-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 designate a faculty member responsible for ensuring the quality of the educational experience. In some circumstances, the person charged with this responsibility may not be physically present at the site, but remains responsible for fellow education occurring at the site. The requirements under I.B.3. are intended to ensure that this will be the case.

Suggested elements to be considered in PLAs will be found in the ACGME Program Director’s Guide to the Common Program Requirements. These include:

- Identifying the faculty members who will assume educational and supervisory responsibility for fellows
- Specifying the responsibilities for teaching, supervision, and formal evaluation of fellows
- Specifying the duration and content of the educational experience
- Stating the policies and procedures that will govern fellow education during the assignment

I.B.4. The program director must submit any additions or deletions of participating sites routinely providing an educational experience, required for all fellows, of one month full time equivalent (FTE) or more through the ACGME’s Accreditation Data System (ADS). (Core)

I.C. The program, in partnership with its Sponsoring Institution, must engage in practices that focus on mission-driven, ongoing, systematic recruitment
Background and Intent: It is expected that the Sponsoring Institution has, and programs implement, policies and procedures related to recruitment and retention of minorities underrepresented in medicine and medical leadership in accordance with the Sponsoring Institution’s mission and aims. The program's annual evaluation must include an assessment of the program’s efforts to recruit and retain a diverse workforce, as noted in V.C.1.c).(5).(c).

I.D. Resources

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

I.D.1.a) There must be space and equipment for the educational program, including meeting rooms, classrooms with audiovisual and other educational aids, office space for staff members and fellows, and diagnostic, therapeutic, and research facilities. (Core) [Moved from II.D.1.]

I.D.2. The program, in partnership with its Sponsoring Institution, must ensure healthy and safe learning and working environments that promote fellow 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 for fellows with proximity appropriate for safe patient care; (Core)

I.D.2.c) clean and private facilities for lactation that have refrigeration capabilities, with proximity appropriate for safe patient care; (Core)

Background and Intent: Care of patients within a hospital or health system occurs continually through the day and night. Such care requires that fellows function at their peak abilities, which requires the work environment to provide them with the ability to meet their basic needs within proximity of their clinical responsibilities. Access to food and rest are examples of these basic needs, which must be met while fellows are working. Fellows should have access to refrigeration where food may be stored. Food should be available when fellows are required to be in the hospital overnight. Rest facilities are necessary, even when overnight call is not required, to accommodate the fatigued fellow.

Background and Intent: Sites must provide private and clean locations where fellows may lactate and store the milk within a refrigerator. These locations should be in close proximity to clinical responsibilities. It would be helpful to have additional support.
within these locations that may assist the fellow with the continued care of patients, such as a computer and a phone. While space is important, the time required for lactation is also critical for the well-being of the fellow and the fellow’s family, as outlined in VI.C.1.d).(1).

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

I.D.2.e) accommodations for fellows with disabilities consistent with the Sponsoring Institution’s policy. (Core)

I.D.3. Fellows must have ready access to subspecialty-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 fellows appointed to the program. (Core)

I.D.4.a) The number of patients must be adequate to provide a sound educational program. The number of patients must be adequate to provide a sound educational program with diversity related to age, sex, acute or chronic neurological problems, inpatients and outpatient population as considered appropriate for the field of study. (Core) [Moved from II.D.2.]

I.E. A fellowship 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.

I.E.1. Fellows should contribute to the education of residents in core programs, if present. (Core)

Background and Intent: The clinical learning environment has become increasingly complex and often includes care providers, students, and post-graduate residents and fellows from multiple disciplines. The presence of these practitioners and their learners enriches the learning environment. Programs have a responsibility to monitor the learning environment to ensure that fellows’ education is not compromised by the presence of other providers and learners, and that fellows’ education does not compromise core residents’ education.

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 Graduate Medical Education Committee (GMEC) must approve a change in program director. (Core)

II.A.1.b) Final approval of the program director resides with the Review Committee. (Core)

Background and Intent: While the ACGME recognizes the value of input from numerous individuals in the management of a fellowship, a single individual must be designated as program director and made responsible for the program. This individual will have dedicated time for the leadership of the fellowship, and it is this individual’s responsibility to communicate with the fellows, faculty members, DIO, GMEC, and the ACGME. The program director’s nomination is reviewed and approved by the GMEC. Final approval of program directors resides with the Review Committee.

II.A.2. The program director must be provided with support adequate for administration of the program based upon its size and configuration. (Core)

II.A.2.a) At a minimum, the Sponsoring Institution must provide time and funding for at least This must include a minimum of 10 percent full-time equivalent (FTE) salary support and protected time for the program director. (Core) [Moved from I.A.1.]

II.A.2.a).(1) For those programs with four or more fellows, the Sponsoring Institution should provide this should include at least 15 percent FTE salary support. (Core) [Moved from I.A.1.a]

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

II.A.3.a) must include subspecialty expertise and qualifications acceptable to the Review Committee; and, (Core)

II.A.3.b) must include current certification in the subspecialty for which they are the program director by the American Board of Psychiatry and Neurology or by the American Osteopathic Board of Neurology and Psychiatry, or subspecialty qualifications that are acceptable to the Review Committee. (Core)

II.A.4. Program Director Responsibilities

The program director must have responsibility, authority, and accountability for: administration and operations; teaching and scholarly activity; fellow recruitment and selection, evaluation, and promotion of fellows, and disciplinary action; supervision of fellows; and fellow 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)

Background and Intent: The program director, as the leader of the program, must serve as a role model to fellows in addition to fulfilling the technical aspects of the role. As fellows are expected to demonstrate compassion, integrity, and respect for others, they must be able to look to the program director as an exemplar. It is of utmost importance, therefore, that the program director model outstanding professionalism, high quality patient care, educational excellence, and a scholarly approach to work. The program director creates an environment where respectful discussion is welcome, with the goal of continued improvement of the educational experience.

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)

Background and Intent: The mission of institutions participating in graduate medical education is to improve the health of the public. Each community has health needs that vary based upon location and demographics. Programs must understand the social determinants of health of the populations they serve and incorporate them in the design and implementation of the program curriculum, with the ultimate goal of addressing these needs and health disparities.

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

Background and Intent: The program director may establish a leadership team to assist in the accomplishment of program goals. Fellowship programs can be highly complex. In a complex organization the leader typically has the ability to delegate authority to others, yet remains accountable. The leadership team may include physician and non-physician personnel with varying levels of education, training, and experience.

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

II.A.4.a).(5) have the authority to approve program faculty members for participation in the fellowship program education at all sites; (Core)

II.A.4.a).(6) have the authority to remove program faculty members from participation in the fellowship program education at all sites; (Core)

II.A.4.a).(7) have the authority to remove fellows from supervising interactions and/or learning environments that do not meet the standards of the program; (Core)
Background and Intent: The program director has the responsibility to ensure that all who educate fellows effectively role model the Core Competencies. Working with a fellow is a privilege that is earned through effective teaching and professional role modeling. This privilege may be removed by the program director when the standards of the clinical learning environment are not met.

There may be faculty in a department who are not part of the educational program, and the program director controls who is teaching the residents.

II.A.4.a).(8) submit accurate and complete information required and requested by the DIO, GMEC, and ACGME; (Core)

II.A.4.a).(9) provide applicants who are offered an interview with information related to the applicant’s eligibility for the relevant subspecialty board examination(s); (Core)

II.A.4.a).(10) provide a learning and working environment in which fellows 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).(11) ensure the program’s compliance with the Sponsoring Institution’s policies and procedures related to grievances and due process; (Core)

II.A.4.a).(12) 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 fellow; (Core)

II.A.4.a).(13) ensure the program’s compliance with the Sponsoring Institution’s policies and procedures on employment and non-discrimination; (Core)

II.A.4.a).(13).(a) Fellows must not be required to sign a non-competition guarantee or restrictive covenant. (Core)

II.A.4.a).(14) document verification of program completion for all graduating fellows within 30 days; (Core)

II.A.4.a).(15) provide verification of an individual fellow’s completion upon the fellow’s request, within 30 days; and, (Core)
Background and Intent: Primary verification of graduate medical education is important to credentialing of physicians for further training and practice. Such verification must be accurate and timely. Sponsoring Institution and program policies for record retention are important to facilitate timely documentation of fellows who have previously completed the program. Fellows who leave the program prior to completion also require timely documentation of their summative evaluation.

II.A.4.a).(16) obtain review and approval of the Sponsoring Institution’s DIO before submitting information or requests to the ACGME, as required in the Institutional Requirements and outlined in the ACGME Program Director’s Guide to the Common Program Requirements. (Core)

II.A.4.a).(17) monitor fellow stress, including mental or emotional conditions inhibiting performance of learning, and drug- or alcohol-related dysfunction. [Moved from II.A.3.e)]

II.A.4.a).(17).(a) Situations that demand excessive service or that consistently produce undesirable stress on fellows must be recognized and resolved. [Moved from II.A.3.e).(1)]

II.A.4.b) The program director should attend at least one national program director meeting per year. [Moved from II.A.4.]

II.B. Faculty

Faculty members are a foundational element of graduate medical education – faculty members teach fellows how to care for patients. Faculty members provide an important bridge allowing fellows to grow and become practice ready, ensuring that patients receive the highest quality of care. They are role models for future generations of physicians by demonstrating compassion, commitment to excellence in teaching and patient care, professionalism, and a dedication to lifelong learning. Faculty members experience the pride and joy of fostering the growth and development of future colleagues. The care they provide is enhanced by the opportunity to teach. By employing a scholarly approach to patient care, faculty members, through the graduate medical education system, improve the health of the individual and the population.

Faculty members ensure that patients receive the level of care expected from a specialist in the field. They recognize and respond to the needs of the patients, fellows, community, and institution. 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 fellows and themselves.
Background and Intent: “Faculty” refers to the entire teaching force responsible for educating fellows. The term “faculty,” including “core faculty,” does not imply or require an academic appointment or salary support.

II.B.1. For each participating site, there must be a sufficient number of faculty members with competence to instruct and supervise all fellows at that location.  

II.B.2. Faculty members must:

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

II.B.2.b) demonstrate commitment to the delivery of safe, quality, cost-effective, patient-centered care;  

II.B.2.c) demonstrate a strong interest in the education of fellows;  

II.B.2.d) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities;  

II.B.2.e) administer and maintain an educational environment conducive to educating fellows;  

II.B.2.f) regularly participate in organized clinical discussions, rounds, journal clubs, and conferences; and,  

II.B.2.g) pursue faculty development designed to enhance their skills at least annually.

Background and Intent: Patients have the right to expect quality, cost-effective care with patient safety at its core. The foundation for meeting this expectation is formed during residency and fellowship. Faculty members model these goals and continually strive for improvement in care and cost, embracing a commitment to the patient and the community they serve.

II.B.2.h) Physician faculty members must participate regularly in clinical discussions, rounds, journal clubs, and conferences in a manner that promotes a spirit of inquiry and scholarship, including the mentoring of fellows in scholarly activity.  

II.B.2.i) While not all members of a teaching staff must be investigators, the staff as a whole must demonstrate broad involvement in
scholarly activity, and clinical neurophysiology education must be conducted in centers where there is research in clinical neurophysiology. (Core) [Moved from II.B.5.a)]

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) Subspecialty physician faculty members must:

II.B.3.b).(1) have current certification in the subspecialty by the American Board of Psychiatry and Neurology or the American Osteopathic Board of Neurology and Psychiatry, or possess qualifications judged acceptable to the Review Committee. (Core)

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

II.B.3.d) Any other specialty physician faculty members must have current certification in their specialty by the appropriate American Board of Medical Specialties (ABMS) member board or American Osteopathic Association (AOA) certifying board, or possess qualifications judged acceptable to the Review Committee. (Core)

II.B.4. Core Faculty

Core faculty members must have a significant role in the education and supervision of fellows and must devote a significant portion of their entire effort to fellow education and/or administration, and must, as a component of their activities, teach, evaluate, and provide formative feedback to fellows. (Core)

Background and Intent: The provision of optimal and safe patient care requires a team approach. The education of fellows by non-physician educators enables the fellows to better manage patient care and provides valuable advancement of the fellows’ knowledge. Furthermore, other individuals contribute to the education of the fellow in the basic science of the subspecialty or in research methodology. If the program director determines that the contribution of a non-physician individual is significant to the education of the fellow, the program director may designate the individual as a program faculty member or a program core faculty member.

II.B.4. Core Faculty

Core faculty members must have a significant role in the education and supervision of fellows and must devote a significant portion of their entire effort to fellow education and/or administration, and must, as a component of their activities, teach, evaluate, and provide formative feedback to fellows. (Core)

Background and Intent: Core faculty members are critical to the success of fellow education. They support the program leadership in developing, implementing, and assessing curriculum and in assessing fellows’ progress toward achievement of competence in the subspecialty. Core faculty members should be selected for their
broad knowledge of and involvement in the program, permitting them to effectively evaluate the program, including completion of the annual ACGME Faculty Survey.

II.B.4.a) Core faculty members must be designated by the program director. (Core)

II.B.4.b) Core faculty members must complete the annual ACGME Faculty Survey. (Core)

II.B.4.c) The program must have at least two core faculty neurologists, including the program director, who have completed education in the subspecialty. (Core) [Moved from II.B.1.a)]

II.B.4.d) A core faculty-to-fellow ratio of at least 1:1 must be maintained in programs with two or more fellows. (Core) [Moved from II.B.1.b)]

II.C. Program Coordinator

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

II.C.2. The program coordinator must be provided with support adequate for administration of the program based upon its size and configuration. (Core)

II.C.2.a) The Sponsoring Institution must provide financial support for a program coordinator to assist the program director in the administration of the program. (Core) [Moved from I.A.2.]

Background and Intent: Each program requires a lead administrative person, frequently referred to as a program coordinator, administrator, or as titled by the institution. This person will frequently manage the day-to-day operations of the program and serve as an important liaison with learners, faculty and other staff members, and the ACGME. Individuals serving in this role are recognized as program coordinators by the ACGME.

The program coordinator is a member of the leadership team and is critical to the success of the program. As such, the program coordinator must possess skills in leadership and personnel management. Program coordinators are expected to develop unique knowledge of the ACGME and Program Requirements, policies, and procedures. Program coordinators assist the program director in accreditation efforts, educational programming, and support of fellows.

Programs, in partnership with their Sponsoring Institutions, should encourage the professional development of their program coordinators and avail them of opportunities for both professional and personal growth. Programs with fewer fellows may not require a full-time coordinator; one coordinator may support more than one program.

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)
Background and Intent: Multiple personnel may be required to effectively administer a program. These may include staff members with clerical skills, project managers, education experts, and staff members to maintain electronic communication for the program. These personnel may support more than one program in more than one discipline.

III. Fellow Appointments

III.A. Eligibility Criteria

III.A.1. Eligibility Requirements – Fellowship Programs

All required clinical education for entry into ACGME-accredited fellowship programs must be completed in an ACGME-accredited residency program, an AOA-approved residency program, a program with ACGME International (ACGME-I) Advanced Specialty Accreditation, or a Royal College of Physicians and Surgeons of Canada (RCPSC)-accredited or College of Family Physicians of Canada (CFPC)-accredited residency program located in Canada. (Core)

Background and Intent: Eligibility for ABMS or AOA Board certification may not be satisfied by fellowship training. Applicants must be notified of this at the time of application, as required in II.A.4.a). (9)

III.A.1.a) Fellowship programs must receive verification of each entering fellow’s level of competence in the required field, upon matriculation, using ACGME, ACGME-I, or CanMEDS Milestones evaluations from the core residency program. (Core)

III.A.1.b) Prior to appointment in the program, fellows must have successfully completed an ACGME-accredited program in neurology, child neurology, neurodevelopment disabilities, or psychiatry that satisfies the requirements in III.A.1., or a program in one of these specialties that is located in Canada and accredited by the RCPSC. (Core) [Moved from III.A.]

III.A.1.c) Fellow Eligibility Exception

The Review Committee for Neurology will allow the following exception to the fellowship eligibility requirements:

III.A.1.c).(1) An ACGME-accredited fellowship program may accept an exceptionally qualified international graduate applicant who does not satisfy the eligibility requirements listed in III.A.1., but who does meet all of the following additional qualifications and conditions: (Core)
III.A.1.c).(1).(a) evaluation by the program director and fellowship selection committee of the applicant’s suitability to enter the program, based on prior training and review of the summative evaluations of training in the core specialty; and, (Core)

III.A.1.c).(1).(b) review and approval of the applicant’s exceptional qualifications by the GMEC; and, (Core)

III.A.1.c).(1).(c) verification of Educational Commission for Foreign Medical Graduates (ECFMG) certification. (Core)

III.A.1.c).(2) Applicants accepted through this exception must have an evaluation of their performance by the Clinical Competency Committee within 12 weeks of matriculation. (Core)

Background and Intent: An exceptionally qualified international graduate applicant has (1) completed a residency program in the core specialty outside the continental United States that was not accredited by the ACGME, AOA, ACGME-I, RCPSC or CFPC, and (2) demonstrated clinical excellence, in comparison to peers, throughout training. Additional evidence of exceptional qualifications is required, which may include one of the following: (a) participation in additional clinical or research training in the specialty or subspecialty; (b) demonstrated scholarship in the specialty or subspecialty; and/or (c) demonstrated leadership during or after residency. Applicants being considered for these positions must be informed of the fact that their training may not lead to certification by ABMS member boards or AOA certifying boards.

In recognition of the diversity of medical education and training around the world, this early evaluation of clinical competence required for these applicants ensures they can provide quality and safe patient care. Any gaps in competence should be addressed as per policies for fellows already established by the program in partnership with the Sponsoring Institution.

III.B. The program director must not appoint more fellows than approved by the Review Committee. (Core)

III.B.1. All complement increases must be approved by the Review Committee. (Core)

III.C. Fellow Transfers

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

IV. Educational Program
The ACGME accreditation system is designed to encourage excellence and innovation in graduate 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.

In addition, the program 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. While programs must demonstrate substantial compliance with the Common and subspecialty-specific Program Requirements, it is recognized that within this framework, programs may place different emphasis on research, leadership, public health, etc. It is expected that the program aims will reflect the nuanced program-specific goals for it and its graduates; for example, it is expected that a program aiming to prepare physician-scientists will have a different curriculum from one focusing on community health.

IV.A. The 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.1.a) The program’s aims must be made available to program applicants, fellows, and faculty members. (Core)

IV.A.2. competency-based goals and objectives for each educational experience designed to promote progress on a trajectory to autonomous practice in their subspecialty. These must be distributed, reviewed, and available to fellows and faculty members; (Core)

IV.A.3. delineation of fellow responsibilities for patient care, progressive responsibility for patient management, and graded supervision in their subspecialty; (Core)

Background and Intent: These responsibilities may generally be described by PGY level and specifically by Milestones progress as determined by the Clinical Competency Committee. This approach encourages the transition to competency-based education. An advanced learner may be granted more responsibility independent of PGY level and a learner needing more time to accomplish a certain task may do so in a focused rather than global manner.

IV.A.4. structured educational activities beyond direct patient care; and, (Core)

Background and Intent: Patient care-related educational activities, such as morbidity and mortality conferences, tumor boards, surgical planning conferences, case discussions, etc., allow fellows to gain medical knowledge directly applicable to the
patients they serve. Programs should define those educational activities in which fellows are expected to participate and for which time is protected. Further specification can be found in IV.C.

IV.A.5. advancement of fellows’ knowledge of ethical principles foundational to medical professionalism. (Core)

IV.B. ACGME Competencies

Background and Intent: The Competencies provide a conceptual framework describing the required domains for a trusted physician to enter autonomous practice. These Competencies are core to the practice of all physicians, although the specifics are further defined by each subspecialty. The developmental trajectories in each of the Competencies are articulated through the Milestones for each subspecialty. The focus in fellowship is on subspecialty-specific patient care and medical knowledge, as well as refining the other competencies acquired in residency.

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

IV.B.1.a) Professionalism

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

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

Background and Intent: Quality patient care is safe, effective, timely, efficient, patient-centered, equitable, and designed to improve population health, while reducing per capita costs. (See the Institute of Medicine [IOM]’s Crossing the Quality Chasm: A New Health System for the 21st Century, 2001 and Berwick D, Nolan T, Whittington J. The Triple Aim: care, cost, and quality. Health Affairs. 2008; 27(3):759-769.). In addition, there should be a focus on improving the clinician’s well-being as a means to improve patient care and reduce burnout among residents, fellows, and practicing physicians.

These organizing principles inform the Common Program Requirements across all Competency domains. Specific content is determined by the Review Committees with input from the appropriate professional societies, certifying boards, and the community.

IV.B.1.b).(1) Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. (Core)

IV.B.1.b).(1).(a) Fellows must demonstrate competence in developing and executing a plan of patient evaluation and treatment; (Outcome)(Core) [Moved from IV.A.2.a).(1).(a)]
IV.B.1.b).(1).(b) Fellows must demonstrate proficiency in the ability to accurately report results in at least two of the following: [Moved from IV.A.2.a).(1).(b)]

IV.B.1.b).(1).(b).(i) electroencephalography (EEG) and video EEG interpretation; (Outcome)(Core) [Moved from IV.A.2.a).(1).(b).(i)]

IV.B.1.b).(1).(b).(ii) electromyography (EMG) and nerve conduction studies performance and interpretation; (Outcome)(Core) [Moved from IV.A.2.a).(1).(b).(ii)]

IV.B.1.b).(1).(b).(iii) intra-operative monitoring studies interpretation; and, (Outcome)(Core) [Moved from IV.A.2.a).(1).(b).(iii)]

IV.B.1.b).(1).(b).(iv) interpretation of sleep studies. (Outcome)(Core) [Moved from IV.A.2.a).(1).(b).(iv)]

IV.B.1.b).(1).(c) Fellows must demonstrate competence in the application of electrical, magnetic, and mechanical methods to evaluate a wide range of diseases salient to the fellow’s two or more areas of clinical neurophysiology experience. (Outcome)(Core) [Moved from IV.A.2.a).(1).(c)]

IV.B.1.b).(2) Fellows must be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice. (Core)

IV.B.1.c) Medical Knowledge

Fellows must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care. (Core)

IV.B.1.c).(1) Fellows must demonstrate proficiency in their knowledge of: [Moved from IV.A.2.b)]

IV.B.1.c).(1).(a) the normal physiology of the nervous system; (Outcome)(Core) [Moved from IV.A.2.b).(1)]

IV.B.1.c).(1).(b) the altered, abnormal electrophysiology of the nervous system; and, (Outcome)(Core) [Moved from IV.A.2.b).(2)]

IV.B.1.c).(1).(c) the disease states involved. (Outcome)(Core) [Moved from IV.A.2.b).(3)]
IV.B.1.d) Practice-based Learning and Improvement
Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. (Core)

Background and Intent: Practice-based learning and improvement is one of the defining characteristics of being a physician. It is the ability to investigate and evaluate the care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

The intention of this Competency is to help a fellow refine the habits of mind required to continuously pursue quality improvement, well past the completion of fellowship.

IV.B.1.e) Interpersonal and Communication Skills
Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. (Core)

IV.B.1.f) Systems-based Practice
Fellows 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.C. Curriculum Organization and Fellow Experiences

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

[The Review Committee must further specify]

IV.C.2. The program must provide instruction and experience in pain management if applicable for the subspecialty, including recognition of the signs of addiction. (Core)

IV.C.3. The program director must, with assistance from the members of the faculty, develop and implement the academic and clinical education program by: [Moved from IV.A.3.a)]
IV.C.3.a) preparing and implementing a comprehensive, well-organized, and effective curriculum, both academic and clinical, which includes the presentation of core subspecialty knowledge supplemented by the addition of current information; and, (Core) [Moved from IV.A.3.a).(1)]

IV.C.3.b) providing fellows with direct experience in progressive responsibility for patient management. (Core) [Moved from IV.A.3.a).(2)]

IV.C.4. The program must provide education in the broad area of clinical neurophysiology, including clinical or didactic experience in: (Core) [Moved from IV.A.3.b)]

IV.C.4.a) EEG; (Detail)† [Moved from IV.A.3.b).(1)]]

IV.C.4.b) IV.C.1.b).(2) electromyography (EMG) and nerve conduction studies; (Detail) [Moved from IV.A.3.b).(2)]

IV.C.4.c) evoked potential studies; (Detail) [Moved from IV.A.3.b).(3)]

IV.C.4.d) intra-operative monitoring and analysis; (Detail) [Moved from IV.A.3.b).(4)]

IV.C.4.e) movement disorder assessment, to include dystonia; (Detail) [Moved from IV.A.3.b).(5)]

IV.C.4.f) polysomnography and assessment of disorders of sleep; (Detail) [Moved from IV.A.3.b).(6)]

IV.C.4.g) single fiber EMG; (Detail) [Moved from IV.A.3.b).(7)]

IV.C.4.h) testing of autonomic function; and, (Detail) [Moved from IV.A.3.b).(8)]

IV.C.4.i) video EEG monitoring. (Detail) [Moved from IV.A.3.b).(9)]

IV.C.5. The program must include clinical experience in at least two of the following: [Moved from IV.A.3.c)]

IV.C.5.a) EEG; (Detail) [Moved from IV.A.3.c).(1)]

IV.C.5.b) EMG and nerve conduction studies; (Detail) [Moved from IV.A.3.c).(2)]

IV.C.5.c) intra-operative monitoring; or, (Detail) [Moved from IV.A.3.c).(3)]

IV.C.5.d) polysomnography and assessment of disorders of sleep. (Detail) [Moved from IV.A.3.c).(4)]

IV.C.6. If clinical education emphasizes one experience, the duration of the second experience must be at least two months. [Moved from IV.A.3.d)]
IV.D. Scholarship

Medicine is both an art and a science. The physician is a humanistic scientist who cares for patients. This requires the ability to think critically, evaluate the literature, appropriately assimilate new knowledge, and practice lifelong learning. The program and faculty must create an environment that fosters the acquisition of such skills through fellow participation in scholarly activities as defined in the subspecialty-specific Program Requirements. Scholarly activities may include discovery, integration, application, and teaching.

The ACGME recognizes the diversity of fellowships and anticipates that programs prepare physicians for a variety of roles, including clinicians, scientists, and educators. It is expected that the program’s scholarship will reflect its mission(s) and aims, and the needs of the community it serves. For example, some programs may concentrate their scholarly activity on quality improvement, population health, and/or teaching, while other programs might choose to utilize more classic forms of biomedical research as the focus for scholarship.

IV.D.1. Program Responsibilities

IV.D.1.a) The program must demonstrate evidence of scholarly activities, consistent with its mission(s) and aims. (Core)

IV.D.1.b) The program in partnership with its Sponsoring Institution, must allocate adequate resources to facilitate fellow and faculty involvement in scholarly activities. (Core)

IV.D.2. Faculty Scholarly Activity

IV.D.2.a) Among their scholarly activity, programs must demonstrate accomplishments in at least three of the following domains: (Core)

- Research in basic science, education, translational science, patient care, or population health
- Peer-reviewed grants
- Quality improvement and/or patient safety initiatives
- Systematic reviews, meta-analyses, review articles, chapters in medical textbooks, or case reports
- Creation of curricula, evaluation tools, didactic educational activities, or electronic educational materials
- Contribution to professional committees, educational organizations, or editorial boards
- Innovations in education
IV.D.2.b) The program must demonstrate dissemination of scholarly activity within and external to the program by the following methods:

**Background and Intent:** For the purposes of education, metrics of scholarly activity represent one of the surrogates for the program’s effectiveness in the creation of an environment of inquiry that advances the fellows’ scholarly approach to patient care. The Review Committee will evaluate the dissemination of scholarship for the program as a whole, not for individual faculty members, for a five-year interval, for both core and non-core faculty members, with the goal of assessing the effectiveness of the creation of such an environment. The ACGME recognizes that there may be differences in scholarship requirements between different specialties and between residencies and fellowships in the same specialty.

IV.D.2.b).(1) faculty participation in grand rounds, posters, workshops, quality improvement presentations, podium presentations, grant leadership, non-peer-reviewed print/electronic resources, articles or publications, book chapters, textbooks, webinars, service on professional committees, or serving as a journal reviewer, journal editorial board member, or editor; *(Outcome)*

IV.D.2.b).(2) peer-reviewed publication. *(Outcome)*

IV.D.3. Fellow Scholarly Activity

IV.D.3.a) The curriculum must advance fellows’ knowledge of the basic principles of evidence-based medicine and research, including how research is conducted, evaluated, explained to patients, and applied to patient care. *(Core)* [Moved from IV.B.1.]

IV.D.3.b) Fellows should participate in scholarly activity under the mentorship of program faculty members. *(Core)* [Moved from IV.B.2.]

IV.D.3.c) The sponsoring institution and program should allocate adequate educational resources to facilitate fellow involvement in scholarly activities. *(Core)* [Moved from IV.B.3.]

IV.D.3.d) Fellows should receive support to attend one regional, national, or international professional conference during the program. *(Detail)* [Moved from IV.B.4.]

V. Evaluation

V.A. Fellow Evaluation

V.A.1. Feedback and Evaluation

**Background and Intent:** Feedback is ongoing information provided regarding aspects of one’s performance, knowledge, or understanding. The faculty empower fellows to
provide much of that feedback themselves in a spirit of continuous learning and self-reflection. Feedback from faculty members in the context of routine clinical care should be frequent, and need not always be formally documented.

Formative and summative evaluation have distinct definitions. Formative evaluation is monitoring fellow learning and providing ongoing feedback that can be used by fellows to improve their learning in the context of provision of patient care or other educational opportunities. More specifically, formative evaluations help:

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

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

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

Feedback, formative evaluation, and summative evaluation compare intentions with accomplishments, enabling the transformation of a new specialist to one with growing subspecialty expertise.

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

**Background and Intent:** Faculty members should provide feedback frequently throughout the course of each rotation. Fellows require feedback from faculty members to reinforce well-performed duties and tasks, as well as to correct deficiencies. This feedback will allow for the development of the learner as they strive to achieve the Milestones. More frequent feedback is strongly encouraged for fellows who have deficiencies that may result in a poor final rotation evaluation.

V.A.1.b) Evaluation must be documented at the completion of the assignment. (Core)

V.A.1.b).(1) For block rotations of greater than three months in duration, evaluation must be documented at least every three months. (Core)

V.A.1.b).(2) Longitudinal experiences such as continuity clinic in the context of other clinical responsibilities must be evaluated at least every three months and at completion. (Core)
V.A.1.c) The program must provide an objective performance evaluation based on the Competencies and the subspecialty-specific Milestones, and must: (Core)

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

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

Background and Intent: The trajectory to autonomous practice in a subspecialty is documented by the subspecialty-specific Milestones evaluation during fellowship. These Milestones detail the progress of a fellow in attaining skill in each competency domain. It is expected that the most growth in fellowship education occurs in patient care and medical knowledge, while the other four domains of competency must be ensured in the context of the subspecialty. They are developed by a subspecialty group and allow evaluation based on observable behaviors. The Milestones are considered formative and should be used to identify learning needs. This may lead to focused or general curricular revision in any given program or to individualized learning plans for any specific fellow.

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 fellow their documented semi-annual evaluation of performance, including progress along the subspecialty-specific Milestones. (Core)

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

V.A.1.d).(3) develop plans for fellows failing to progress, following institutional policies and procedures. (Core)

Background and Intent: Learning is an active process that requires effort from the teacher and the learner. Faculty members evaluate a fellow's performance at least at the end of each rotation. The program director or their designee will review those evaluations, including their progress on the Milestones, at a minimum of every six months. Fellows should be encouraged to reflect upon the evaluation, using the information to reinforce well-performed tasks or knowledge or to modify deficiencies in knowledge or practice. Working together with the faculty members, fellows should develop an individualized learning plan.

Fellows who are experiencing difficulties with achieving progress along the Milestones may require intervention to address specific deficiencies. Such intervention, documented in an individual remediation plan developed by the program director or a
faculty mentor and the fellow, will take a variety of forms based on the specific learning needs of the fellow. However, the ACGME recognizes that there are situations which require more significant intervention that may alter the time course of fellow progression. To ensure due process, it is essential that the program director follow institutional policies and procedures.

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

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

V.A.2. Final Evaluation

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

V.A.2.a).(1) The subspecialty-specific Milestones, and when applicable the subspecialty-specific Case Logs, must be used as tools to ensure fellows are 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 fellow’s permanent record maintained by the institution, and must be accessible for review by the fellow in accordance with institutional policy; (Core)

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

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

V.A.2.a).(2).(d) be shared with the fellow 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) At a minimum the Clinical Competency Committee must include three members, at least one of whom is a core faculty member. 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 fellows. (Core)
V.A.3.b) The Clinical Competency Committee must:

V.A.3.b).(1) review all fellow evaluations at least semi-annually;  
(Core)

V.A.3.b).(2) determine each fellow's progress on achievement of 
the subspecialty-specific Milestones; and,  
(Core)

V.A.3.b).(3) meet prior to the fellows' semi-annual evaluations and 
advise the program director regarding each fellow’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)

Background and Intent: The program director is responsible for the education program 
and for whom delivers it. While the term faculty may be applied to physicians within a 
given institution for other reasons, it is applied to fellowship program faculty members 
only through approval by a program director. The development of the faculty improves 
the education, clinical, and research aspects of a program. Faculty members have a 
strong commitment to the fellow and desire to provide optimal education and work 
opportunities. Faculty members must be provided feedback on their contribution to the 
mission of the program. All faculty members who interact with fellows desire feedback 
on their education, clinical care, and research. If a faculty member does not interact 
with fellows, feedback is not required. With regard to the diverse operating 
environments and configurations, the fellowship program director may need to work 
with others to determine the effectiveness of the program's faculty performance with 
regard to their role in the educational program. All teaching faculty members should 
have their educational efforts evaluated by the fellows in a confidential and 
anonymous manner. Other aspects for the feedback may include research or clinical 
productivity, review of patient outcomes, or peer review of scholarly activity. The 
process should reflect the local environment and identify the necessary information. 
The feedback from the various sources should be summarized and provided to the 
faculty on an annual basis by a member of the leadership team of the program.

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, professionalism, 
and scholarly activities.  
(Core)

V.B.1.b) This evaluation must include written, confidential evaluations 
by the fellows.  
(Core)

V.B.2. Faculty members must receive feedback on their evaluations at least 
anually.  
(Core)
V.B.3. Results of the faculty educational evaluations should be incorporated into program-wide faculty development plans. (Core)

Background and Intent: The quality of the faculty’s teaching and clinical care is a determinant of the quality of the program and the quality of the fellows’ future clinical care. Therefore, the program has the responsibility to evaluate and improve the program faculty members’ teaching, scholarship, professionalism, and quality care. This section mandates annual review of the program’s faculty members for this purpose, and can be used as input into the Annual Program Evaluation.

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)

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 fellow. (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 self-determined goals and progress toward meeting them; (Core)

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

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

Background and Intent: In order to achieve its mission and train quality physicians, a program must evaluate its performance and plan for improvement in the Annual Program Evaluation. Performance of fellows and faculty members is a reflection of program quality, and can use metrics that reflect the goals that a program has set for itself. The Program Evaluation Committee utilizes outcome parameters and other data to assess the program’s progress toward achievement of its goals and aims.

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

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

V.C.1.c).(2) outcomes from prior Annual Program Evaluation(s); (Core)
V.C.1.c).(3) ACGME letters of notification, including citations, Areas for Improvement, and comments; (Core)

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

V.C.1.c).(5) aggregate fellow and faculty:

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

V.C.1.c).(5).(b) recruitment and retention; (Core)

V.C.1.c).(5).(c) workforce diversity; (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) ACGME Resident/Fellow and Faculty Surveys (where applicable); and, (Core)

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

V.C.1.c).(6) aggregate fellow:

V.C.1.c).(6).(a) achievement of the Milestones; (Core)

V.C.1.c).(6).(b) in-training examinations (where applicable); (Core)

V.C.1.c).(6).(c) board pass and certification rates; and, (Core)

V.C.1.c).(6).(d) graduate performance. (Core)

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

V.C.1.c).(7).(a) evaluation; and, (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 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 fellows; and, (Core)

V.C.1.e).(2) be submitted to the DIO. (Core)
V.C.2. The program must participate in a Self-Study prior to its 10-Year Accreditation Site Visit. (Core)

V.C.2.a) A summary of the Self-Study must be submitted to the DIO. (Core)

Background and Intent: Outcomes of the documented Annual Program Evaluation can be integrated into the 10-year Self-Study process. The Self-Study is an objective, comprehensive evaluation of the fellowship program, with the aim of improving it. Underlying the Self-Study is this longitudinal evaluation of the program and its learning environment, facilitated through sequential Annual Program Evaluations that focus on the required components, with an emphasis on program strengths and self-identified areas for improvement. Details regarding the timing and expectations for the Self-Study and the 10-Year Accreditation Site Visit are provided in the ACGME Manual of Policies and Procedures. Additionally, a description of the Self-Study process, as well as information on how to prepare for the 10-Year Accreditation Site Visit, is available on the ACGME website.

V.C.3. One goal of ACGME-accredited education is to educate physicians who seek and achieve board certification. One measure of the effectiveness of the educational program is the ultimate pass rate.

The program director should encourage all eligible program graduates to take the certifying examination offered by the applicable American Board of Medical Specialties (ABMS) member board or American Osteopathic Association (AOA) certifying board.

V.C.3.a) For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) an annual written exam, in the preceding three years, the program’s aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty. (Outcome)

V.C.3.b) For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) a biennial written exam, in the preceding six years, the program’s aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty. (Outcome)

V.C.3.c) For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) an annual oral exam, in the preceding three years, the program’s aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty. (Outcome)

V.C.3.d) For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) a biennial oral exam, in the
preceding six years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty.  

V.C.3.e) For each of the exams referenced in V.C.3.a)-d), any program whose graduates over the time period specified in the requirement have achieved an 80 percent pass rate will have met this requirement, no matter the percentile rank of the program for pass rate in that subspecialty.  

Background and Intent: Setting a single standard for pass rate that works across subspecialties is not supportable based on the heterogeneity of the psychometrics of different examinations. By using a percentile rank, the performance of the lower five percent (fifth percentile) of programs can be identified and set on a path to curricular and test preparation reform.

There are subspecialties where there is a very high board pass rate that could leave successful programs in the bottom five percent (fifth percentile) despite admirable performance. These high-performing programs should not be cited, and V.C.3.e) is designed to address this.

V.C.3.f) Programs must report, in ADS, board certification status annually for the cohort of board-eligible fellows that graduated seven years earlier.  

Background and Intent: It is essential that fellowship programs demonstrate knowledge and skill transfer to their fellows. One measure of that is the qualifying or initial certification exam pass rate. Another important parameter of the success of the program is the ultimate board certification rate of its graduates. Graduates are eligible for up to seven years from fellowship graduation for initial certification. The ACGME will calculate a rolling three-year average of the ultimate board certification rate at seven years post-graduation, and the Review Committees will monitor it.

The Review Committees will track the rolling seven-year certification rate as an indicator of program quality. Programs are encouraged to monitor their graduates’ performance on board certification examinations.

In the future, the ACGME may establish parameters related to ultimate board certification rates.

V.C.3.g) Pass rate results from the American Board of Psychiatry and Neurology (ABPN) must be used in the evaluation of the educational effectiveness of a program. [Moved from V.C.4]

V.C.3.h) At least 80 percent of a program’s eligible graduates from the preceding five years should take the ABPN certifying examination in clinical neurophysiology. [Moved from V.C.5]

V.C.3.h).(1) At least 75 percent of a program’s eligible graduates from
the preceding five years who take the ABPN certifying examination in clinical neurophysiology for the first time should pass. (Outcome) [Moved from V.C.5.a)]

V.C.3.h).(2) In those programs with fewer than five graduates over the past five years, at least 50 percent of graduates who take the ABPN certifying examination in clinical neurophysiology for the first time should pass. (Outcome) [Moved from V.C.5.b)]

VI. The Learning and Working Environment

Fellowship 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 fellows today
- Excellence in the safety and quality of care rendered to patients by today's fellows in their future practice
- Excellence in professionalism through faculty modeling of:
  - the effacement of self-interest in a humanistic environment that supports the professional development of physicians
  - the joy of curiosity, problem-solving, intellectual rigor, and discovery
- Commitment to the well-being of the students, residents, fellows, faculty members, and all members of the health care team

Background and Intent: The revised requirements are intended to provide greater flexibility within an established framework, allowing programs and fellows more discretion to structure clinical education in a way that best supports the above principles of professional development. With this increased flexibility comes the responsibility for programs and fellows to adhere to the 80-hour maximum weekly limit (unless a rotation-specific exception is granted by a Review Committee), and to utilize flexibility in a manner that optimizes patient safety, fellow education, and fellow well-being. The requirements are intended to support the development of a sense of professionalism by encouraging fellows to make decisions based on patient needs and their own well-being, without fear of jeopardizing their program’s accreditation status. In addition, the proposed requirements eliminate the burdensome documentation requirement for fellows to justify clinical and educational work hour variations.

Clinical and educational work hours represent only one part of the larger issue of conditions of the learning and working environment, and Section VI has now been expanded to include greater attention to patient safety and fellow and faculty member well-being. The requirements are intended to support programs and fellows as they strive for excellence, while also ensuring ethical, humanistic training. Ensuring that flexibility is used in an appropriate manner is a shared responsibility of the program and
fellows. With this flexibility comes a responsibility for fellows and faculty members to recognize the need to hand off care of a patient to another provider when a fellow is too fatigued to provide safe, high quality care and for programs to ensure that fellows remain within the 80-hour maximum weekly limit.

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

VI.A.1. Patient Safety and Quality Improvement

All physicians share responsibility for promoting patient safety and enhancing quality of patient care. Graduate medical education must prepare fellows to provide the highest level of clinical care with continuous focus on the safety, individual needs, and humanity of their patients. It is the right of each patient to be cared for by fellows who are appropriately supervised; possess the requisite knowledge, skills, and abilities; understand the limits of their knowledge and experience; and seek assistance as required to provide optimal patient care.

Fellows must demonstrate the ability to analyze the care they provide, understand their roles within health care teams, and play an active role in system improvement processes. Graduating fellows will apply these skills to critique their future unsupervised practice and effect quality improvement measures.

It is necessary for fellows 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 in order to identify areas for improvement.

VI.A.1.a).(1).(a) The program, its faculty, residents, and fellows 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, interprofessional, 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)

Background and Intent: Optimal patient safety occurs in the setting of a coordinated interprofessional learning and working environment.

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 systems-based changes to ameliorate patient safety vulnerabilities.

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

VI.A.1.a).(3).(a).(i) know their responsibilities in reporting patient safety events at the clinical site; (Core)

VI.A.1.a).(3).(a).(ii) know how to report patient safety events, including near misses, at the clinical site; and, (Core)

VI.A.1.a).(3).(a).(iii) be provided with summary information of their institution’s patient safety reports. (Core)

VI.A.1.a).(3).(b) Fellows must participate as team members in real and/or simulated interprofessional 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) Fellow Education and Experience in Disclosure of Adverse Events

Patient-centered care requires patients, and when appropriate families, to be apprised of clinical situations that affect them, including adverse events. This is an important skill for faculty physicians to model, and for fellows to develop and apply.
VI.A.1.a).(4).(a) All fellows must receive training in how to disclose adverse events to patients and families. (Core)

VI.A.1.a).(4).(b) Fellows 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

A cohesive model of health care includes quality-related goals, tools, and techniques that are necessary in order for health care professionals to achieve quality improvement goals.

VI.A.1.b).(1).(a) Fellows must receive training and experience in quality improvement processes, including an understanding of health care disparities. (Core)

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

Access to data is essential to prioritizing activities for care improvement and evaluating success of improvement efforts.

VI.A.1.b).(2).(a) Fellows 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

Experiential learning is essential to developing the ability to identify and institute sustainable systems-based changes to improve patient care.

VI.A.1.b).(3).(a) Fellows must have the opportunity to participate in interprofessional quality improvement activities. (Core)

VI.A.1.b).(3).(a).(i) This should include activities aimed at reducing health care disparities. (Detail)

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 graduate medical education provides safe and effective care to patients; ensures each fellow’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 (or licensed independent practitioner as specified by the applicable Review Committee) who is responsible and accountable for the patient’s care. (Core)

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

VI.A.2.a).(1).(b) Fellows 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 many aspects of patient care, the supervising physician may be a more advanced fellow. Other portions of care provided by the fellow can be adequately supervised by the immediate availability of the supervising faculty member or fellow, either on site or by means of telephonic and/or electronic modalities. Some activities require the physical presence of the supervising faculty member. In some circumstances, supervision may include post-hoc review of fellow-delivered care with feedback.

VI.A.2.b).(1) The program must demonstrate that the appropriate level of supervision in place for all fellows is based on each fellow’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.c) Levels of Supervision

VI.A.2.c).(1) Direct Supervision – the supervising physician is physically present with the fellow and patient. (Core)
VI.A.2.c).(2) Indirect Supervision:

VI.A.2.c).(2).(a) with Direct Supervision immediately available – the supervising physician is physically within the hospital or other site of patient care, and is immediately available to provide Direct Supervision. (Core)

VI.A.2.c).(2).(b) with Direct Supervision available – the supervising physician is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide 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 fellow must be assigned by the program director and faculty members. (Core)

VI.A.2.d).(1) The program director must evaluate each fellow’s abilities based on specific criteria, guided by the Milestones. (Core)

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

VI.A.2.d).(3) Fellows should serve in a supervisory role to junior fellows and residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident or fellow. (Detail)

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

VI.A.2.e).(1) Each fellow must know the limits of their scope of authority, and the circumstances under which the fellow is permitted to act with conditional independence. (Outcome)
Background and Intent: The ACGME Glossary of Terms defines conditional independence as: Graded, progressive responsibility for patient care with defined oversight.

VI.A.2.f) Faculty supervision assignments must be of sufficient duration to assess the knowledge and skills of each fellow and to delegate to the fellow 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 fellows 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) be accomplished without excessive reliance on fellows to fulfill non-physician obligations; and, (Core)

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

Background and Intent: Routine reliance on fellows to fulfill non-physician obligations increases work compression for fellows and does not provide an optimal educational experience. Non-physician obligations are those duties which in most institutions are performed by nursing and allied health professionals, transport services, or clerical staff. Examples of such obligations include transport of patients from the wards or units for procedures elsewhere in the hospital; routine blood drawing for laboratory tests; routine monitoring of patients when off the ward; and clerical duties, such as scheduling. While it is understood that fellows may be expected to do any of these things on occasion when the need arises, these activities should not be performed by fellows routinely and must be kept to a minimum to optimize fellow education.

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. Fellows 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)

Background and Intent: This requirement emphasizes that responsibility for reporting unsafe conditions and adverse events is shared by all members of the team and is not solely the responsibility of the fellow.

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

Background and Intent: This requirement emphasizes the professional responsibility of faculty members and fellows to arrive for work adequately rested and ready to care for patients. It is also the responsibility of faculty members, fellows, and other members of the care team to be observant, to intervene, and/or to escalate their concern about fellow and faculty member fitness for work, depending on the situation, and in accordance with institutional policies.

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

VI.B.4.e) monitoring of their patient care performance improvement indicators; and, (Outcome)

VI.B.4.f) accurate reporting of clinical and educational work hours, patient outcomes, and clinical experience data. (Outcome)

VI.B.5. All fellows 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 and rested provider. (Outcome)

VI.B.6. Programs, in partnership with their Sponsoring Institutions, must provide a professional, equitable, respectful, and civil environment that is free from discrimination, sexual and other forms of harassment, mistreatment, abuse, or coercion of students, fellows, faculty, and staff. (Core)
VI.B.7. Programs, in partnership with their Sponsoring Institutions, should have a process for education of fellows and faculty regarding unprofessional behavior and a confidential process for reporting, investigating, and addressing such concerns. (Core)

VI.C. Well-Being

Psychological, emotional, and physical well-being are critical in the development of the competent, caring, and resilient physician and require proactive attention to life inside and outside of medicine. Well-being requires that physicians retain the joy in medicine while managing their own real life stresses. Self-care and responsibility to support other members of the health care team are important components of professionalism; they are also skills that must be modeled, learned, and nurtured in the context of other aspects of fellowship training.

Fellows 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 resident competence. Physicians and all members of the health care team share responsibility for the well-being of each other. For example, a culture which encourages covering for colleagues after an illness without the expectation of reciprocity reflects the ideal of professionalism. A positive culture in a clinical learning environment models constructive behaviors, and prepares fellows with the skills and attitudes needed to thrive throughout their careers.

Background and Intent: The ACGME is committed to addressing physician well-being for individuals and as it relates to the learning and working environment. The creation of a learning and working environment with a culture of respect and accountability for physician well-being is crucial to physicians’ ability to deliver the safest, best possible care to patients. The ACGME is leveraging its resources in four key areas to support the ongoing focus on physician well-being: education, influence, research, and collaboration. Information regarding the ACGME’s ongoing efforts in this area is available on the ACGME website.

As these efforts evolve, information will be shared with programs seeking to develop and/or strengthen their own well-being initiatives. In addition, there are many activities that programs can utilize now to assess and support physician well-being. These include culture of safety surveys, ensuring the availability of counseling services, and attention to the safety of the entire health care team.

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

VI.C.1.a) efforts to enhance the meaning that each fellow finds in the experience of being a physician, including protecting time with patients, minimizing non-physician obligations, providing administrative support, promoting progressive autonomy and flexibility, and enhancing professional relationships; (Core)
VI.C.1.b) attention to scheduling, work intensity, and work compression that impacts fellow well-being; (Core)

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

Background and Intent: This requirement emphasizes the responsibility shared by the Sponsoring Institution and its programs to gather information and utilize systems that monitor and enhance fellow and faculty member safety, including physical safety. Issues to be addressed include, but are not limited to, monitoring of workplace injuries, physical or emotional violence, vehicle collisions, and emotional well-being after adverse events.

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

Background and Intent: Well-being includes having time away from work to engage with family and friends, as well as to attend to personal needs and to one’s own health, including adequate rest, healthy diet, and regular exercise.

VI.C.1.d).(1) Fellows must be given the opportunity to attend medical, mental health, and dental care appointments, including those scheduled during their working hours. (Core)

Background and Intent: The intent of this requirement is to ensure that fellows have the opportunity to access medical and dental care, including mental health care, at times that are appropriate to their individual circumstances. Fellows must be provided with time away from the program as needed to access care, including appointments scheduled during their working hours.

VI.C.1.e) attention to fellow and faculty member burnout, depression, and substance abuse. The program, in partnership with its Sponsoring Institution, must educate faculty members and fellows in identification of the symptoms of burnout, depression, and substance abuse, including means to assist those who experience these conditions. Fellows and faculty members must also be educated to recognize those symptoms in themselves and how to seek appropriate care. The program, in partnership with its Sponsoring Institution, must; (Core)

Background and Intent: Programs and Sponsoring Institutions are encouraged to review materials in order to create systems for identification of burnout, depression, and substance abuse. Materials and more information are available on the Physician Well-being section of the ACGME website (http://www.acgme.org/What-We-Do/Initiatives/Physician-Well-Being).
VI.C.1.e).(1) encourage fellows and faculty members to alert the program director or other designated personnel or programs when they are concerned that another fellow, resident, or faculty member may be displaying signs of burnout, depression, substance abuse, suicidal ideation, or potential for violence; (Core)

Background and Intent: Individuals experiencing burnout, depression, substance abuse, and/or suicidal ideation are often reluctant to reach out for help due to the stigma associated with these conditions, and are concerned that seeking help may have a negative impact on their career. Recognizing that physicians are at increased risk in these areas, it is essential that fellows and faculty members are able to report their concerns when another fellow or faculty member displays signs of any of these conditions, so that the program director or other designated personnel, such as the department chair, may assess the situation and intervene as necessary to facilitate access to appropriate care. Fellows and faculty members must know which personnel, in addition to the program director, have been designated with this responsibility; those personnel and the program director should be familiar with the institution's impaired physician policy and any employee health, employee assistance, and/or wellness programs within the institution. In cases of physician impairment, the program director or designated personnel should follow the policies of their institution for reporting.

VI.C.1.e).(2) provide access to appropriate tools for self-screening; and, (Core)

VI.C.1.e).(3) provide access to confidential, affordable mental health assessment, counseling, and treatment, including access to urgent and emergent care 24 hours a day, seven days a week. (Core)

Background and Intent: The intent of this requirement is to ensure that fellows have immediate access at all times to a mental health professional (psychiatrist, psychologist, Licensed Clinical Social Worker, Primary Mental Health Nurse Practitioner, or Licensed Professional Counselor) for urgent or emergent mental health issues. In-person, telemedicine, or telephonic means may be utilized to satisfy this requirement. Care in the Emergency Department may be necessary in some cases, but not as the primary or sole means to meet the requirement.

The reference to affordable counseling is intended to require that financial cost not be a barrier to obtaining care.

VI.C.2. There are circumstances in which fellows may be unable to attend work, including but not limited to fatigue, illness, family emergencies, and parental leave. Each program must allow an appropriate length of absence for fellows unable to perform their patient care responsibilities. (Core)

VI.C.2.a) The program must have policies and procedures in place to ensure coverage of patient care. (Core)
VI.C.2.b) These policies must be implemented without fear of negative consequences for the fellow who is or was unable to provide the clinical work. (Core)

Background and Intent: Fellows may need to extend their length of training depending on length of absence and specialty board eligibility requirements. Teammates should assist colleagues in need and equitably reintegrate them upon return.

VI.D. Fatigue Mitigation

VI.D.1. Programs must:

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

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

VI.D.1.c) encourage fellows to use fatigue mitigation processes to manage the potential negative effects of fatigue on patient care and learning. (Detail)

Background and Intent: Providing medical care to patients is physically and mentally demanding. Night shifts, even for those who have had enough rest, cause fatigue. Experiencing fatigue in a supervised environment during training prepares fellows for managing fatigue in practice. It is expected that programs adopt fatigue mitigation processes and ensure that there are no negative consequences and/or stigma for using fatigue mitigation strategies.

This requirement emphasizes the importance of adequate rest before and after clinical responsibilities. Strategies that may be used include, but are not limited to, strategic napping; the judicious use of caffeine; availability of other caregivers; time management to maximize sleep off-duty; learning to recognize the signs of fatigue, and self-monitoring performance and/or asking others to monitor performance; remaining active to promote alertness; maintaining a healthy diet; using relaxation techniques to fall asleep; maintaining a consistent sleep routine; exercising regularly; increasing sleep time before and after call; and ensuring sufficient sleep recovery periods.

VI.D.2. Each program must ensure continuity of patient care, consistent with the program’s policies and procedures referenced in VI.C.2–VI.C.2.b), in the event that a fellow may be unable to perform their patient care responsibilities due to excessive fatigue. (Core)

VI.D.3. The program, in partnership with its Sponsoring Institution, must ensure adequate sleep facilities and safe transportation options for fellows who may be too fatigued to safely return home. (Core)

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

VI.E.1. Clinical Responsibilities
The clinical responsibilities for each fellow must be based on PGY level, patient safety, fellow ability, severity and complexity of patient illness/condition, and available support services. (Core)

Background and Intent: The changing clinical care environment of medicine has meant that work compression due to high complexity has increased stress on fellows. Faculty members and program directors need to make sure fellows function in an environment that has safe patient care and a sense of fellow well-being. Some Review Committees have addressed this by setting limits on patient admissions, and it is an essential responsibility of the program director to monitor fellow workload. Workload should be distributed among the fellow team and interdisciplinary teams to minimize work compression.

VI.E.2. Teamwork

Fellows 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 subspecialty 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.b) Programs, in partnership with their Sponsoring Institutions, must ensure and monitor effective, structured hand-over processes to facilitate both continuity of care and patient safety. (Core)

VI.E.3.c) Programs must ensure that fellows are competent in communicating with team members in the hand-over process. (Outcome)

VI.E.3.d) Programs and clinical sites must maintain and communicate schedules of attending physicians and fellows currently responsible for care. (Core)

VI.E.3.e) Each program must ensure continuity of patient care, consistent with the program’s policies and procedures referenced in VI.C.2-VI.C.2.b), in the event that a fellow may be unable to perform their patient care responsibilities due to excessive fatigue or illness, or family emergency. (Core)

VI.F. Clinical Experience and Education

Programs, in partnership with their Sponsoring Institutions, must design an effective program structure that is configured to provide fellows with
educational and clinical experience opportunities, as well as reasonable opportunities for rest and personal activities.

Background and Intent: In the new requirements, the terms “clinical experience and education,” “clinical and educational work,” and “clinical and educational work hours” replace the terms “duty hours,” “duty periods,” and “duty.” These changes have been made in response to concerns that the previous use of the term “duty” in reference to number of hours worked may have led some to conclude that fellows’ duty to “clock out” on time superseded their duty to their patients.

VI.F.1. Maximum Hours of Clinical and Educational Work per Week

Clinical and educational work hours must be limited to no more than 80 hours per week, averaged over a four-week period, inclusive of all in-house clinical and educational activities, clinical work done from home, and all moonlighting. (Core)

Background and Intent: Programs and fellows have a shared responsibility to ensure that the 80-hour maximum weekly limit is not exceeded. While the requirement has been written with the intent of allowing fellows to remain beyond their scheduled work periods to care for a patient or participate in an educational activity, these additional hours must be accounted for in the allocated 80 hours when averaged over four weeks.

Scheduling

While the ACGME acknowledges that, on rare occasions, a fellow may work in excess of 80 hours in a given week, all programs and fellows utilizing this flexibility will be required to adhere to the 80-hour maximum weekly limit when averaged over a four-week period. Programs that regularly schedule fellows to work 80 hours per week and still permit fellows to remain beyond their scheduled work period are likely to exceed the 80-hour maximum, which would not be in substantial compliance with the requirement. These programs should adjust schedules so that fellows are scheduled to work fewer than 80 hours per week, which would allow fellows to remain beyond their scheduled work period when needed without violating the 80-hour requirement. Programs may wish to consider using night float and/or making adjustments to the frequency of in-house call to ensure compliance with the 80-hour maximum weekly limit.

Oversight

With increased flexibility introduced into the Requirements, programs permitting this flexibility will need to account for the potential for fellows to remain beyond their assigned work periods when developing schedules, to avoid exceeding the 80-hour maximum weekly limit, averaged over four weeks. The ACGME Review Committees will strictly monitor and enforce compliance with the 80-hour requirement. Where violations of the 80-hour requirement are identified, programs will be subject to citation and at risk for an adverse accreditation action.

Work from Home

While the requirement specifies that clinical work done from home must be counted toward the 80-hour maximum weekly limit, the expectation remains that scheduling be structured so that fellows are able to complete most work on site during scheduled clinical work hours without requiring them to take work home. The new requirements
acknowledge the changing landscape of medicine, including electronic health records, and the resulting increase in the amount of work fellows choose to do from home. The requirement provides flexibility for fellows to do this while ensuring that the time spent by fellows completing clinical work from home is accomplished within the 80-hour weekly maximum. Types of work from home that must be counted include using an electronic health record and taking calls from home. Reading done in preparation for the following day’s cases, studying, and research done from home do not count toward the 80 hours. Fellow decisions to leave the hospital before their clinical work has been completed and to finish that work later from home should be made in consultation with the fellow’s supervisor. In such circumstances, fellows should be mindful of their professional responsibility to complete work in a timely manner and to maintain patient confidentiality.

During the public comment period many individuals raised questions and concerns related to this change. Some questioned whether minute by minute tracking would be required; in other words, if a fellow spends three minutes on a phone call and then a few hours later spends two minutes on another call, will the fellow need to report that time. Others raised concerns related to the ability of programs and institutions to verify the accuracy of the information reported by fellows. The new requirements are not an attempt to micromanage this process. Fellows are to track the time they spend on clinical work from home and to report that time to the program. Decisions regarding whether to report infrequent phone calls of very short duration will be left to the individual fellow. Programs will need to factor in time fellows are spending on clinical work at home when schedules are developed to ensure that fellows are not working in excess of 80 hours per week, averaged over four weeks. There is no requirement that programs assume responsibility for documenting this time. Rather, the program’s responsibility is ensuring that fellows report their time from home and that schedules are structured to ensure that fellows are not working in excess of 80 hours per week, averaged over four weeks.

VI.F.2. Mandatory Time Free of Clinical Work and Education

VI.F.2.a) The program must design an effective program structure that is configured to provide fellows with educational opportunities, as well as reasonable opportunities for rest and personal well-being. (Core)

VI.F.2.b) Fellows should have eight hours off between scheduled clinical work and education periods. (Detail)

VI.F.2.b).(1) There may be circumstances when fellows choose to stay to care for their patients or return to the hospital with fewer than eight hours free of clinical experience and education. This must occur within the context of the 80-hour and the one-day-off-in-seven requirements. (Detail)

Background and Intent: While it is expected that fellow schedules will be structured to ensure that fellows are provided with a minimum of eight hours off between scheduled work periods, it is recognized that fellows may choose to remain beyond their
scheduled time, or return to the clinical site during this time-off period, to care for a patient. The requirement preserves the flexibility for fellows to make those choices. It is also noted that the 80-hour weekly limit (averaged over four weeks) is a deterrent for scheduling fewer than eight hours off between clinical and education work periods, as it would be difficult for a program to design a schedule that provides fewer than eight hours off without violating the 80-hour rule.

**VI.F.2.c)** Fellows must have at least 14 hours free of clinical work and education after 24 hours of in-house call. *(Core)*

**Background and Intent:** Fellows have a responsibility to return to work rested, and thus are expected to use this time away from work to get adequate rest. In support of this goal, fellows are encouraged to prioritize sleep over other discretionary activities.

**VI.F.2.d)** Fellows must be scheduled for a minimum of one day in seven free of clinical work and required education (when averaged over four weeks). At-home call cannot be assigned on these free days. *(Core)*

**Background and Intent:** The requirement provides flexibility for programs to distribute days off in a manner that meets program and fellow needs. It is strongly recommended that fellows’ preference regarding how their days off are distributed be considered as schedules are developed. It is desirable that days off be distributed throughout the month, but some fellows may prefer to group their days off to have a “golden weekend,” meaning a consecutive Saturday and Sunday free from work. The requirement for one free day in seven should not be interpreted as precluding a golden weekend. Where feasible, schedules may be designed to provide fellows with a weekend, or two consecutive days, free of work. The applicable Review Committee will evaluate the number of consecutive days of work and determine whether they meet educational objectives. Programs are encouraged to distribute days off in a fashion that optimizes fellow well-being, and educational and personal goals. It is noted that a day off is defined in the ACGME Glossary of Terms as “one (1) continuous 24-hour period free from all administrative, clinical, and educational activities.”

**VI.F.3.** Maximum Clinical Work and Education Period Length

**VI.F.3.a)** Clinical and educational work periods for fellows must not exceed 24 hours of continuous scheduled clinical assignments. *(Core)*

**VI.F.3.a).(1)** Up to four hours of additional time may be used for activities related to patient safety, such as providing effective transitions of care, and/or fellow education. *(Core)*

**VI.F.3.a).(1).(a)** Additional patient care responsibilities must not be assigned to a fellow during this time. *(Core)*

**Background and Intent:** The additional time referenced in VI.F.3.a).(1) should not be used for the care of new patients. It is essential that the fellow continue to function as a
member of the team in an environment where other members of the team can assess fellow fatigue, and that supervision for post-call fellows is provided. This 24 hours and up to an additional four hours must occur within the context of 80-hour weekly limit, averaged over four weeks.

VI.F.4. Clinical and Educational Work Hour Exceptions

VI.F.4.a) In rare circumstances, after handing off all other responsibilities, a fellow, on their own initiative, may elect to remain or return to the clinical site in the following circumstances:

VI.F.4.a).(1) to continue to provide care to a single severely ill or unstable patient; (Detail)

VI.F.4.a).(2) humanistic attention to the needs of a patient or family; or, (Detail)

VI.F.4.a).(3) to attend unique educational events. (Detail)

VI.F.4.b) These additional hours of care or education will be counted toward the 80-hour weekly limit. (Detail)

Background and Intent: This requirement is intended to provide fellows with some control over their schedules by providing the flexibility to voluntarily remain beyond the scheduled responsibilities under the circumstances described above. It is important to note that a fellow may remain to attend a conference, or return for a conference later in the day, only if the decision is made voluntarily. Fellows must not be required to stay. Programs allowing fellows to remain or return beyond the scheduled work and clinical education period must ensure that the decision to remain is initiated by the fellow and that fellows are not coerced. This additional time must be counted toward the 80-hour maximum weekly limit.

VI.F.4.c) A Review Committee may grant rotation-specific exceptions for up to 10 percent or a maximum of 88 clinical and educational work hours to individual programs based on a sound educational rationale.

The Review Committee for Neurology will not consider requests for exceptions to the 80-hour limit to the fellows’ work week.

VI.F.4.c).(1) In preparing a request for an exception, the program director must follow the clinical and educational work hour exception policy from the ACGME Manual of Policies and Procedures. (Core)

VI.F.4.c).(2) Prior to submitting the request to the Review Committee, the program director must obtain approval from the Sponsoring Institution’s GMEC and DIO. (Core)
Background and Intent: The provision for exceptions for up to 88 hours per week has been modified to specify that exceptions may be granted for specific rotations if the program can justify the increase based on criteria specified by the Review Committee. As in the past, Review Committees may opt not to permit exceptions. The underlying philosophy for this requirement is that while it is expected that all fellows should be able to train within an 80-hour work week, it is recognized that some programs may include rotations with alternate structures based on the nature of the specialty. DIO/GMEC approval is required before the request will be considered by the Review Committee.

VI.F.5. Moonlighting

VI.F.5.a) Moonlighting must not interfere with the ability of the fellow to achieve the goals and objectives of the educational program, and must not interfere with the fellow’s fitness for work nor compromise patient safety. (Core)

VI.F.5.b) Time spent by fellows in internal and external moonlighting (as defined in the ACGME Glossary of Terms) must be counted toward the 80-hour maximum weekly limit. (Core)

Background and Intent: For additional clarification of the expectations related to moonlighting, please refer to the Common Program Requirement FAQs (available at http://www.acgme.org/What-We-Do/Accreditation/Common-Program-Requirements).

VI.F.6. In-House Night Float

Night float must occur within the context of the 80-hour and one-day-off-in-seven requirements. (Core)

Background and Intent: The requirement for no more than six consecutive nights of night float was removed to provide programs with increased flexibility in scheduling.

VI.F.7. Maximum In-House On-Call Frequency

Fellows must be scheduled for in-house call no more frequently than every third night (when averaged over a four-week period). (Core)

VI.F.8. At-Home Call

VI.F.8.a) Time spent on patient care activities by fellows on at-home call must count toward the 80-hour maximum weekly limit. The frequency of at-home call is not subject to the every-third-night limitation, but must satisfy the requirement for one day in seven free of clinical work and education, when averaged over four weeks. (Core)

VI.F.8.a).(1) At-home call must not be so frequent or taxing as to preclude rest or reasonable personal time for each fellow. (Core)
VI.F.8.b) Fellows are permitted to return to the hospital while on at-home call to provide direct care for new or established patients. These hours of inpatient patient care must be included in the 80-hour maximum weekly limit. (Detail)

Background and Intent: This requirement has been modified to specify that clinical work done from home when a fellow is taking at-home call must count toward the 80-hour maximum weekly limit. This change acknowledges the often significant amount of time fellows devote to clinical activities when taking at-home call, and ensures that taking at-home call does not result in fellows routinely working more than 80 hours per week. At-home call activities that must be counted include responding to phone calls and other forms of communication, as well as documentation, such as entering notes in an electronic health record. Activities such as reading about the next day’s case, studying, or research activities do not count toward the 80-hour weekly limit.

In their evaluation of fellowship programs, Review Committees will look at the overall impact of at-home call on fellow rest and personal time.

***

*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 residents or fellows at key stages of their graduate medical education.

Osteopathic Recognition
For programs with or applying for Osteopathic Recognition, the Osteopathic Recognition Requirements also apply (www.acgme.org/OsteopathicRecognition).
University of Kansas Medical Center
Department of Neurology
Resident/Fellow Leave Request Form

Allowances: Vacation = 15 working days; Academic Leave = 5 working days; Other = Program Director discretion

Resident/Fellow Name

Dates Requested:

Type of Leave: □ Vacation □ Academic □ FMLA □ Other __________

Rotation at the Time of Leave:

Continuity Clinic Date(s) Affected:

Requests must be submitted 60 days in advance of elected time off, including for off-site rotations (Children’s Mercy, Truman, etc.). Resident/Fellow requesting leave is responsible for all the necessary arrangements for coverage. No vacation time may be taken during Consult or Ward months or July 1-15. No vacation time will be approved for the month of June except PGY4 and above. If on academic leave, copies of conference registrations or examination passes are to be submitted along with this form.

REQUIRED SIGNATURES:
Please obtain signatures in order specified below:

1. Person(s) Providing Coverage: ________________________________ (Signature required if applicable)

2. Person(s) Coverage Phone Calls: ________________________________ (Signature required if applicable)

3. Attending Staff/Faculty for that Service: ________________________________ (Signature Required)

4. Chief Resident: ________________________________ (Signature Required)

5. Clinic Schedule: ________________________________ (Signature Required)

6. Clinic Coordinator: ________________________________ (Signature Required)

7. Program Coordinator: ________________________________ (Signature Required)

8. Program Director: ________________________________ (Signature Required)

FOR RESIDENCY OFFICE USE ONLY:
Days Remaining:
Vacation _____
Academic _____

☐ Approved dates entered into MedHub
☐ Affiliate programs notified, if applicable
☐ Send to JoAnn Locke, LPN for clinic call forwarding (jlocke@kumc.edu)
APPENDIX J
Supervisory Lines of Responsibility for Clinical Neurophysiology Fellows

Clinical faculty must devote sufficient time to directly supervise all of the resident work and teach them. The faculty must demonstrate a strong interest in the education of fellows, sound clinical and teaching ability, a commitment to their own continuing medical education, participate in scholarly activity, and must support the goals and objectives of the educational program. The fellow level of training allocates responsibilities. Over the duration of the one-year training program, the responsibilities and clinical activities of the fellow in training is structured to allow progression from a strictly supervised patient care to a supervised but independent level of care.

There is a faculty call schedule. The faculty on call may be reached through the hospital paging operator or at home. The back-up faculty is the Chief of the Division. Though extremely rare, if a fellow has not been able to reach the faculty member on call, they should contact the Program Director, or the Department Chair. The Program Director always ensures and documents adequate supervision of fellows. Faculty schedules are structured so that fellows are provided with continuous supervision and consultation. Faculty contact the Program Director to provide additional fellow coverage or relief from clinical responsibilities for residents under their supervision displaying depression, fatigue, or stress. Fellows receive a lecture on fatigue and also are required to attend the institutional core competency resident conference “Sleep Deprivation and Well-Being”.

A. Electromyography and Neuromuscular Rotation:

1. Critique and confirm findings from the fellow presentations of patient history and physical examination in the EMG laboratory, outpatient clinic, and inpatient consultation setting.
2. Evaluate and discuss the fellow differential diagnosis and management plan.
3. For EMG laboratory patients, faculty:
   a. Develops with fellow a plan for EMG/NCS study of an individual patient
   b. Is available to assist on nerve conduction studies in difficult cases
   c. Discusses with the fellow NCS data in light of clinical history and physical examinations
   d. Supervises the fellow performing needle electromyography (EMG)
   e. Discusses with the fellow the overall interpretation of the whole study

B. Electroencephalography, Epilepsy Clinic, EMU, and Intraoperative Monitoring Rotation:

1. Critique and confirm findings from fellow presentations of patient history and physical examination in the EMU, outpatient clinic, and inpatient consultation setting.
2. Evaluate and discuss fellow differential diagnosis and management plan on inpatients and outpatients.
3. For EEG and EMU laboratory patients, faculty:
   a. Reviews with the fellow the EEG study of an individual patient
   b. Discusses with the fellow the overall interpretation of the whole study
   c. Is available to second opinion the fellow in suspected cases of status epilepticus
C. VA Rotation:

EMG/Neuromuscular
1. Critique and confirm findings from the fellow presentations of patient history and physical examination in the EMG laboratory, outpatient clinic, and inpatient consultation setting.
2. Evaluate and discuss the fellow's differential diagnosis and management plan.
3. For EMG laboratory patients, faculty:
   a. Develops with the fellow a plan for the EMG/NCS study of an individual patient
   b. Is available to assist on nerve conduction studies in difficult cases
   c. Discusses with the fellow NCS data in light of clinical history and physical examination
   d. Supervises the fellow while performing needle electromyography (EMG)
   e. Discuss with the fellow the overall interpretation of the whole study

Electroencephalography and Epilepsy:
1. Critique and confirm findings from fellow presentations of patient history and physical examination in the EMU, outpatient clinic and inpatient consultation setting.
2. Evaluate and discuss the fellow's differential diagnosis and management plan on inpatient and outpatients.
3. For EEG laboratory patients, faculty:
   a. Reviews with the fellow the EEG study of an individual patient
   b. Discusses with the fellow the overall interpretation of the whole study
   c. Is available to second opinion the fellow in suspected cases of status epilepticus

D. IOM and Chemodenervation:
1. Discuss plans for intraoperative monitoring/chemodenervation with the fellow.
2. Review knowledge of established anatomic landmarks, technique of injection, and dose of botulinum toxin injection depending on the disease
3. Demonstrate to fellows chemodenervation procedures
4. Assist/supervise the fellows in the performance chemodenervation procedures with faculty supervision
5. Review intraoperative monitoring setup and techniques with the fellow
6. Review and discuss intraoperative monitoring findings with the fellow as well as study interpretation and implications
To: Program Directors

Date: July 24th, 2011

RE: GMEC Fatigue (Transportation/Swing Room) Guidelines

The new ACGME Common Program requirements for July 1, 2011 state:

VI.C.3. The sponsoring institution must provide adequate sleep facilities and/or safe transportation options for residents who may be too fatigued to safely return home.

- If you are fatigued and unable to perform your patient care duties, please contact your supervisor (i.e., chief resident, faculty supervisor, program director, Chair and/or GME Office/DIO). Please inform your supervisor of your situation so that they can arrange for alternate coverage to ensure continuity of patient care.
- Program call rooms should be utilized for fatigued residents/fellows for rest and/or power napping.
- If your program does not have a call room or if your assigned call rooms are unavailable or in use, you may use the swing call room – (HH room 2901 (code 2660))
- If adequate rest facilities are not available, then you may use the voucher fatigue transportation service
- The program leadership and administration will receive 2 vouchers for every 10 residents. (Attached) The PC should keep this in a place well known to the residents for easy access afterhours.
- For each event 2 vouchers will be needed (one for home and then one for back to work the following morning)
- The Vouchers will need to be filled in by the resident/fellow and the transportation service driver (designated as KUMC Resident Program Transportation voucher). Please print your name, Department and home address on the voucher.
- When you are ready to leave, please call 10/10 Taxi Service (913-647-0010) and tell them you are using the KUMC Resident Program Transportation voucher and your destination. They will pick you up at the Main Entrance of the hospital.
- The transportation service will collect each voucher white copy and submit to the GME Office. It is important that you return the YELLOW copy of the voucher to your program director.
- The transportation service is allowed to pick you up from the KUH Hospital Main Entrance and drop you off at your home address, without any interval stops. This also applies for the return trip from your home to back to the hospital main entrance the next morning. You need to use the second voucher for the return trip.
- The resident is responsible for discussing the event and fatigue issue with their Program Leadership the following day. This must be documented by the program leadership in the “Fatigue/Transportation Incident Report” This is available in MedHub – Fatigue/Transportation Incident Report (example below).
- Again, please return the yellow voucher copies to your program director at this time as well. The purpose of this file is to track both individual and program-wide episodes of fatigue and additional duty in order to mitigate future recurrences.
- The GME Office will manage the cab vouchers and bill back the departments as they are being used as well as replenish the voucher supply.
Fatigue Transportation Incident Report

☐ Insufficient contact to evaluate (delete evaluation)

Please complete

1. Date of Transportation Incident: *

2. Rotation Name/Location *

3. Fatigue Situation Circumstance: *
4. Actions to mitigate further fatigue are as follows: *

**Fatigue/Transportation Incident Report**

When using a transportation voucher, please compete.

* Required fields ✈ Option description (place mouse over field to view)