CLINICAL NEUROPHYSIOLOGY FELLOWSHIP HANDBOOK

DEPARTMENT OF NEUROLOGY
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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, Landon Center on Aging, 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!
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 (Friday, 8 AM) and Case Presentations preceding that.

The fellowship consists of three rotations:

1. **Neuromuscular/EMG Rotation**: 4 months of 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)
UNIVERSITY OF KANSAS
CLINICAL NEUROPHYSIOLOGY FELLOWSHIP

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 include 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.

**NEUROMUSCULAR/ELECTROMYOGRAPHY SERVICE ROTATION**

I. 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-ophtalmology
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) 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) perform edrophonium testing
   b) identify and describe abnormalities seen in common clinical neurophysiology disorders on radiographic testing, including plain films, myelography, angiography, CT, isotope, and MRI
   c) 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, transcranical 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 major neuromuscular or epileptic disorders

6. To recognize and treat major neuromuscular disorders

7. Use common devices to perform good quality:

   a) nerve conduction studies
   b) electromyography

8. Perform:

   a) an abbreviated history and physical examination within 5 to 10 minutes in order 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

9. To assess major disorders, including:

   a) disorders of anterior horn cell, root, plexus, nerve, neuromuscular junction and muscle

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

**OTHER 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 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, in light of 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 of the educational curriculum  
11. Read the basic science chapters in *Clinical Neurophysiology* by Jasper Daube  
12. Additional reading suggestions:
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) 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:
   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

**EPILEPSY/ELECTROENCEPHALOGRAPHY/EMU ROTATION**

**KUH Fellow Expectations on EEG/Epilepsy Rotation**

1. These expectations apply to fellows while not rotating at CMH
2. 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.

3. 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.

4. 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.

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

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

**OTHER ACTIVITIES ON THE 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. One month of pediatric epilepsy will be spent at Children’s Mercy Hospital under the supervision of Drs. Ahmed Abdelmoity, Ara Hall and Kailesh Pawar
   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

11. 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

12. 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"

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

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:
   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

VAMC ROTATION

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

OTHER 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. Discuss with the attending physician, interpret and type NCS/EMG study reports on the day of service, in light of clinical presentation, for attending physician review on Tuesday, Wednesday and Friday
5. 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
6. Participate in Epilepsy clinic. Once each month set up an EEG with the certified EEG technologist. Routinely observe EEGs performed
7. Participate in weekly Muscle and Nerve Biopsy Conferences
8. Present at Neuromuscular Conference on a rotational basis
9. Participate in monthly Journal Club
8. Present at Carrell-Krusen Symposium
9. Give one Grand Rounds per year
10. Participate in and attend all of the educational curriculum
11. 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
12. Read the basic science chapters in *Clinical Neurophysiology* by Jasper Daube
13. Additional reading suggestions:
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) 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:
   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
EDUCATIONAL POLICIES AND INFORMATION

PROGRAM ELIGIBILITY

All required clinical education for the entry into ACGME-accredited fellowship programs must be completed in an ACGME-accredited residency program or in an RCPSC-accredited or CFPC-accredited residency program located in Canada.

Prior to appointment in the program, fellows must have successfully completed an ACGME-accredited program in neurology, child neurology, neurodevelopmental disabilities or psychiatry, or a program in one of these specialties that is located in Canada and accredited by the RCPSC.

Applicants must meet the following qualifications to be eligible for appointment to an accredited residency program:

1.1 Graduation from an acceptable medical school, as outlined by the University of Kansas School of Medicine and Kansas State Board of Healing Arts (KSBHA):

   a) Graduation from a medical school in the United States of Canada accredited by Liaison Committee on Medical Education (LCME), or

   b) Graduation from a college of osteopathic medicine in the United States accredited by the American Osteopathic Association (AOA), or

   c) Graduation from an acceptable medical school outside the United States or Canada with one of the following:

      i) successful completion of a Fifth Pathway program provided by an LCME accredited medical school, or

      ii) a current, valid certificate from the Educational Commission for Foreign Medical Graduates (ECFMG) prior to appointment, or

      iii) all Canadian citizens and eligible Canadian Landed Immigrants who are NOT graduates of a foreign medical school must hold a status which allows employment as a medical resident and maintain an appropriate status throughout
the length of the graduate medical training program. Possession of valid immigration documents that verify the status must be presented, or

iv) a full, unrestricted license to practice medicine in the State of Kansas and Missouri, depending on the training program

d) Foreign medical schools are deemed acceptable as defined by the KSHBA (K.S.A. 65-2873). This is the minimum standard for graduates of foreign medical schools, however individual programs may have more stringent rules for foreign medical school graduates:

i) inclusion in the list of “approved” medical schools on the KSBHA’s website (http://ksbha.org/medicalschoolapprovedunapproved.html),

ii) the school must not appear on the list of “disapproved” schools, also on the KSBHA website,

iii) to be eligible for appointment, all Canadian citizens and eligible Canadian Landed Immigrants who ARE graduates of a foreign medical school must seek and maintain sponsorship through ECFMG for J-1 non-immigrant visa status

1.2 The Office of Graduate Medical Education reserves the right to reject any candidate at the point it is determined that they have matriculated from an unacceptable medical school

1.3 Some ACGME program requirements stipulate further qualifications that must be met for eligibility to an ACGME accredited program at the University of Kansas. Additionally, some programs may have more stringent qualification requirements as specified in their individual program manuals

Applicants are required to demonstrate spoken, auditory, reading and writing proficiency in the English language

During the in-person interview, the applicant may be asked to complete a writing exercise that will provide information on the applicant’s writing skills, including the ability to organize information, content development and grammatical skills

1.4 To be eligible, applicants must meet, with or without reasonable accommodation, all duties and responsibilities as described through this link http://www.kumc.edu/human-resources/accommodation-policy.html

1.5 Residency program applicants for the PGY1, 2 or 3 levels must provide evidence of passing USMLE Step II/COMLEX Level 2 before they will be admitted. Residency program applicants for the PGY 3 level or beyond must provide evidence of sitting for the USMLE Step III/COMLEX Level 3 before they will be admitted. Fellowship program applicants must provide evidence that they successfully passed USMLE Step III/COMLEX Level 3 before they will be admitted

**FELLOW ELIGIBILITY EXCEPTION**
A review committee may grant the following exception to the fellowship eligibility requirements:

An ACGME-accredited fellowship program may accept an exceptionally qualified applicant who does not satisfy the eligibility requirements listed above but who does meet all of the following additional qualifications and conditions:

- Assessment 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 ACGME institutional requirements
- Review and approval of the applicant’s exceptional qualifications by the GMEC or a subcommittee of the GMEC; and
- Satisfactory completion of the United States Medical Licensing Examination (USMLE) Steps 1, 2 and, if the applicant is eligible, 3; and
- For an international graduate, verification of Educational Commission for Foreign Medical Graduates (ECFMG) certification; and
- Applicants accepted by this exception must complete fellowship Milestones evaluation (for the purposes of establishment of baseline performance by the Clinical Competency Committee), conducted by the receiving fellowship program within six weeks of matriculation. This evaluation may be waived for an applicant who has completed an ACGME international-accredited residency based on the applicant’s Milestones evaluation conducted at the conclusion of the residency program; and
- If the trainee does not meet the expected level of Milestones competency following entry into the fellowship program, the trainee must undergo a period of remediation, overseen by the Clinical Competency Committee and monitored by the GMEC or a subcommittee of the GMEC. This period of remediation must not count toward time in a fellowship training program.

**SUPERVISION OF FELLOWS**

Supervision may be exercised through a variety of methods. Some activities require the physical presence of the supervising faculty member. 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 physician, either in the institution, or by means of telephonic and/or electronic modalities. In some circumstances, supervision may include post-hoc review of fellow-delivered care with feedback as to the appropriateness of that care.

A. **Introduction**
• In the clinical learning environment, each patient must have an identifiable, appropriately-credentialed and privileged attending physician (or licensed independent practitioner as approved by each Review Committee) who is ultimately responsible for that patient’s care
• This information should be available to residents, faculty members, and patients
  o **Inpatient:** Patient information sheet included in the admission packet and listed on the “white board” in each patient room
  o **Outpatient:** Provided during introduction verbally by residents and/or faculty
• Residents and faculty members should inform patients of their respective roles in each patient’s care
• The program must demonstrate that the appropriate level of supervision is in place for all residents who care for patients

B. **Methods of Supervision**

• Some activities require the physical presence of the supervision faculty member
• 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 immediate availability of the supervising faculty member or resident physician in his/her “final years of training”, either in the institution or by means of telephonic and/or electronic modalities
• In some circumstances, supervision may include post-hoc review of resident delivered care with feedback as to the appropriateness of that care
• 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
• The program director must evaluate each resident’s abilities based on the following specific criteria and when available should be guided by specific national standards-based criteria
• Faculty members functioning as supervising physicians should delegate portions of care to residents based on the needs of the patient and the skills of the residents
• “Residents in their final years of training” or fellows should serve in a supervisory role to PGY1 and “intermediate” residents in recognition of their progress toward independence based on the needs of each patient and the skills of the individual resident or fellow

**Levels of Supervision Defined**

To ensure oversight of resident supervision and graded authority and responsibility, the program must use the following classification of supervision established by the ACGME.

1. **Direct Supervision:**
- This means the supervising physician is physically present with the resident and patient.

2. **Indirect Supervision A (with direct supervision immediately available):**
- This means the supervising physician is physically within the hospital or other site of patient care, and is immediately available to provide **Direct Supervision**.

3. **Indirect Supervision B (with direct supervision available):**
- This means 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**.

4. **Oversight:**
- This means the supervising physician is available to provide review of procedures/Encounters with feedback provided after care is delivered.

<table>
<thead>
<tr>
<th>RRC APPROVED LICENSED INDEPENDENT PRACTITIONER SUPERVISOR (PR VI.D.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no program specific RRC requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPTIMAL CLINICAL WORKLOAD (PR VI.E.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This has not been established by the Neurology RRC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEMBERS OF THE INTERPROFESSIONAL TEAM (PR VI.F.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The members of the interprofessional team on the hospital based services includes the attending neurologist, clinical neurophysiology fellow, neurology residents, rotating residents, medical students, the head nurse (or delegate), the floor nurses, pharmacists, and the social worker.</td>
</tr>
<tr>
<td>In the outpatient clinics the interprofessional team includes the attending neurologist, clinical neurophysiology fellow, clinic nursing personnel, medical assistants, EMG/EEG technologists, medical records technicians, occupational, physical and speech therapists, and the social worker.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPETENCIES TO ALLOW PGY1 RESIDENTS TO PROGRESS TO INDIRECT SUPERVISION (PR VI.D.5.a)(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no Neurology specific RRC requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEFINING RESIDENT LEVELS “INTERMEDIATE LEVEL” &amp; “FINAL YEARS OF TRAINING” For establishing the minimum rest period between duty periods (PR VI.G.5.b&amp;c)</th>
</tr>
</thead>
</table>
Clinical neurophysiology fellows are considered to be in their final year of training

**CIRCUMSTANCES WHEN RESIDENTS IN THEIR FINAL YEARS OF EDUCATION MAY REMAIN OR RETURN IN < 8 HOURS (PR VI.G.5.c.(1))**

Required continuity of care for a severely ill or unstable patient, or a complex patient with whom the resident has been involved; events of exceptional educational value; or, humanistic attention to the needs of a patient or family. However, fellows are not the primary care takers for inpatients

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

The clinical neurophysiology fellowship does not have a night float system

**Program-specific guidelines for circumstances and events in which residents must communicate with appropriate supervising faculty (PR VI.D.5)**

1. Admission to Hospital
2. Transfer of patient to a higher level of care
3. End-of-Life decisions

**Source of specific criteria and/or specific national standards-based criteria used to evaluate each resident’s abilities (PR VI.D.4.a)**

N/A

### FELLOWS AND RESIDENTS IN FINAL YEARS OF TRAINING

<table>
<thead>
<tr>
<th>LEVEL of SUPERVISION</th>
<th>ACTIVITIES /PROCEDURES (as defined by RRC &amp; Program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT</td>
<td>Tissue biopsy, EMG/NCS, Consultation, Research visits</td>
</tr>
<tr>
<td>INDIRECT A (with direct supervision immediately available)</td>
<td>Tissue biopsy, EMG/NCS, Consultation, Research visits</td>
</tr>
<tr>
<td>INDIRECT B (with direct supervision available)</td>
<td>N/A</td>
</tr>
<tr>
<td>OVERSIGHT (with direct supervision available)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**PROGRAM ADMINISTRATION**

The Program Director develops and oversees the implementation of a 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 duty 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
   • duty hour violation reports/duty 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

### CLINICAL NEUROPHYSIOLOGY ROTATION SCHEDULE

July 2016 – June 2017

<table>
<thead>
<tr>
<th>NMM 1</th>
<th>NMM 2</th>
<th>EEG/Epilepsy-KU/CMH</th>
<th>VA-Neurophys</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY 2016</td>
<td>Murphy</td>
<td>Veerapaneni</td>
<td>Hamasaki</td>
</tr>
<tr>
<td>AUGUST</td>
<td>Murphy</td>
<td>Veerapaneni</td>
<td>Hamasaki</td>
</tr>
<tr>
<td>SEPTEMBER</td>
<td>Hamasaki</td>
<td>Veerapaneni/</td>
<td>Kimple</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(CMH)/</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kimple</td>
<td></td>
</tr>
<tr>
<td>OCTOBER</td>
<td>Hamasaki</td>
<td>Veerapaneni/</td>
<td>Murphy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kimple</td>
<td></td>
</tr>
<tr>
<td>NOVEMBER</td>
<td>Kimple</td>
<td>Veerapaneni</td>
<td>Murphy</td>
</tr>
<tr>
<td>DECEMBER</td>
<td>Kimple</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JANUARY 2017</td>
<td>Murphy</td>
<td>Hamasaki (CMH)</td>
<td>Kimple</td>
</tr>
<tr>
<td>FEBRUARY</td>
<td>Murphy</td>
<td>Hamasaki</td>
<td>Kimple</td>
</tr>
<tr>
<td>MARCH</td>
<td>Hamasaki</td>
<td>Kimple (CMH)</td>
<td>Murphy</td>
</tr>
<tr>
<td>APRIL</td>
<td>Hamasaki</td>
<td></td>
<td>Kimple</td>
</tr>
<tr>
<td>MAY</td>
<td>Kimple</td>
<td></td>
<td>Murphy</td>
</tr>
<tr>
<td>JUNE</td>
<td>Kimple</td>
<td></td>
<td>Murphy</td>
</tr>
</tbody>
</table>

NMM 1 = includes inpatient consults with option of inpatient EMG  
NMM 2 = includes inpatient EMG with option of inpatient consults  
EEG/Epilepsy = one month will be spent at Children’s Mercy

### 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. The fellows are required to register for the Introduction to Clinical Research course offered by the University of Kansas Medical Center. This course takes place at 5:00 pm on Thursdays and educates the fellows about research methodology. Attendance at the Introduction to Clinical Research course is mandatory.
<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00-8:00 am</td>
<td></td>
<td></td>
<td>Clinical Neurophysiology Lecture Series*</td>
<td>Neurology/Neurosurgery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(7:30 – 8:00 am)</td>
<td>Case Presentations</td>
<td></td>
</tr>
<tr>
<td>7:30-8:30 am</td>
<td></td>
<td>Neuromuscular Lecture Series*</td>
<td>EMG Case Discussion*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:00-9:00 am</td>
<td>Neuromuscular Research</td>
<td></td>
<td>Epilepsy/EEG Lecture Series*</td>
<td>Neurology/Neurosurgery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Checklist Meeting</td>
<td></td>
<td>(8:00 – 9:00 am)</td>
<td>Grand Rounds</td>
<td></td>
</tr>
<tr>
<td>10:00-11:00 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sleep Lecture</td>
</tr>
<tr>
<td>12:00-1:00 pm</td>
<td>Muscle, Skin &amp; Nerve Biopsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conference or Journal Club</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Attendance is required

** Neuromuscular Journal Club 2nd Monday of each month:** Fellows and neuromuscular faculty present and critically review an article, analyze study design, statistical methods and conclusions using the principles of evidence-based medicine. Neuromuscular Section Meeting is on the 4th Monday of the month. It is open to neuromuscular faculty and neuromuscular fellows.

### Tentative KCVA Schedule

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>EMG - PMR</td>
<td>EMG- Nayak</td>
<td>EMG – Johnson</td>
<td>EMG – PMR/ Botox (Dubinsky)</td>
<td>Botox Clinic Starts at 12:30</td>
</tr>
<tr>
<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 – Frederick</td>
</tr>
<tr>
<td></td>
<td>EEG</td>
<td>EEG</td>
<td>EEG</td>
<td>EEG</td>
<td>EEG</td>
</tr>
</tbody>
</table>
• 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 located in Silver Clinic – first floor
• Currently there are three EMGs performed/clinic. A second machine will allow for more studies but will not be available before October 2016

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

Grand Rounds: Fellows are required to present once a year

<table>
<thead>
<tr>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMG</td>
<td>EMG</td>
<td>EEG</td>
<td>EEG</td>
<td>CNP</td>
<td>CNP</td>
<td>EMG</td>
<td>EMG</td>
<td>EEG</td>
<td>EEG</td>
<td>CNP</td>
<td>CNP</td>
</tr>
</tbody>
</table>

LONGITUDINAL EXPERIENCES - PG-5

<table>
<thead>
<tr>
<th>Type Of Experience*</th>
<th>Weekly Structured</th>
<th>Amount of Time (FTE)</th>
</tr>
</thead>
<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>
</tr>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Faculty</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>July 13, 2016</td>
<td>Muscle Anatomy for EMG/Designing an EMG Study (begins at 7:15)</td>
<td>Glenn</td>
</tr>
<tr>
<td>July 20, 2016</td>
<td>Nerve Conduction Studies</td>
<td>Jawdat/Herbelin</td>
</tr>
<tr>
<td>July 27, 2016</td>
<td>Mononeuropathies (begins at 7:15)</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>August 3, 2016</td>
<td>Anomalous Innervation: Common Errors in Nerve and Temperature Effect</td>
<td>Jawdat/Herbelin</td>
</tr>
<tr>
<td>August 10, 2016</td>
<td>Axonal vs Demyelinating Nerve Conduction Studies: Acquired vs Hereditary Demyelinating Polyneuropathy</td>
<td>Glenn/Herbelin</td>
</tr>
<tr>
<td>August 17, 2016</td>
<td>Plexopathies (begins at 7:15)</td>
<td>Glenn</td>
</tr>
<tr>
<td>August 24, 2016</td>
<td>Radiculopathies (begins at 7:15)</td>
<td>Jawdat</td>
</tr>
<tr>
<td>August 31, 2016</td>
<td>Excitable Cells: The Ionic Basis of Membrane Potentials</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>September 7, 2016</td>
<td>Needle EMG Part I: Principles and Spontaneous Activity</td>
<td>Glenn</td>
</tr>
<tr>
<td>September 14, 2016</td>
<td>Needle EMG Part II: Voluntary Activity</td>
<td>Jawdat</td>
</tr>
<tr>
<td>September 21, 2016</td>
<td>Excitable Membranes: Local Responses and Propagation</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>September 28, 2016</td>
<td>Noise, Averaging and Statistics</td>
<td>Ulloa</td>
</tr>
<tr>
<td>October 5, 2016</td>
<td>Synaptic Transmission</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>October 12, 2016</td>
<td>Neuromuscular Junction Physiology</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>October 19, 2016</td>
<td>EEG in the ICU</td>
<td>Landazuri</td>
</tr>
<tr>
<td>October 26, 2016</td>
<td>F Waves and H Reflexes</td>
<td>Herbelin</td>
</tr>
<tr>
<td>November 2, 2016</td>
<td>Electrodes, Montages, Localization and Polarity</td>
<td>Uysal</td>
</tr>
<tr>
<td>November 9, 2016</td>
<td>Quantitative Electromyography and Special Electromyography</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>November 16, 2016</td>
<td>Waveform Analysis and Near-and-Far Field Concepts</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>November 23, 2016</td>
<td>Somatosensory Evoked Potentials</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>November 30, 2016</td>
<td>Visual Evoked Potentials</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>December 7, 2016</td>
<td>Signal Conditioning of Neurophysiologic Signals: Amplifiers and Filters</td>
<td>Dimachkie</td>
</tr>
<tr>
<td>December 14, 2016</td>
<td>Auditory Evoked Potentials</td>
<td>Pasnoor</td>
</tr>
<tr>
<td>December 21, 2016</td>
<td>No Lecture</td>
<td></td>
</tr>
<tr>
<td>December 28, 2016</td>
<td>No Lecture</td>
<td></td>
</tr>
<tr>
<td>January 4, 2017</td>
<td>No Lecture</td>
<td></td>
</tr>
<tr>
<td>January 11, 2017</td>
<td>Pediatric EMG and NCS</td>
<td>Dimachkie</td>
</tr>
</tbody>
</table>
## EEG/Epilepsy Lecture Series

**July 1, 2016 through June 30, 2017**

**Wednesday 8:00 am – Room 270, Landon Center**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 13, 2016</td>
<td>Instrumentation of EEGs/EPs (in glass conference room)</td>
<td>Landazuri</td>
</tr>
<tr>
<td>July 20, 2016</td>
<td>Safety, Electronics, Instrumentation</td>
<td>Dubinsky</td>
</tr>
<tr>
<td>July 27, 2016</td>
<td>Filters and Montages</td>
<td>Landazuri</td>
</tr>
<tr>
<td>August 3, 2016</td>
<td>Diagnosis and Management of Status Epilepticus</td>
<td>Ulloa</td>
</tr>
<tr>
<td>August 10, 2016</td>
<td>Normal Adult EEG</td>
<td>Hammond</td>
</tr>
<tr>
<td>August 17, 2016</td>
<td>Pediatric EEG – not confirmed</td>
<td>CMH</td>
</tr>
<tr>
<td>August 24, 2016</td>
<td>Neonatal EEG – not confirmed</td>
<td>CMH</td>
</tr>
<tr>
<td>August 31, 2016</td>
<td>Normal EEG Variants</td>
<td>Hammond</td>
</tr>
<tr>
<td>September 7, 2016</td>
<td>Abnormal EEG – Non-Epileptiform</td>
<td>Hammond</td>
</tr>
<tr>
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**Neuromuscular Lecture Series**  
**July 1, 2016 through June 30, 2017**  
**Tuesday 7:30 - 8:30 am - Landon Center**

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<td>Barohn</td>
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<td>Myasthenia Gravis</td>
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<td>Diabetic Polyneuropathy</td>
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<td>Introduction to Nerve Biopsies</td>
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<td>October 4, 2016</td>
<td>Channelopathies</td>
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<td>Approach to Peripheral Neuropathy (Part I – Clinical Phenotypes)</td>
<td>Barohn</td>
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<td>Entrapment Mononeuropathies (Part I)</td>
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<td>CADP and Related Disorders</td>
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<td>AAN/Carrell-Krusen Practice</td>
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<td>Laboratory Pitfalls in Diagnosing Neuromuscular Disease</td>
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<td>Immunosuppressive Treatment</td>
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<td>Hereditary Neuropathy</td>
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<td>Neurologic Complications in B12 Deficiency</td>
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<td>IBM/Inflammatory Myopathies</td>
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<td>Metabolic Myopathy Evaluation</td>
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<td>Weakness in the ICU</td>
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<td>Facial Nerve and Blink Reflex</td>
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<td>Adult Muscular Dystrophies</td>
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**Sleep Disorders Lecture Series**

**July 1, 2016 through June 30, 2017**

**Friday 10:00 am – Wescoe Conference Room**

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<td>Sleep Physiology I</td>
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<td>July 22, 2016</td>
<td>Polysomnography Review</td>
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<td>Sleep Physiology II</td>
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<td>August 25, 2016</td>
<td>Putting It All Together: How I Got My Research Off the Ground at KUMC</td>
<td>Burns</td>
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<td>Developing Clinical Research Questions</td>
<td>Ellerbeck</td>
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<td>Vulnerable and Protected Populations</td>
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<td>Effective Data Presentations: Platforms and Posters</td>
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<td>Critically Appraising Research: A Consumer’s Perspective</td>
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<td>Writing Within a Busy Clinical Schedule</td>
<td>Barth</td>
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DUTY HOURS

Duty 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. Duty hours do not include reading and preparation time spent away from the duty site.

Duty 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 a ten-hour time period provided between all daily duty periods and after in-house call.

The institutional policy on duty hours is detailed in the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine (see Appendix F).

HAND-OFF POLICY

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
- 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 duty hours is detailed in Section 15 of the Policy and Procedure Manual Governing Graduate Medical Education at the University of Kansas School of Medicine (see Appendix F).

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

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, you may use the swing call room (HH Room 2901 – code 1023*)
- If adequate rest facilities are not available, then you may use the voucher for fatigue transportation service
- Program leadership and administration will receive 2 vouchers for every 10 residents (sample attached – See Appendix J)
- 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 completed by the resident/fellow and the transportation service driver (designated as KUMC Resident Program Transportation Voucher)
- Please call the 10/10 Taxi Service (913-647-0010) when you are ready to leave and specify that you are using the KUMC Resident Program Transportation Voucher
- The transportation service is allowed to pick up at the Main Entrance to the hospital and take the resident to their home address, without any interval stops. This also applies to the return trip 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 in the “Fatigue/Transportation Incident Report”
Section 29.1 of the University of Kansas School of Medicine Graduate Education Policy and Procedure Manual details the complete GMEC Fatigue Guidelines

**WORK ENVIRONMENT**

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 duty 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 voice mail)
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.

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.

FACULTY AND PROGRAM EVALUATIONS

(see Appendix C-E)

Fellows are required to evaluate each faculty member and the rotations on a 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 is 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 every month. 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. (See Appendix J)

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 Clinical Neurophysiology fellowship program, Dr. Mazen M. Dimachkie, chairs the Fellowship Coordinating Committee (FCC) meeting which includes the faculty as well as the fellow 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
collection 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 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.

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.

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.

**MEDICAL ETHICS**

Fellows are required to attend this lecture series offered by KUMC.

**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 are able to 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).

**ACADEMIC DISCIPLINE**

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 AND BENEFITS**

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). 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 Paula Mengel 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 program and is not a grievable matter.

The University will provide up to ten work days 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).

**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 Employee and Student 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 (please refer to Section 18 of the GME Policy and Procedure Manual for details).

**BENEFITS**

All residents in ACGME accredited program 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 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.

5. **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.

6. **Pagers, Parking and White Coats**  
Pagers are provided at no cost. Residents and fellows are provided free parking by their respective departments. Residents receive a limited number of white coats.

**TRAVEL PROCEDURES**

The Program Director, in consultation with the department chairman, will base financial support for travel of fellows who are presenting at the Carrell-Krusen Symposium and/or the American Academy of Neurology annual meeting. Travel of fellows who are not presenting at these meetings will not be reimbursed. All travel for reimbursement must have written pre-approval by Dr. Dimachkie at least six weeks before departure date. Fellows need permission by Dr. Dimachkie for travel, and fellows must complete an absence from 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. Reimbursement beyond the limit of $1,500 is subject to fund availability as assessed by 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:

i) Independence Day  
j) Labor Day  
k) Thanksgiving Day  
l) The day after Thanksgiving  
m) Christmas Day  
n) New Year’s Day  
o) Martin Luther King Day
MOONLIGHTING 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 in internal and external moonlighting must be counted towards the 80-hour maximum weekly duty 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

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. As a general rule, 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 FELLOWS

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 FELLOWS

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

Ahmed Abdelmoity, MD  Associate Professor of Pediatrics, Children's Mercy Hospital

Richard J. Barohn, MD  Professor and Chairman, Department of Neurology
EMG/Neuromuscular Disease/MDA/ALSA/Pathology

Richard Dubinsky, MD, MPH  Professor, Department of Neurology
Program Director, Neurology Residency
EMG/Movement Disorders

Mazen M. Dimachkie, MD  Professor, Department of Neurology
Program Director, Clinical Neurophysiology Fellowship
Neuromuscular Division Head
EMG/Neuromuscular Disease/ALSA/Pathology

Melanie Glenn, MD  Clinical Assistant Professor, Department of Neurology
Neuromuscular Disease

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

Laura Herbelin, BSc  Clinical Instructor, Department of Neurology
Neuromuscular Research

Nancy Hammond, MD  Associate Professor, Department of Neurology
Associate Program Director, Neurology Residency
EEG/Epilepsy

Mohamed Hegazy, MD  Clinical Assistant Professor, Department of Neurology
EEG/Epilepsy

Omar Jawdat, MD  Clinical Assistant Professor, Department of Neurology
Neuromuscular Disease

Kimberly Johnson, MD  Clinical Instructor, Kansas City VA Medical Center

Timothy Frederick, MD  Clinical Assistant Professor, Kansas City VA Medical Center

Patrick Landazuri, MD  Clinical Assistant Professor, Department of Neurology
EEG/Epilepsy

Lipika Nayak, MD  Clinical Assistant Professor, Kansas City VA Medical Center

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<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Affiliations</th>
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<tbody>
<tr>
<td>Mamatha Pasnoor, MD</td>
<td>Associate Professor, Department of Neurology</td>
</tr>
<tr>
<td></td>
<td>Co-Director, University of Kansas Neuropathy Center</td>
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<tr>
<td></td>
<td>Associate Program Director, Clinical Neurophysiology Fellowship</td>
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<tr>
<td></td>
<td>Associate Program Director, Neurology Residency</td>
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<tr>
<td></td>
<td>EMG/Neuromuscular Disease/Pathology</td>
</tr>
<tr>
<td>Kailash Pawar, MD</td>
<td>Clinical Assistant Professor, Children’s Mercy Hospital</td>
</tr>
<tr>
<td>Jeff Statland, MD</td>
<td>Assistant Professor, Department of Neurology</td>
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<tr>
<td></td>
<td>Neuromuscular Disease</td>
</tr>
<tr>
<td>Suzanne Stevens, MD</td>
<td>Assistant Professor, Department of Neurology</td>
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<td></td>
<td>Director, Sleep Laboratory</td>
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<td>Sleep</td>
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<tr>
<td>Carol Ulloa, MD</td>
<td>Associate Professor, Department of Neurology</td>
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<td>EEG/Epilepsy</td>
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<tr>
<td>Utku Uysal, MD</td>
<td>Assistant Professor, Department of Neurology</td>
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<td>EEG/Epilepsy</td>
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<tr>
<td>Vikas Singh, MD</td>
<td>Clinical Instructor, Kansas City VA Medical Center</td>
</tr>
</tbody>
</table>
APPENDIX A

Specific major clinical neurophysiological 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 and
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
APPENDIX B

American Academy of Neurology Code of Professional Conduct

PREFACE
The Ethics and Humanities Subcommittee of the Practice Committee of 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.

1.0 The Neurologist-Patient Relationship
   1.1 The Practice of Neurology
       The professor 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 neurologist 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 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 alternative to the proposed treatment. If the patient lacks medical decision-making capacity, the neurologist must obtain informed consent from an appropriate party.

1.5 Communication
The neurologist has the 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 concern 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 which respects the wishes expressed by the patient before dementia had 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.

8.0 **Clinical Research**

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.

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References
Portions of this Code were modified from the following codes of professional ethics and professional conduct:


Ethics and Humanities Subcommittee
Approved PC 02/93. Approved EB 02/93. Ethics and Humanities Subcommittee: Ronald Cranford, M.D.-Chair, H. Richard Beresford, M.D., James L. Bernat, M.D., Gastone G.
APPENDIX F

RESIDENT DUTY HOURS AND CALL SCHEDULES (Section 15, Graduate Medical Education Policy and Procedure Manual)

Limitations on Resident Duty Hours

- The School policy is that resident duty hours will be in compliance with the guidelines established by the Accreditation Council for Graduate Medical Education (ACGME). Each ACGME RRC may impose stricter duty hour restrictions in their program requirements. Each program’s leadership should be familiar and fully comply with these requirements.

- Exceptions to Duty Hour Policy

The GME Leadership and GMEC will carefully evaluate the duty hour exception request through the GMEC Major Program Change Application. The GMEC’s criteria for application approval depends upon the specific Major Program Change being requested, but generally relates to the application’s merit with regards to how the proposed change:

1. Enhances the education of the Program residents (i.e., improvement in education/service ratio, introduction of unique educational experience),
2. Does not detract from the education of surrounding ACGME-accredited core and affiliated residency programs,
3. Substantially improves compliance of a program with ACGME Program or Institutional requirements,
4. Improves resident safety and well-being (i.e., improvement in work environment) and
5. Maintains or improves the quality of patient care

The GMEC will review the application according to the written procedures and criteria for endorsing requests for an exception to the duty hour limits delineated in the ACGME Manual on Policies and Procedures. If allowed by the Program’s ACGME Residency Review Committee, exceptions for up to 10% or a maximum of 88 hours may be considered. The duty hour exception application will be reviewed by the GMEC prior to submission to the ACGME. Approved applications will also be monitored during the Program’s Periodic/Special Review, Site Visit/Self-Study Preparation process and at other intervals dependent on program and GME duty hour monitoring. Review will also be considered if other interval accreditation issues arise. The overall Review Criteria are described on the Application Tracking Form, but duty hour exception applications also include, but are not limited to;

1. Allowances specified in the ACGME Program Requirements,
2. Magnitude and PGY-level of duty hour exception requested,
3. Educational rationale for exception in terms of service/education ratio and rotations,
4. Anticipated effects on patient safety
5. Program’s current moonlighting policy and level of moonlighting,
6. ACGME accreditation history with special regard to duty hour rule compliance,
7. Appropriateness and anticipated effectiveness of enhanced duty hour monitoring process, and
8. Program outcomes (i.e., first-attempt Board certification pass rate, disciplinary issues, scholarly activity level)

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

- Duty hours must be limited to 80 hours per week, averaged over a four week period, inclusive of all in-house call activities and all moonlighting
- Duty hour periods of PGY-1 residents must not exceed 16 hours in duration
- Residents must be provided with 1 day in 7 free from all educational and clinical responsibilities, averaged over a 4-week period, inclusive of call. One day is defined as 1 continuous 24-hour period free from all clinical, educational and administrative duties
- Adequate time for rest and personal activities must be provided. This should consist of a 10-hour time and MUST have an 8-hour time period provided between all daily duty periods for PGY-1 and intermediate-level residents. Intermediate-level residents must have 14 hours free of duty after 24 hours of in-house duty
- Senior-level residents will be defined by each ACGME RRC, but generally includes residents in their final years of education. It is desirable that senior-level residents have 8 hours free of duty between scheduled duty periods. Each ACGME RRC will define specific circumstances when senior-level residents may stay on duty to care for their patients or return to the hospital with fewer than 8 hours free of duty. Circumstances of return-to-hospital activities with fewer than 8 hours away from the hospital by the senior-level residents must be monitored by the Program Director

The resident is expected to be rested and alert during duty hours, and the resident and resident’s attending medical staff are collectively responsible for determining whether the resident is able to safely and effectively perform his/her duties.

If a scheduled duty assignment is inconsistent with the Resident Agreement or the Institutional Duty Hours and Call Policies, the involved resident shall bring that inconsistency first to the attention of the Program Director for reconciliation or correction. If the Program Director does not reconcile or correct the inconsistency, it shall be the obligation of the resident to notify the Department Chair or Associate Dean for Graduate Medical Education, who shall take the necessary steps to reconcile or correct the raised inconsistency.
Duty Hour Monitoring

- Program Responsibilities – programs must include at minimum the following processes
  a) Ensure residents submit duty hours by the 10th of the following month, preferably weekly
  b) Program is notified of potential violations as duty hours are submitted in order to correct any schedules as needed
  c) Program Director must review Duty Hour Review Period violations by the 15th of the following month
  d) Review quarterly Key Indicator Report

- GMEC Goals and Responsibilities
  a) Overall goals
     i) In compliance with the ACGME duty hour requirements, the committee will identify trends of violations within programs, rotations and residents
     ii) Establish duty hour monitoring policies for each program
     iii) Actively support accurate reporting
     iv) Provide increased awareness of the ACGME duty hour rules
  b) Responsibilities
     i) Standard reporting
     ii) Develop action plans
     iii) Initiate special reviews as needed
     iv) Ensure programs have a process for fatigue mitigation
     v) Internal surveys
     vi) Standardize and review Duty Hours monitoring program

On-Call and Resident Time Record Reporting

- The objective of on-call activities is to provide residents with continuity of patient care experiences throughout a 24-hour period. In-house call is defined as those duty hours beyond the normal work day, when residents are required to be immediately available in the assigned institution
- In-house call must occur no more frequently than every third night, averaged over a 4-week period for PGY-2 residents and above
- For PGY-2 residents and above, continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Programs must encourage residents to use alertness management strategies in the context of patient care responsibilities. Strategic napping, especially after 16 hours of continuous duty and between the hours of 10:00 pm and 8:00 am is encouraged. Residents may remain on duty for up to 4 additional hours to participate in effective transition of care
- Residents must not be assigned additional clinical responsibilities after 24 hours of continuous in-house duty. In unusual circumstances, residents, on their own initiative, may remain beyond their scheduled period of duty to continue to provide care to a single patient. Justifications for such extensions of duty are limited to reasons of required continuity for a severely ill or unstable patient, academic
importance of the events transpiring, or humanistic attention to the needs of a patient or family. Under those circumstances, the resident must:

a) Appropriately hand over the care of all other patients to the team responsible for their continuing care; and document the reasons for remaining to care for the patient in question and submit that documentation in every circumstance to the program director.

b) The program director must review each submission of additional service and track both individual resident and program-wide episodes of additional duty.

- Residents must be scheduled for more than 6 consecutive nights of night float.
- At-home call (or pager call) is defined as call taken from outside the assigned institution.
  a) The frequency of at-home call is not subject to the every-third night or “24+4” limitations. At-home call, however, must not be so frequent as to preclude rest and reasonable personal time for each resident. Residents taking at-home call must be provided with 1 day in 7 completely free from all educational and clinical responsibilities, averaged over a 4-week period.
  b) When residents are called into the hospital from home, the hours residents spend in-house are counted toward the 80-hour limit. Resident call backs to the hospital while on home-call do not initiate a new off-duty period (i.e., are not subject to the hour between duty period restrictions).
  c) The program director and the faculty must monitor the demands of at-home call in their programs, and make scheduling adjustments as necessary to mitigate excessive service demands and/or fatigue.

- The call schedule and schedule of duty assignments will be published and made available for review by the residents on a monthly basis.
- Changes to the call and duty schedules will be made and the revisions published by the Program Director or a designee.
- The Graduate Medical Education Committee Duty Hour Subcommittee oversees duty hour reporting in programs showing trends of variance from requirements. The GME Leadership meets with Program Leadership to develop an action plan, which is then brought back to the Duty Hour Subcommittee and GMEC for reviewing and monitoring.
APPENDIX G

Supervisory Lines of Responsibility for Clinical Neurophysiology Fellows

Clinical faculty must devote sufficient time to directly supervise all of the fellow’s work and teach them. The faculty must demonstrate a strong interest in the education of the fellows, sound clinical and teaching abilities, a commitment to their own continuing medical education, and participate in scholarly activities, and must support the goals and objectives of the educational program. The resident level of training allocates responsibilities. Over the duration of their one-year training program, the responsibilities and clinical activities of the fellows 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.

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 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 physician 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 inpatients 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

**IOM & CHEMODERVATION**

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.
K30 Clinical Research Curriculum Program

The goal of the K30 program is to develop clinician scholars with a strong foundation in patient-oriented research principles and methods. Benefits of program participation include:

- formal training in research skills that can lead to a Master’s degree (MPH or MS-CR)
- access to nationally recognized researchers via the Distinguished Visiting Scholars series
- interaction with other researchers in the Clinical and Translational Research Seminar series
- mentored research training experiences
- access to biostatistical consultation, mentorship and funding opportunities

The program supports two levels of trainees – the novice and the transitional investigator. The program for the novice offers a structured learning process for trainees with demonstrated interest but little training in patient-oriented research. The core of this experience is formal coursework. The program for the transitional investigator provides support for more advanced scholars who need mentoring and specific additional knowledge and skills. Participants have the option of completing a Master’s degree (MPH or MS-CR), but this is not required. Overall, the program is designed to increase the number clinical scholars who receive funding from patient-oriented research at both the career development and individual investigator levels.

Student services continue to evolve, offering new courses such as Introduction to Clinical Research, providing seminars and personal assistance in scientific writing, and supporting development of grant writing skills.

Introduction to Clinical Research Course

Course Description:
The course will provide a basic and broad overview to clinical research. The student will gain an understanding of how to develop clinical research questions including protocol design and factors that should be considered in initiating a clinical research study. This will include biostatistical considerations, the recruitment of study participants, regulatory issues, data management, and defining measures and instruments. Students will gain knowledge of how to define clinical research among the various institutional entities involved with clinical research at the University of Kansas Medical Center such as the Research Institute (RI), General Clinical Research Center (GCRC) and the Human Subjects Committee (HSC). Additionally, one component of the course will focus on how to apply for funding (grantsmanship), critical appraisal of research studies, and how to present research data.

Course Objectives:
Upon completion of the course, participants will be able to
• describe the process of identifying a clinical research idea
• discuss principles of clinical research study design and protocol development
• describe ethical and regulatory issues in conducting research involving human subjects
• discuss biostatistical significance including data management and defining measures and instruments
• describe how to present research data

**Introduction to Clinical Research**

5:00 – 6:30 PM, Thursday
Fairway Auditorium, CRC
4350 Shawnee Mission Parkway

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<tr>
<th>Date</th>
<th>Topic</th>
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<tr>
<td>August 25, 2016</td>
<td>Putting It All Together: How I Got My Research Off the Ground at KUMC</td>
<td>Burns</td>
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<tr>
<td>September 1, 2016</td>
<td>Developing Clinical Research Questions</td>
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<td>September 8, 2016</td>
<td>Open Discussion of Projects</td>
<td>Vidoni/Burns</td>
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<td>September 15, 2016</td>
<td>Study Design</td>
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<td>September 29, 2016</td>
<td>General Ethical Considerations</td>
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<td>October 6, 2016</td>
<td>Institutional Review Board</td>
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<td>October 20, 2016</td>
<td>Clinician/Researcher Collaboration</td>
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<td>Vulnerable and Protected Populations</td>
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<td>November 3, 2016</td>
<td>Effective Data Presentations: Platforms and Posters</td>
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<td>November 10, 2016</td>
<td>Critically Appraising Research: A Consumer’s Perspective</td>
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<td>November 17, 2016</td>
<td>Manuscript Development and Reporting Guidelines</td>
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<td>Writing Within a Busy Clinical Schedule</td>
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<td>December 8, 2016</td>
<td>Development Group</td>
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Fellows are required to participate in the four-week Introduction to Biostatistics for Clinical and Translational Researchers course offered through FRONTIERS: The Heartland Institute for Clinical and Translational Research.