

Adult Clinical Neurology (PGY-2) directed Tulio Bertorini MD (MUH) and Michael Jacewicz, MD (VAMC)

Educational Goals This rotation provides comprehensive training in the basics of clinical neurology. The major goal is to teach the residents the fundamental skills of data collection, performance of a competent neurological exam and case formulation. The secondary goal is for residents to expand their knowledge base as they engage in the evaluation and treatment of patients with diverse neurological conditions. They expand and refine their knowledge of neuroanatomy and improve their precision in the interpretation of neurodiagnostic studies. To achieve the objectives listed below, residents spend three months on the adult clinical services at the Methodist University Hospital and three months at the VAMC during their PGY-2 year. These services provide residents with broad patient exposure and comprehensive training in the basics of clinical neurology. A global evaluation by the monthly attending addresses the six core competencies (see evaluation form below).

Objectives

By the end of six months of training in Adult Clinical Neurology, the residents are expected to:

Patient Care

- Demonstrate competency in
 - neurological history taking
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (especially for children)
 - performing a general physical exam
 - performing a methodical and accurate neurological exam
 - determining if there is disease of the nervous system or of another origin (e.g., psychiatric or systemic)
 - recognizing functional, non-physiological signs and symptoms.
 - applying neuroanatomic principles in localizing the lesion
 - formulating a differential diagnosis
 - making informed decisions about diagnostic testing
 - developing and implementing a patient management plan
 - employing specific treatments using evidence-based medicine
 - obtaining appropriate consults
 - educating and counseling patients and family
 - considering patient preferences
 - obtaining informed consent
- Recognize which diagnostic tests are indicated including
 - CT, CT angi, MRI, MRA, Cerebral angiography, CT myelogram and Doppler Ultrasound
 - EEG, EMG, evoked potentials, and sleep studies
- Recognize neurological emergencies, institute therapy and call for help when necessary.
- Obtain and maintain ACLS certification
- Demonstrate skill in the use of electronic systems to access medical, scientific, and patient information

Medical Knowledge

- Demonstrate knowledge of
 - Major disorders, including
 - a. epidemiology with considerations of age, gender, race, and ethnicity
 - b. etiology
 - c. phenomenology
 - d. pathophysiology, molecular mechanisms and pathology
 - e. impact of illness on the patient's functioning
 - f. appropriate family counseling
 - g. effective treatment strategies
 - h. course and prognosis
 - Healthcare delivery systems
 - Medical ethics
- Demonstrate ability to distinguish neurological from non-neurological complaints.
- Develop a refined working knowledge of neuroanatomy including
 - Functions of gray matter versus white matter
 - Deep and superficial cerebral map (Brodmann areas)
 - Brainstem anatomy
 - Spinal cord anatomy,

- Major long tracts, how they laminate and where they cross.
 - Understand neurologic disorders in the context of the anatomy they affect.
- Demonstrate ability to localize the lesion anatomically.
- Identify the pathophysiology.
- Interpret neuro-radiological studies including
 - CT, CT angiograms and CT myelograms
 - MRI of brain and spine, MRA and MRV
 - Spectral and functional MRI
 - Plain x-ray films and myelograms
 - Cerebral angiograms
- Demonstrate a basic working knowledge for
 - interpreting neuro-imaging films and their reports
 - Plain film x-rays of the spine and skull
 - CT of the head and spine, CT angio, CT myelogram
 - MRI of the head and spine, MRA, MRV, MRS
 - Cerebral angiography
 - SPECT & PET
 - Interpreting ultrasound reports (Duplex, transcranial Doppler)
 - Interpreting neurophysiological reports
 - NCV/EMG
 - EEG, evoked potentials, EEG-video monitoring
 - Polysomnography
 - Performing & interpreting neurological procedures
 - lumbar puncture & CSF analysis
 - Tensilon testing
 - Ice water caloric testing
 - Apnea testing
 - Interpreting other tests
 - Neuropsychological testing
 - Perimetry
 - Audiometry
 - Autonomic testing
 - Interpreting reports of gross and microscopic biopsy specimens of the nervous system

Practice Based Learning and Improvement

- The resident will demonstrate his/her skills for independent self-improvement in the practice of neurology. This shall include use of:
 - medical libraries
 - information technology, Internet, Medline and other medical/drug databases
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)
 - calling national experts with specific questions not readily answered in the literature
 - citing the relevant literature during teaching rounds and in conferences
 - The resident will evaluate caseload and practice experience in a systematic manner. This may include:
 1. Case-based learning
 2. Use of best practices through practice guidelines or clinical pathways (AAN website)
 3. Review of patient records (CPRS at the VAMC)
 4. Obtaining evaluations from patients (e.g., outcomes and patient satisfaction forms)
 5. Employment of principles of quality improvement in practice
 6. Obtaining appropriate supervision and consultation
 7. Participating in the QA/QI conference for examining errors in practice and initiating improvements to eliminate or reduce errors
- The resident will demonstrate an ability to critically evaluate the relevant medical literature. This should include:
 1. knowledge of common methodologies employed in clinical research
 2. implementation of new knowledge to change practice and improve patient care, including the use of AAN practice guidelines and other evidence-based literature to make patient care decisions
 3. use of reliable assessment techniques to monitor improvement by the change in practice (e.g., Quality Improvement performance measure)
 4. writing journal article critiques for portfolio and participating in Journal Club
 5. writing CPC discussions for portfolio and participating in CPC conferences
 6. preparing case studies with literature reviews for portfolio and for teaching purposes
 7. developing and completing a research project
 8. developing effective remediation strategies that are based on critical review of the scientific literature
- Demonstrate self-learning by reading textbook chapters and relevant journal articles about their patient problems.
- Demonstrate scholarship by citing references

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan
 - Educate and counsel patients and their families in a clear and meaningful fashion regarding
 - 1. Disease process, prevention and prognosis
 - 2. Informed consent including risk versus benefits of a procedure
 - 3. Alternatives to proposed treatment
 - 4. Compliance with a therapeutic plan
 - 5. End of life and palliative care
 - 6. Genetic counseling
 - Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
 - Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
 - Communicate effectively and work collaboratively with nurses, students, clerks and other healthcare professionals involved in the patient's care.
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 - 1. Knowing when to solicit consultations
 - 2. Communicating clearly the reason for the consultation
 - 3. Discussing the consultation findings with the consultant
 - 4. Discussing the consultation findings with the patient and family
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 - 1. Clarifying the consultation question by speaking directly with the physician requesting the consult
 - 2. Maintaining the role of consultant in follow-up
 - 3. Communicating clear and specific recommendations verbally and in writing
 - 4. Respecting the expertise of the requesting professionals when disagreements occur
- The resident shall maintain up-to-date medical records by
 - 1. Writing timely legible notes
 - a. Complete H&Ps
 - b. Concise substantive daily progress notes using the S.O.A.P. format
 - c. Concise discharge summaries
 - d. Patient instructions
 - 2. Writing timely legible orders
 - 3. Writing legible prescriptions.
 - 4. Dictating reports with clarity
- The resident shall demonstrate the ability to effectively lead a multidisciplinary treatment team, including being able to:
 - 1. Listen effectively
 - 2. Elicit needed information from team members
 - 3. Integrate information from different disciplines
 - 4. Manage conflict

5. Clearly communicate an integrated treatment plan
- The resident shall demonstrate the ability to communicate effectively during rounds with
 1. Concise and accurate oral presentations
 2. Careful listening
 3. Effective command of pertinent patient details to answer questions
 4. Incisive questioning posed to the attending and others
 5. Literature citations relevant to the discussion
 - The resident shall demonstrate the ability to teach medical students
 - In the fundamentals of daily routines (e.g., how to access labwork, patient records, neuroimaging and scheduling clerks, write orders and progress notes)
 - The neurological exam
 - Neuroanatomical localization of the lesion
 - Formulation of a diagnostic and therapeutic plan
 - Feedback on medical student notes that the resident co-signs
 - Counseling and educating patients and their families
 - Supervision of lumbar punctures and other procedures
 - How to prepare for oral presentations to the attending

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Seeing patients promptly in clinic without prolonged delays
 - Seeing patients promptly in consultation at the ER, ICU and in the hospital
 - Rounding with the ward team on time
 - Communicating with the attending in a timely fashion
 - Ordering laboratory and diagnostic tests in a timely manner.
 - Arranging back-up for emergent and urgent care when necessary
 - Documenting the patient's course in the medical records in a timely fashion
 - Arranging coverage for absence (for example, when out of town or on vacation)
 - Coordinating care with other members of the medical and/or multidisciplinary team
 - Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary
 - Genuinely taking the attitude "the buck stops with me" and "I will go the extra mile" in the care of his/her patient.
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care
- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- The resident shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
- The resident shall review their professional conduct and remediate when appropriate.
- The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.
- The resident shall acknowledge medical errors, should they occur, and engage in their remediation.
- The resident shall provide a role model for medical students and for other residents.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
- Use of practice guidelines from the American Academy of Neurology website
- Ability to access community and national resources that improve the quality of life of patients with chronic neurological illnesses (e.g., National Epilepsy Foundation, ALS society, Muscular Dystrophy Association, National Parkinson's Foundation)
- Leading and/or delegating authority (as ward chief) to service team members and other healthcare personnel to provide comprehensive care for patients.
- Demonstration of skills in Neurology Clinic,
 - including time management (e.g., identifying patient bottlenecks and correcting them)
 - clinical scheduling
 - efficient communication with referring physicians
 - constructive feedback to questionnaires designed to improve clinic efficiency

- 6. Timely consultation for the optimal management of patients with complicated medical illness
- 7. Arranging and providing timely cross-coverage
- 8. Recognizing potential errors in reported medical data due to systems problems
 - delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
- 9. Recognizing medical errors committed by health care providers and other personnel through periodic QA/QI conferences.
- The resident shall demonstrate
 - An understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Cooperation with case managers
 - Use of critical pathways
 - Ability to recognize and pre-empt non-medical reasons that prolong hospital length of stay
 - Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers

 - the ability to act as patient advocate.
 - knowledge of the legal aspects of neurological diseases as they impact patients and their families
 - an understanding of risk management by participating in the annual full day UT sponsored course.
 - Knowledge of managed health systems including utilization review and patient safety.
 - knowledge of and interaction with community services that offer skilled nursing care, rehabilitation, substance abuse facilities, halfway houses, nursing homes and hospices.
- The resident shall demonstrate
 - A working understanding of patient safety issues that include
 - Prevention of the transmission of infectious diseases by health care personnel (e.g., annual TB testing, routine washing hands, wearing gloves and masks, reports of needle sticks)
 - OSHA regulations (e.g., by taking the mandatory annual UT sponsored course)
 - Hospital disaster drills (active participation in periodic code delta exercises at the VAMC)
- The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)

- Learn to recognize and pre-empt non-medical issues that prolong hospital length of stay
- Learn to be more selective in costly diagnostic tests
- Cooperate with Pharmacy to use the most cost effective drugs.

Policy on Patient Transfers from Outlying Hospitals When you are called or paged by an outlying emergency room, hospital, or physician regarding the transfer of their patient to one of our affiliated hospitals (Methodist University Hospital, Regional Medical Center, Veterans Administration Hospital, LeBonheur Children's Hospital) you are required to 1) politely explain to the caller that you are not permitted to accept a transfer patient since that is the responsibility of the Attending Neurologist, 2) explain that in all likelihood you will be taking care of the patient after the Attending Neurologist agrees to accept the patient so request and record all pertinent medical/neurological information about the patient, 3) record the phone number of the caller where they may be reached in the next few minutes when the Attending Neurologist returns their call, 4) contact the Attending Neurologist with the caller's phone number and a description of the patient that is under consideration for transfer, and 5) ask the Attending Neurologist to call you back to inform you of whether he/she accepted the patient in transfer and to discuss diagnostic and treatment options on the patient.

NEUROLOGY RESIDENT EVALUATION (CLINICAL ROTATIONS)

Attending _____ Resident _____

Rotation _____ Month/Year of Rotation _____

ACGME mandated:

Curriculum reviewed with the resident at start of the rotation? Yes___ No___ N/A___

Evaluation reviewed with the resident at the end of the rotation? Yes___ No___ N/A___

Ratings are: 1-3 unsatisfactory 4 marginal 5-6 satisfactory 7-9 superior

Patient Care 1 2 3 4 5 6 7 8 9 N/A

Incomplete, inaccurate H&P; poor review of other data
Incompetent performance of LP and other procedures;
Poor formulation of clinical data; unsound medical
judgment. Ignores patient preferences. Poor
documentation and tardy discharge summaries.

Accurate, comprehensive H&P
Reviews all data. Excellent
technical skills. Sound judgment
Addresses patient preferences
Excellent notes and discharge
summaries.

Performance needs attention: _____

Medical Knowledge 1 2 3 4 5 6 7 8 9 N/A

Limited knowledge of anatomy, basic & clinical
neuroscience; minimal interest in learning;
does not understand complex neurological
relationships or mechanism of disease. Poor
differential.

Superior understanding of anatomy,
basic & clinical neuroscience; highly
resourceful in seeking out literature
& developing an understanding of
disease mechanisms at the bedside

Performance needs attention: _____

Practice Based Learning Improvement 1 2 3 4 5 6 7 8 9 N/A

Fails to perform self-evaluation; lacks insight
and initiative; resists or ignores feedback;
fails to use information technology to enhance
self-improvement.

Constantly evaluates own performance.
Uses feedback to improve performance.
Effectively uses information for patient
care and
technology in patient care and self improvement.
Engages in research, publishes in peer reviewed
journals

Performance needs attention: _____

Leadership Skills 1 2 3 4 5 6 7 8 9 N/A

Disorganized ward rounds; ineffective supervision of
students & house staff; uninspiring role model;
arbitrary or unfair distribution of clinical work
and settling disputes.

Organized, efficient ward rounds,
excellent supervision of house staff
and an outstanding role model; fair in
delegating ward work and settling disputes

Performance needs attention: _____

Interpersonal & Communications Skills 1 2 3 4 5 6 7 8 9 N/A

Does not establish even minimally effective
relationship with patients and families;
Does not listen patiently, show compassion,
counsel or educate patients and families.

Highly effective therapeutic relationship
with patients & family. Outstanding bedside
skills in listening, verbal & non-verbal
communication, counseling and patient educ.

Performance needs attention: _____

Neuroradiology Rotation (PGY-2) directed by James Wood, M.D. (VAMC), Scott Williams MD (Med) and Robert Laster, M.D. (MUH)

Educational Goal

The overall goal of this one month rotation is for Residents to acquire the fundamentals and improve their precision in the interpretation of neurodiagnostic studies. This required rotation is taken early in the PGY-2 year often concurrently with the summer Neurological Emergencies Course. A narrower goal is for residents to recognize the most common abnormalities on CT and MRI studies obtained in neurological emergencies.

Objectives

The residents rotating on the Neuroradiology rotation are expected to attain the following objectives:

Patient Care

- Obtain rapid, accurate history in acute emergencies.
- **Facilitate CT and DWI in acute stroke**
- **Observe neuroradiologists perform a 4-vessel digital subtraction angiography**
- **Educate patients about radiological procedures, including informed consent**
- **Observe neuro-interventionalists place intracranial stents and coils and deliver thrombolytics.**

Medical Knowledge

- **Review neurodiagnostic studies in a systematic fashion.**
- **Identify hemorrhage on CT.**
- **Detect CT changes in hyperacute stroke**
- **Identify acute and chronic structural changes on CT and MRI that include edema, hydrocephalus, abscess, tumor, AVM, demyelination and congenital malformations.**
- **Identify acute stroke on diffusion weighted MRI and FLAIR.**
- **Identify acute, subacute and chronic changes of brain hemorrhage on MRI and explain MRI's limitations in detecting acute brain hemorrhage.**
- **Identify intrinsic and extrinsic cord lesions on MRI and CT myelogram.**
- **Identify the major blood vessels and their anatomic variants on cerebral angiograms, MRA and MRV.**
- **Identify neuroanatomical structures on CT, MRI and angiography** including: bony fossa, orbital anatomy, cerebellar pontine angle and auditory canal, major cerebral arteries and veins, anatomy of the aortic arch, carotid and vertebral arteries, lobar brain anatomy, ventricles, choroid, pituitary, pineal, major sulci and fissures, corpus callosum, corona radiata, components of the basal ganglia, thalamus, hypothalamus, fornices, mammillary bodies, hippocampus, midbrain, Sylvian aqueduct, pons, medulla, the anatomy of the brainstem nuclei and pathways, cerebellar lobes, vermis and deep nuclei, cranio-cervical junction, spinal cord at cervical, thoracic and lumbar levels, spinal roots and root sleeves, the spine and its vertebra, spinal cord blood supply including the artery of Adamkiewicz, conus medullaris, cauda equina, brachial plexus, pelvic plexus.
- **Identify the indications and risks involved in neuro-interventional procedures.**

Practice Based Learning and Improvement

- **Prepare four case studies to add to the Neurology teaching files**
- Seek out pertinent literature on interesting cases, including the four above.

Interpersonal and Communication Skills

- **Dictate a report for CT and MRI demonstrating a systematic review of all components of the study.**
- Present case histories in a concise and clear manner especially in conference.
- Explain procedures to patients in layman terms
- **Counsel and educate patients and families about radiological procedures**

Professionalism

- Demonstrate collegial respect for patients and personnel.
- Show sensitivity to any special cultural or ethnic needs of patients
- Discharge all duties in a timely fashion
- Dress appropriately

Systems Based Practice

- **Develop a better understanding of costs of CT, MRI and other radiological procedures.**
- **Participate in any QA/QI that involves neuroradiological procedures or interpretation.**

Rotation Summary

To achieve these objectives, residents review the daily MRI, MRA, CT, CT-angiograms, CT-myelograms and cerebral angiograms performed at the VAMC or MUH. They go through the studies independently and then present their interpretation when the Neuroradiologist reviews and dictates the reports. At the Med and MUH, Residents have the opportunity to observe Dr. Scott Williams, Dr. Robert Laster and other interventional radiologists perform intracranial angioplasty, regional intracranial thrombolytic therapy and embolization of aneurysms and arteriovenous malformation. Residents attend weekly Neuroradiology conferences the VAMC (Thu. 8:30 AM at the Radiology Conference Rm) and weekly MUH neuroradiology conference. Interested Residents also have the opportunity to observe and learn carotid Doppler and transcranial ultrasound.

Pre-test and Post-test Ms. Carol Blackman or Dr. Jacewicz will give you a CD that contains educational material including a pre-test and a post-test. Please take the pre-test during the first few days of the rotation and the post-test very near the end of the rotation. You can grade these yourself by following the instructions on the CD. Other interactive CDs and videotapes featuring some of the nation's premier lecturers in Neuroradiology are available for review in the Neurology Library and from Dr. Jacewicz's personal CD collection.

The resident should always be alert for extra-ordinary teaching cases and is required to contribute at least 4 cases to the Departmental Teaching files. The resident first obtains approval for a copy from the Neuroradiology attending and asks for a digital copy on a CD. Patient anonymity should be maintained. Very importantly, the resident provides a written case synopsis, a copy of the official reading, and lists the case's teaching points and key references. These cases go into Teaching Files that are available to all neurology residents for review and are used throughout the residency as Case Vignettes. A brief synopsis of the four cases are kept in the resident's educational portfolio.

Resident Evaluations

Residents receive a global evaluation from their attending, and they take a pretest followed by a post-test to demonstrate that they have met the educational objectives of the course. Residents must familiarize themselves with the objectives and the evaluation form at the outset of the rotation.

Please obtain the pre-test and post-test CDs from Ms. Blackman or Dr. Jacewicz.

Please review this handout with the attending at the start of the rotation.

NEUROLOGY RESIDENT EVALUATION -- NEURORADIOLOGY

Resident _____ Rotation Hospital & Month _____

Attending _____ Date _____

Core Competencies

Patient Care

	Unsatisfactory	Marginal	Satisfactory	Superior	N/A
1. Patient interview	1 2 3	4	5 6	7 8 9	
2. Oral Presentation	1 2 3	4	5 6	7 8 9	
3. Procedural skills as an assistant or observer	1 2 3	4	5 6	7 8 9	
	Observed	Assisted	Absent		
a. Spinal tap under fluoro:	_____	_____	_____		
b. Cervical CSF tap	_____	_____	_____		
c. Myelogram	_____	_____	_____		
d. Angiogram	_____	_____	_____		
e. Carotid duplex Doppler	_____	_____	_____		
f. Other _____	_____	_____	_____		
4. Overall Patient Care	1 2 3	4	5 6	7 8 9	

Passive observer, does not speak to patients, does not review data; intrusive or withdrawn during procedures; Cannot synthesize clinical data & neuroimaging into an accurate formulation. Ignores patient preferences.

Accurate, timely patient interview. Reviews all data. Excellent technical skills. Sound judgment and formulations. Addresses patient preferences. Obtains informed consent. Knows case history & prior imaging

Medical Knowledge

Percent correct answers on Neuroradiology Post-test _____ %

	Unsatisfactory	Marginal	Satisfactory	Superior	N/A
1. Neuroanatomy	1 2 3	4	5 6	7 8 9	
2. Interprets CT	1 2 3	4	5 6	7 8 9	
3. Interprets MRI	1 2 3	4	5 6	7 8 9	
4. Cerebral Angiography	1 2 3	4	5 6	7 8 9	
5. Myelography	1 2 3	4	5 6	7 8 9	
6. Methodical approach in reviewing imaging	1 2 3	4	5 6	7 8 9	
7. Professional appearing written reports	1 2 3	4	5 6	7 8 9	
8. Cites literature	1 2 3	4	5 6	7 8 9	
9. Overall Knowledge	1 2 3	4	5 6	7 8 9	

Limited knowledge of anatomy & basic neuroradiology; Minimal interest in learning; disorganized approach to interpreting CT and MRI; passive observer; does not read no initiative; asks few and only very fundamental questions

Superior understanding of anatomy, & basic neuroradiology; highly organized approach in reviewing imaging studies; self-starter; resourceful in seeking out literature; asks incisive questions.

Practice Based Learning Improvement

	Unsatisfactory	Marginal	Satisfactory	Superior	N/A
1. Self-assessment	1 2 3	4	5 6	7 8 9	
2. Self-learner	1 2 3	4	5 6	7 8 9	
	Completed	Did not complete			
a. MGH emergency CD	_____	_____			
b. assigned chapters	_____	_____			
c. videotapes (4 or more)	_____	_____			
d. Pretest	_____	_____			
e. 4 case studies for Dr Jacewicz	_____	_____			

Fails to perform self-evaluation; lacks insight and initiative;
 Resists or ignores feedback; fails to use information
 technology to enhance patient care or pursue self improvement.
 Failed to review educational CDs and videotapes.

Constantly evaluates own performance.
 Uses feedback constructively to
 improve. Effectively uses information
 technology in patient care and self
 improvement.

Interpersonal & Communications Skills

	Unsatisfactory			Marginal	Satisfactory			Superior			N/A
1. Relates well with patients and families	1	2	3	4	5	6	7	8	9		
2. Patient education	1	2	3	4	5	6	7	8	9		

Never gains respect and trust of patients and family.
 Does not listen patiently, show compassion or educate
 patients & family about neuradiological procedures
 and significance of their results.
 Uses medical jargon

Highly effective therapeutic
 Outstanding relationship
 with patients and families
 Excellent bedside skills in listening,
 verbal & non-communications
 Explains procedures in layman terms.

Professionalism

	Unsatisfactory			Marginal	Satisfactory			Superior			N/A
1. Relates well with colleagues techs & personnel		1	2	3	4	5	6	7	8	9	
2. Integrity & ethics		1	2	3	4	5	6	7	8	9	

Lacks respect, integrity, honesty; insensitive to interests
 and feelings of co-workers; lacks insight for self assessment;
 shows irresponsible behavior; does not acknowledge errors;
 discusses patients in presence of strangers; insensitive
 to special needs of minority groups and foreign cultures.

Always shows respect, compassion,
 consideration, integrity and honesty
 with patients, families & medical
 personnel. Willingly admits errors.
 Sensitive to multi-cultures & minorities.

System Based Learning

	Unsatisfactory			Marginal	Satisfactory			Superior			N/A
1. Understands how neuro-imaging functions in systems settings (eg. economics, risk management & QA/QI)		1	2	3	4	5	6	7	8	9	

Resists efforts to improve systems of care; does not use
 systematic approaches to errors

Uses systematic approaches to
 errors and improve patient care.
 Enthusiastic in developing systems'
 improvements

**Resident Overall Achievement
 of Rotation objectives**

	Unsatisfactory			Marginal	Satisfactory			Superior			N/A
	1	2	3	4	5	6	7	8	9		

Attending Comments:

Attending Signature _____

Resident Comments:

Resident Signature _____

Principles of EEG (PGY2-4) directed by Bola Adamolekun, M.D.

Educational Goal

The overall goal of this one month rotation is for Residents to acquire the fundamentals of EEG and epilepsy. A narrower objective is for the resident to demonstrate competency in performing an EEG in the ICU so that they can manage status epilepticus when the EEG technician may not be readily available. Residents also learn the fundamentals of evoked responses.

Objectives

The residents are expected to achieve the following objectives:

Patient Care

- **Obtain rapid, accurate history in status epilepticus and other emergencies.**
- **Help the technician place scalp electrodes and hook up the EEG machine.**
- **Consider patient preferences for therapeutic intervention for new seizure onset**
- **Provide early EEG interpretations when requested**
- **Perform an EEG in the ICU**

Medical Knowledge

- **Classify the epileptic syndromes**
- **Recognize major types of seizures**
- **Recognize status epilepticus and various forms of subclinical status epilepticus**
- **Diagnose the basic components of a normal EEG, its normal variants, technical artifacts, sleep and age related changes.**
- **Diagnose the basic types and significance of abnormal EEG patterns, status epilepticus and brain death**
- **Learn basic technical factors involved in the EEG recording, their function and usefulness in the interpretation of the EEG findings**
- **Work the EEG machine in the neurophysiology lab and in the ICU.**
- **Recognize the major wave patterns in visual, auditory and somatosensory evoked responses.**
- **Learn the indications and limitations of video-EEG monitoring**

Practice Based Learning and Improvement

- **Read assigned chapters from Spehlman's EEG Primer**
- **Interpret EEGs before review with the attending**
- **Prepare four case studies with EEG to add to the Neurology teaching files and your portfolio.**
- **Seek out pertinent literature on interesting cases, including the four above.**

Interpersonal and Communication Skills

- **Write an EEG report with a systematic review of all components of the study.**
- **Present case histories in a concise and clear manner especially in conference.**
- **Explain procedures to patients in layman terms**
- **Counsel and educate patients and families about EEG and other neurophysiological procedures**

Professionalism

- **Demonstrate collegial respect for patients and personnel.**
- **Show sensitivity to any special cultural or ethnic needs of patients**
- **Discharge all duties in a timely fashion**
- **Dress appropriately**

Systems Based Practice

- **Develop a better understanding of costs of EEG and other neurophysiological procedures.**
- **Participate in any QA/QI that involves EEG or other neurophysiological procedure.**

Rotation Summary To achieve these objectives, residents spend one month reading EEGs independently and in daily tutorial with Dr. Adamolekun. The Residents may have an EEG performed on themselves so as to obtain personal knowledge of the experience. After completing the rotation, Residents are strongly urged to read the EEGs they order prior to review with an attending, much as they do with imaging studies. They are strongly encouraged to participate as observers in the OR in cases involving their patients. The Methodist provides diagnostic video-EEG telemetry, surface and depth electrode EEG monitoring, investigational drug treatments and epilepsy surgery. The Epilepsy Center takes a multidisciplinary approach to the treatment of these patients and involves neurologists, neurosurgeons, nurses, psychologists, social workers and vocational experts.

NEUROLOGY RESIDENT EVALUATION -- EEG

Resident _____ Rotation Hospital & Month _____

Attending _____ Date _____

Core Competencies

Patient Care Resident independently performed an EEG on an ICU patient: Yes _____ No _____

	Unsatisfactory	Marginal	Satisfactory	Superior	
1. Reviews Patient Data	1 2 3	4	5 6	7 8 9	N/A
2. Oral Presentation	1 2 3	4	5 6	7 8 9	N/A
3. Technical skills					
a. Electrode montage	1 2 3	4	5 6	7 8 9	N/A
b. EEG machine settings	1 2 3	4	5 6	7 8 9	N/A

Does not review data or interview patient.
Intrusive or withdrawn during instruction in EEG procedures. Ignores patient preferences. Incompetent EEG readings.

Accurate, timely patient interview. Reviews all data. Excellent technical skills. Addresses patient preferences. Accurate EEG readings.

Medical Knowledge Percent correct answers on EEG Post-test _____ %

	Unsatisfactory	Marginal	Satisfactory	Superior	
1. Professional appearing written reports (4 or more)	1 2 3	4	5 6	7 8 9	N/A
2. Identifies normal EEG variants	1 2 3	4	5 6	7 8 9	N/A
3. Identifies abnormal EEG Patterns	1 2 3	4	5 6	7 8 9	N/A
4. Identifies variants of status epilepticus	1 2 3	4	5 6	7 8 9	N/A
5. Reads assignments	1 2 3	4	5 6	7 8 9	N/A
6. Cites literature	1 2 3	4	5 6	7 8 9	N/A
7. Overall Knowledge	1 2 3	4	5 6	7 8 9	N/A

Limited knowledge of EEG and neurophysiology; Minimal interest in learning; disorganized approach to EEG; does not read; passive observer, shows

superior understanding of EEG and neurophysiology; highly organized approach in reviewing EEG;

no initiative; asks few, very fundamental questions.

self-starter;

resourceful in seeking

out literature;

asks incisive questions.

Practice Based Learning Improvement Unsatisfactory Marginal Satisfactory Superior

1. Self-assessment	1 2 3	4	5 6	7 8 9	N/A
2. Self-learner	1 2 3	4	5 6	7 8 9	N/A

Fails to perform self-evaluation; lacks insight and initiative; Resists or ignores feedback; fails to use information technology to enhance patient care or pursue self improvement.

Constantly evaluates own performance. Uses feedback constructively to improve. Effectively uses information

Fails to review

CDs and other educational

materials.

technology in patient care and self

improvement.

	Completed	Did not complete
a. Reviewed Luders EEG atlas	_____	_____
b. assigned chapters	_____	_____
c. Pretest	_____	_____
e. 4 case studies for Dr Jacewicz	_____	_____

Interpersonal & Communications Skills

	Unsatisfactory			Marginal	Satisfactory			Superior		
1. Relates well with patients and families	1	2	3	4	5	6	7	8	9	N/A
2. Patient education	1	2	3	4	5	6	7	8	9	N/A
Impassive, avoids patient & family contact, uses medical jargon. Never gains respect and trust of patients and family. Does not listen patiently, show compassion or educate patients and families about EEG procedures and the meaning of their results.										Speaks clearly in layman terms. Highly effective therapeutic relationship with patients & family. Outstanding bedside skills in listening, verbal & Non-verbal communication, counseling, patient education and earning trust.

Professionalism

	Unsatisfactory			Marginal	Satisfactory			Superior		
1. Relates well with colleagues techs & personnel	1	2	3	4	5	6	7	8	9	N/A
2. Integrity & ethics	1	2	3	4	5	6	7	8	9	N/A
Lacks respect, integrity, honesty; insensitive to interests and feelings of co-workers; lacks insight for self assessment; shows irresponsible behavior; does not acknowledge errors; discusses patients in presence of strangers; insensitive to special needs of minority groups and foreign cultures.										Always shows respect, compassion, consideration, integrity and honesty with patients, families & medical personnel. Willingly admits errors. Sensitive to multiethnic cultures minorities.

System Based Learning

	Unsatisfactory			Marginal	Satisfactory			Superior		
Understands how Epilepsy Centers function in systems settings (eg. economics, risk management & QA/QI)	1	2	3	4	5	6	7	8	9	N/A
Resists efforts to improve systems of care; does not use systematic approaches to reduce error and improve patient care.										Uses systematic approaches to reduce errors and improve patient care. Enthusiastic in systems' improvements.

**Resident Overall Achievement
of Rotation objectives**

Unsatisfactory			Marginal	Satisfactory		Superior			N/A
1	2	3	4	5	6	7	8	9	N/A

Attending Comments:

Attending Signature _____

Resident Comments:

Resident Signature _____

Stroke/Neurological Critical Care (PGY-2) directed by Elias Giraldo MD. The major goal of this rotation is to acquire the skills necessary to recognize and treat acute stroke and other neurological emergencies. Residents spend three months during their PGY-2 year on this service at the Regional Medical Center where they encounter a wide variety of strokes and neurological emergencies. The **objectives** of this rotation include:

Patient Care

- **Develop skills to rapidly acquire key history from acute stroke and other emergency patients.**
- **Pass the certification exam for administering the NIH Stroke Scale.**
- **Recognize acute early changes of ischemic stroke on CT and MRI.**
- **Master skills involved in administering thrombolytic therapy in acute stroke.**
- Take a competent history and perform a careful neurological exam.
- Make informed decisions about diagnostic testing including:
 - Cerebral imaging with CT and MRI.
 - Vascular imaging with CT angiography, MRA, MRV, Doppler Ultrasound and cerebral angiography.
 - Cardiac testing with EKG, troponins, Holter monitor or telemetry, and echocardiography.
 - Blood tests for hypercoagulability states and other factors predisposing to stroke.
 - CNS vasculitis workup.
- Make informed decision about therapeutic interventions using:
 - **Thrombolytic agents.**
 - **Carotid endarterectomy.**
 - **Angioplasty and stenting procedures.**
 - **Decompressive hemicraniectomy for malignant MCA syndrome.**
 - **Surgical options for cerebral hemorrhage.**
 - **Experimental neuroprotective agents and clinical studies.**
- Develop and carry out patient management plans:
 - **Antiplatelet and anticoagulation agents for stroke prophylaxis.**
 - **Post-stroke blood pressure, hyperglycemia and fever control.**
 - **Stroke risk factor management (e.g., arterial hypertension, cigarette smoking, diabetes mellitus, hyperlipidemia, heart disease, alcohol abuse, and illicit drugs)**
 - **Dysphagia evaluation and aspiration precautions.**
 - **DVT prophylaxis.**
 - **Prescribe rehabilitation modalities (physical therapy, occupational therapy, speech therapy, dysphagia treatment) and to assess need for assistive devices.**
- Patient/family education and compassionate counseling.
- **Make informed decisions about management of the following issues in the neurological intensive care unit:**
 - **Agitation and pain.**
 - **Airway and mechanical ventilation.**
 - **Nutrition.**
 - **Volume status.**
 - **Blood pressure.**
 - **Anticoagulation.**
 - **Thrombolytic therapy.**
- **Increased intracranial pressure (ICP monitoring device may be involved).**
- **Learn to manage raised intracranial pressure**
- **Recognize and treat CNS infections including meningitis and encephalitis**
- **Recognize acute neuromuscular failure and its treatment including Guillain-Barre, myasthenia gravis, botulism, and similar disorders**
- **Identify acute spinal cord injury and its treatment**
- **Recognize and treat various forms of status epilepticus**
- **Diagnose the various forms of toxic-metabolic coma.**
- **Prognosticate on post-cardiac arrest coma.**
- **Diagnose brain death.**
- **Learn end-of-life and palliative care**

Medical Knowledge

- **Master vascular neuroanatomy to localize the lesion in acute stroke.**
- **Learn the risk factors for stroke and their treatment**
- **Diagnose the major types of stroke, including major arterial occlusive disease, small vessel disease and cardioembolism and provide secondary drug prophylaxis against future stroke.**
- **Learn to diagnose and treat the major neurological emergencies including**
 - **Thrombolytic treatment in acute stroke**
 - **Indications for endarterectomy and arterial stenting.**
 - **Hydrocephalus and raised intracranial pressure**
 - **CNS infections**
 - **Acute motor paralysis**

- Spinal cord injury
- Recurrent seizures and status epilepticus
- Toxic-metabolic coma
- Apnea testing in brain death

Practice Based Learning and Improvement

- The resident will demonstrate his/her skills for independent self-improvement in the practice of neurology. This shall include use of:
 - medical libraries
 - information technology, Internet, Medline and other medical/drug databases
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)
 - calling national experts with specific questions not readily answered in the literature
 - citing the relevant literature during teaching rounds and in conferences
 - The resident will evaluate caseload and practice experience in a systematic manner. This may include:
 1. Case-based learning
 2. Use of best practices through practice guidelines or clinical pathways (AAN website)
 3. Review of patient records (CPRS at the VAMC)
 4. Obtaining evaluations from patients (e.g., outcomes and patient satisfaction forms)
 5. Employment of principles of quality improvement in practice
 6. Obtaining appropriate supervision and consultation
 7. Participating in the QA/QI conference for examining errors in practice and initiating improvements to eliminate or reduce errors
- The resident will demonstrate an ability to critically evaluate the relevant medical literature. This should include:
 1. knowledge of common methodologies employed in clinical research
 2. implementation of new knowledge to change practice and improve patient care, including the use of AAN practice guidelines and other evidence-based literature to make patient care decisions
 3. use of reliable assessment techniques to monitor improvement by the change in practice (e.g., Quality Improvement performance measure)
 4. writing journal article critiques for portfolio and participating in Journal Club
 5. writing CPC discussions for portfolio and participating in CPC conferences
 6. preparing case studies with literature reviews for portfolio and for teaching purposes
 7. developing and completing a research project
 8. developing effective remediation strategies that are based on critical review of the scientific literature
- Demonstrate self-learning by reading textbook chapters and relevant journal articles about your patient problems.
- Demonstrate scholarship by citing references

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan
 - Educate and counsel patients and their families in a clear and meaningful fashion regarding
 7. Disease process, prevention and prognosis
 8. Informed consent including risk versus benefits of a procedure
 9. Alternatives to proposed treatment
 10. Compliance with a therapeutic plan
 11. End of life and palliative care
 - Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
 - Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment

- Communicate effectively and work collaboratively with nurses, students, clerks and other healthcare professionals involved in the patient's care.
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 1. Knowing when to solicit consultations
 2. Communicating clearly the reason for the consultation
 3. Discussing the consultation findings with the consultant
 4. Discussing the consultation findings with the patient and family
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 5. Clarifying the consultation question by speaking directly with the physician requesting the consult
 6. Maintaining the role of consultant in follow-up
 7. Communicating clear and specific recommendations verbally and in writing
 8. Respecting the expertise of the requesting professionals when disagreements occur
- The resident shall maintain up-to-date medical records by
 2. Writing timely legible notes
 - a. Complete H&Ps
 - b. Concise substantive daily progress notes using the S.O.A.P. format
 - c. Concise discharge summaries
 - d. Patient instructions
 5. Writing timely legible orders
 6. Writing legible prescriptions.
 7. Dictating reports with clarity
- The resident shall demonstrate the ability to effectively lead a multidisciplinary treatment team, including being able to:
 1. Listen effectively
 2. Elicit needed information from team members
 3. Integrate information from different disciplines
 4. Manage conflict
 5. Clearly communicate an integrated treatment plan
- The resident shall demonstrate the ability to communicate effectively during rounds with
 6. Concise and accurate oral presentations
 7. Careful listening
 8. Effective command of pertinent patient details to answer questions
 9. Incisive questioning posed to the attending and others
 10. Literature citations relevant to the discussion
- The resident shall demonstrate the ability to teach medical students
 - In the fundamentals of daily routines (e.g., how to access labwork, patient records, neuroimaging and scheduling clerks, write orders and progress notes)
 - The neurological exam
 - Neuroanatomical localization of the lesion
 - Formulation of a diagnostic and therapeutic plan
 - Feedback on medical student notes that the resident co-signs
 - Counseling and educating patients and their families
 - Supervision of lumbar punctures and other procedures
 - How to prepare for oral presentations to the attending

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Seeing patients promptly in clinic without prolonged delays
 - Seeing patients promptly in consultation at the ER, ICU and in the hospital
 - Rounding with the ward team on time

- Communicating with the attending in a timely fashion
 - Ordering laboratory and diagnostic tests in a timely manner.
- Arranging back-up for emergent and urgent care when necessary
 - Documenting the patient's course in the medical records in a timely fashion
 - Arranging coverage for absence (for example, when out of town or on vacation)
 - Coordinating care with other members of the medical and/or multidisciplinary team
 - Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary
 - Genuinely taking the attitude "the buck stops with me" and "I will go the extra mile" in the care of his/her patient.
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care
 - The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
 - The resident shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
 - The resident shall review their professional conduct and remediate when appropriate.
 - The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.
 - The resident shall acknowledge medical errors, should they occur, and engage in their remediation.
 - The resident shall provide a role model for medical students and for other residents.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
- Use of practice guidelines from the American Academy of Neurology website
- Ability to access community and national resources that improve the quality of life of patients with chronic neurological illnesses (e.g., National Epilepsy Foundation, ALS society, Muscular Dystrophy Association, National Parkinson's Foundation)
- Leading and/or delegating authority (as ward chief) to service team members and other healthcare personnel to provide comprehensive care for patients.
- Timely consultation for the optimal management of patients with complicated medical illness
- Arranging and providing timely cross-coverage
- Recognizing potential errors in reported medical data due to systems problems
 - delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
- Recognizing medical errors committed by health care providers and other personnel through periodic QA/QI conferences.
- The resident shall demonstrate
 - An understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Cooperation with case managers
 - Use of critical pathways
 - Ability to recognize and pre-empt non-medical reasons that prolong hospital length of stay

- Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers
 - the ability to act as patient advocate to access those limited health care resources.
 - knowledge of the legal aspects of neurological diseases as they impact patients and their families
 - an understanding of risk management by participating in the annual full day UT sponsored course.
 - Knowledge of managed health systems including utilization review and patient safety.
 - knowledge of and interaction with community services that offer skilled nursing care, rehabilitation, substance abuse facilities, halfway houses, nursing homes and hospices.
- The resident shall demonstrate
 - A working understanding of patient safety issues that include
 - Prevention of the transmission of infectious diseases by health care personnel (e.g., annual TB testing, routine washing hands, wearing gloves and masks, reports of needle sticks)
 - OSHA regulations (e.g., by taking the mandatory annual UT sponsored course)
 - Hospital disaster drills (active participation in periodic code delta exercises at the VAMC)
- The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)
- Learn to recognize and pre-empt non-medical issues that prolong hospital length of stay
- Learn to be more selective in costly diagnostic tests
- Cooperate with Pharmacy to use the most cost effective drugs.

Duties and responsibilities: One PGY-2 resident is assigned to the Stroke/Neurological Critical Care Service for 7 AM to 5 PM during the week. Other times are covered by the Night Float resident and the weekend on-call resident. The stroke/neurological critical care resident will see all in-hospital and ER patients who are suspected of having an acute stroke or require neurological intensive care. The patient will be admitted to the Stroke/Neurological Critical Care Service or a consultation will be provided. For the stroke/neurological critical care service, the resident is responsible for writing orders, H&P, daily notes and discharge summaries on all patients on this service. He/she rounds with the attending every day except on one weekend day. He/she arranges coverage during clinic or other planned absence and makes a sign out sheet for night float and weekend call. He/she is responsible for the management of acute stroke and patients requiring neurological intensive care, including:

- IV rt-PA or intra-arterial thrombolytics.
- Management of BP, temperature and IV fluids.
- Choice of antiplatelet or antithrombotic therapy.
- Prevention of aspiration, falls and deep venous thrombosis.
- Direction of diagnostic evaluation.
- Arrangements for rehabilitation.
- Patient and family education.
- Long term stroke risk reduction and follow-up.

The resident will observe and/or participate in radiological interventional procedures, learn the basics of carotid Doppler ultrasound, transcranial Doppler, mechanical ventilation, and ICP monitoring devices. The PGY-2 resident on the stroke service carries the stroke beeper, and he/she responds to any calls within 10 minutes. The stroke center at the MED is in the process of acquiring JCAHO primary stroke center certification.

Faculty supervision: Residents are required to phone staff once their immediate assessment of the patient is complete. They describe the history and physical, CT and early lab results, give an anatomical and pathophysiological formulation and outline their diagnostic and management plan. Dr. Giraldo should be called 24/7 for any patient who presents within 5 hours of stroke symptom onset. Monday to Friday from 7 AM to 5 PM, Dr. Giraldo attends the service. Monday to Friday after 5 PM, weekends, and when Dr. Giraldo is out of town, the neurology general ward attending should be called for any admissions or consultations. Dr. Giraldo should be notified of any Sunday or weeknight admissions to the service by 7:00 AM, Monday through Friday.

Policy on Patient Transfers from Outlying Hospitals When you are called or paged by an outlying emergency room, hospital, or physician regarding the transfer of their patient to one of our affiliated hospitals (Methodist University Hospital, Regional Medical Center, Veterans Administration Hospital, LeBonheur Children's Hospital) you are required to 1) politely explain to the caller that you are not permitted to accept a transfer patient since that is the responsibility of the Attending

Neurologist, 2) explain that in all likelihood you will be taking care of the patient after the Attending Neurologist agrees to accept the patient so request and record all pertinent medical/neurological information about the patient, 3) record the phone number of the caller where they may be reached in the next few minutes when the Attending Neurologist returns their call, 4) contact the Attending Neurologist with the caller's phone number and a description of the patient that is under consideration for transfer, and 5) ask the Attending Neurologist to call you back to inform you of whether he/she accepted the patient in transfer and to discuss diagnostic and treatment options on the patient.

Evaluation: The evaluation form addresses the six core competencies as shown below:

NEUROLOGY RESIDENT EVALUATION (CLINICAL ROTATIONS)

Attending _____ Resident _____

Rotation _____ Month/Year of Rotation _____

ACGME mandated:

Curriculum reviewed with the resident at start of the rotation? Yes___ No___ N/A___

Evaluation reviewed with the resident at the end of the rotation? Yes___ No___ N/A___

Ratings are: 1-3 unsatisfactory 4 marginal 5-6 satisfactory 7-9 superior

Patient Care 1 2 3 4 5 6 7 8 9 N/A

Incomplete, inaccurate H&P; poor review of other data
Incompetent performance of LP and other procedures;
Poor formulation of clinical data; unsound medical
judgment. Ignores patient preferences. Poor
documentation and tardy discharge summaries.

Accurate, comprehensive H&P
Reviews all data. Excellent
technical skills. Sound judgment
Addresses patient preferences
Excellent notes and discharge
summaries.

Performance needs attention: _____

Medical Knowledge 1 2 3 4 5 6 7 8 9 N/A

Limited knowledge of anatomy, basic & clinical
neuroscience; minimal interest in learning;
does not understand complex neurological
relationships or mechanism of disease. Poor
differential.

Superior understanding of anatomy,
basic & clinical neuroscience; highly
resourceful in seeking out literature
& developing an understanding of
disease mechanisms at the bedside

Performance needs attention: _____

Practice Based Learning Improvement 1 2 3 4 5 6 7 8 9 N/A

Fails to perform self-evaluation; lacks insight
and initiative; resists or ignores feedback;
fails to use information technology to enhance
self-improvement.

Constantly evaluates own performance.
Uses feedback to improve performance.
Effectively uses information for patient
care and
technology in patient care and self improvement.
Engages in research, publishes in peer reviewed
journals

Performance needs attention: _____

Leadership Skills 1 2 3 4 5 6 7 8 9 N/A

Disorganized ward rounds; ineffective supervision of
students & house staff; uninspiring role model;
arbitrary or unfair distribution of clinical work
and settling disputes.

Organized, efficient ward rounds,
excellent supervision of house staff
and an outstanding role model; fair in
delegating ward work and settling disputes

Performance needs attention: _____

Interpersonal & Communications Skills 1 2 3 4 5 6 7 8 9 N/A

Does not establish even minimally effective
relationship with patients and families;
Does not listen patiently, show compassion,
counsel or educate patients and families.

Highly effective therapeutic relationship
with patients & family. Outstanding bedside
skills in listening, verbal & non-verbal
communication,

counseling and patient educ.

Spinal Cord Injury Service, VAMC directed by Michael Richardson M.D.

The Neurology resident rotating on the Spinal Cord Injury (SCI) Service will be involved in an intensive interdisciplinary treatment and rehabilitation program of adult quadriplegics and paraplegics. Educational objectives are described below. To achieve these goals, the resident will be assigned select patients by an SCI attending. They will include those with new injuries who are expected to undergo intensive rehabilitation. They may also include known SCI patients with new neurological or medical problems. The resident will round on these patients on a daily basis during the work week, write orders and notes, including H&Ps, daily progress notes and discharge summaries. An SCI attending will supervise the resident, and all new patients will be staffed by SCI faculty within 24 hours. The resident will attend general SCI rounds at least once weekly and attend discharge planning conferences at least weekly, seating clinic, and other meetings and conferences as their time permits. Residents will visit OT, PT and Recreational Therapy when their assigned patients are receiving evaluations and treatment.

Residents must pass the Spinal Cord Injury computerized exam required of all VAMC staff.

It is understood that residents will continue to attend two neurology clinics weekly, neurology grand rounds, and other regularly scheduled neurology teaching activities. They will be expected to round on either a Saturday or Sunday morning but not both days. This will be coordinated with their adult neurology call so that they have at least four 24 hour periods off duty during the month. No more than one week of vacation will be permitted during this rotation.

Objectives

Patient Care

- The resident must demonstrate competency in
 - patient history taking
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (when appropriate)
 - **performing a general physical exam with special attention to**
 - **autonomic cardiovascular changes**
 - **integument breakdown**
 - **joint contractures**
 - **DVT prevention**
 - **Bowel constipation and obstruction**
 - **Bladder infection and catheter obstruction**
 - **thermoregulation**
 - **performing a methodical and accurate neurological exam with special attention**
 - **motor level**
 - **sensory level**
 - **spasticity & reflex spasms**
 - recognizing functional, non-physiological signs and symptoms.
 - applying neuroanatomic principles in localizing the lesion
 - **identifying the multiple levels of SCI and degrees of severity that predict maximal rehab potential (ASIA system)**
 - formulating a differential diagnosis
 - making informed decisions about diagnostic testing
 - developing and implementing a patient management plan
 - employing specific treatments using evidence-based medicine
 - obtaining appropriate consults
 - educating and counseling patients and family to maximize rehab potential and independence
 - considering patient preferences
 - obtaining informed consent
- Recognize which diagnostic tests are indicated including
 - CT, MRI, CT myelogram
 - Abdominal plain films, other imaging studies involving areas outside the nervous system
- **Recognize unique medical emergencies in SCI patients, institute therapy and call for help when necessary.**
- Obtain and maintain ACLS certification
- Demonstrate skill in the use of electronic systems to access medical, scientific, and patient information

Medical Knowledge

- Residents must pass the Spinal Cord Injury computerized exam required of all VAMC staff.
- **Recognize, prevent and treat common complications of SCI.**
 - **Autonomic disturbances**
 - **Skin breakdown**
 - **Bowel and bladder incontinence & its management**
 - **The ASIA system of characterizing severity of spinal cord injury**
 - **Depression in SCI patients**
 - **Potential of rehabilitation depending on their cord level of injury**
 - **Rehab training and use of prosthesis for ambulation**
 - **Common spinal cord disorders (e.g., trauma, transverse myelitis, tumor) including their**
 - a. **epidemiology with considerations of age, gender, race, and ethnicity**
 - b. **etiology**
 - c. **phenomenology**
 - d. **pathophysiology, molecular mechanisms and pathology**
 - e. **impact of illness on the patient's functioning**
 - f. **appropriate family counseling**
 - g. **effective treatment strategies**
 - h. **course and prognosis**
 - **Recognize the effect of spinal cord injury on other organ systems**
 - **Healthcare delivery systems relevant to SCI patients**
 - **Medical ethics unique to SCI patients**
- Demonstrate ability to distinguish neurological from non-neurological complaints.
 - **Develop a refined working knowledge of spinal cord anatomy**
 - Major long tracts, how they laminate and where they cross.
 - Understand neurologic disorders in the context of the anatomy they affect.
- Interpret neuro-radiological studies including
 - **Spinal CT, CT myelograms,**
 - **MRI of spine**
 - **Plain x-ray films of the spine and myelograms**
- **Recognize what rehab has to offer and how it achieves its goals**
 - **Physical rehab**
 - **Occupational rehab**
 - **Prosthetics, wheelchairs and other assistive devices**

Practice Based Learning and Improvement

- The resident will demonstrate his/her skills for independent self-improvement by resorting to:
 - medical libraries
 - information technology, Internet, Medline and other medical/drug databases
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)
 - obtaining appropriate supervision and consultation
 - participating in the SCI QA/QI conferences for examining errors in practice and initiating improvements to eliminate or reduce errors
- Demonstrate self-learning by reading textbook chapters and relevant journal articles about their patient problems.
- Demonstrate scholarship by citing references
- The resident will demonstrate an ability to critically evaluate the relevant medical literature.

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan

- **Educate and counsel patients and their families in a clear and meaningful fashion regarding**
 - 12. Prognosis for the degree of cord injury and potential for rehab**
 - 13. Disease process and prevention**
 - 14. Informed consent including risk versus benefits of a procedure**
 - 15. Alternatives to proposed treatment**
 - 16. Compliance with a therapeutic plan**
 - 17. End of life and palliative care**
 - 18. SCI and its rehab potential so as to maximize patient independence.**
- Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
- Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
- Communicate effectively and work collaboratively with nurses, social workers, psychiatrists, therapists and other healthcare professionals on the SCI unit.
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 - 1. Knowing when to solicit consultations
 - 2. Communicating clearly the reason for the consultation
 - 3. Discussing the consultation findings with the consultant
 - 4. Discussing the consultation findings with the patient and family
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 - 9. Clarifying the consultation question by speaking directly with the physician requesting the consult
 - 10. Maintaining the role of consultant in follow-up
 - 11. Communicating clear and specific recommendations verbally and in writing
 - 12. Respecting the expertise of the requesting professionals when disagreements occur
- The resident shall maintain up-to-date medical records by
 - 3. Writing timely legible notes
 - a. Complete H&Ps
 - b. Concise substantive daily progress notes using the S.O.A.P. format
 - c. Concise discharge summaries
 - d. Patient instructions
 - 8. Writing timely legible orders
 - 9. Writing legible prescriptions.
 - 10. Dictating reports with clarity
- The resident shall demonstrate the ability to effectively participate in and if necessary to lead a multidisciplinary treatment team, including being able to:
 - 1. Listen effectively
 - 2. Elicit needed information from team members
 - 3. Integrate information from different disciplines
 - 4. Manage conflict
 - 5. Clearly communicate an integrated treatment plan
 - 6. Participate in a multidisciplinary treatment program that maximizes outcome and rehab success.
- The resident shall demonstrate the ability to communicate effectively during rounds with
 - 11. Concise and accurate oral presentations
 - 12. Careful listening
 - 13. Effective command of pertinent patient details to answer questions
 - 14. Incisive questioning posed to the attending and others
 - 15. Literature citations relevant to the discussion

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Seeing patients promptly in the SCI unit
 - Seeing patients promptly in consultation
 - Rounding with and communicating with the SCI attending in a timely fashion
 - Ordering laboratory and diagnostic tests in a timely manner.
 - Documenting the patient's course in the medical records in a timely fashion
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care
- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- The resident shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
- The resident shall review their professional conduct and remediate when appropriate.
- The resident shall acknowledge medical errors, should they occur, and engage in their remediation.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
- **Ability to access community and national resources that improve the quality of life of patients with spinal cord injury (e.g., Paralyzed Veterans of America, Christopher Reeve Foundation)**
- **Leading and/or delegating authority to SCI team members and other healthcare personnel to provide comprehensive care for patients.**
- Recognizing potential errors in reported medical data due to systems problems
 - delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
- The resident shall demonstrate an understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Cooperation with case managers
 - Use of critical pathways when appropriate
 - Ability to recognize and forestall non-medical reasons that prolong hospital length of stay
 - Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers
 - the ability to act as patient advocate.
 - knowledge of the legal aspects of SCI injury as they impact patients and their families
 - an understanding of risk management and participate in the annual UT sponsored course.
 - knowledge of managed health systems including utilization review and patient safety.
 - knowledge of and interaction with community services that offer skilled nursing care, rehabilitation, nursing homes and hospices.
- The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)

Adult Clinical Neurology (PGY-3 & PGY-4) directed Tulio Bertorini MD (MUH), William Pulsinelli, MD PhD (Med) and Michael Jacewicz, MD (VAMC)

The goals of the second and third years for Residents include the objectives listed for first year residents but also feature new responsibilities: 1) to refine, expand and consolidate the skills and knowledge gained during the first year of Residency, 2) to develop leadership, administrative and teaching skills as chief residents in charge of the ward and consultation services, 3) to broaden their knowledge and expertise in the neurology subspecialties, 4) to promote scholarship. The Resident's intellectual growth and maturity are strengthened by handling cases of increasing diagnostic and therapeutic complexity while working closely with a Staff Neurologist. During each of the PGY-3 and PGY-4 years, residents spend six months as chief on the ward/consultation services of either the MUH, VAMC or Regional Medical Center. Some residents may spend 5 or 7 months depending on the individual resident's needs for further clinical training. During the second and third years of training, the resident should gain a thorough understanding of a variety of neurological conditions. They include but are not limited to: epilepsy, stroke, coma and altered consciousness, vertigo, acute motor paralysis, sensory disturbances, demyelinating disease, CNS infections, CNS neoplasms, autonomic dysfunction, cranial and spinal trauma, and the neurological complications of alcoholism, cancer, diabetes, liver failure, renal failure, organ transplantation, immune-suppression and HIV.

Objectives

By the end of six months of training as a ward chief in Adult Clinical Neurology, the senior residents are expected to:

Patient Care

- Demonstrate competency in
 - neurological history taking
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (especially for children)
 - performing a general physical exam
 - performing a methodical and accurate neurological exam
 - determining if there is disease of the nervous system or of another origin (e.g., psychiatric or systemic)
 - recognizing functional, non-physiological signs and symptoms.
 - applying neuroanatomic principles in localizing the lesion
 - formulating a differential diagnosis
 - making informed decisions about diagnostic testing
 - developing and implementing a patient management plan
 - employing specific treatments using evidence-based medicine
 - obtaining appropriate consults
 - educating and counseling patients and family
 - considering patient preferences
 - obtaining informed consent
- Recognize which diagnostic tests are indicated including
 - CT, CT angio, MRI, MRA, Cerebral angiography, CT myelogram and Doppler Ultrasound
 - EEG, EMG, evoked potentials, and sleep studies
- Recognize neurological emergencies, institute therapy and call for help when necessary.
- Obtain and maintain ACLS certification
- Demonstrate skill in the use of electronic systems to access medical, scientific, and patient information

Medical Knowledge

- Demonstrate knowledge of
 - Major disorders, including
 - a. epidemiology with considerations of age, gender, race, and ethnicity
 - b. etiology
 - c. phenomenology
 - d. pathophysiology, molecular mechanisms and pathology
 - e. impact of illness on the patient's functioning
 - f. appropriate family counseling
 - g. effective treatment strategies
 - h. course and prognosis
 - Healthcare delivery systems
 - Medical ethics

- Demonstrate ability to distinguish neurological from non-neurological complaints.
- Develop a refined working knowledge of neuroanatomy including
 - Functions of gray matter versus white matter
 - Deep and superficial cerebral map (Brodman areas)
 - Brainstem anatomy
 - Spinal cord anatomy,
 - Major long tracts, how they laminate and where they cross.
 - Understand neurologic disorders in the context of the anatomy they affect.
- Demonstrate ability to localize the lesion anatomically.
- Identify the pathophysiology.
- Interpret neuro-radiological studies including
 - CT, CT angiograms and CT myelograms
 - MRI of brain and spine, MRA and MRV
 - Spectral and functional MRI
 - Plain x-ray films and myelograms
 - Cerebral angiograms
 - SPECT & PET
- Interpret ultrasound reports (Duplex, transcranial Doppler)
- Interpret neurophysiological studies
 - NCV/EMG
 - EEG, evoked potentials, EEG-video monitoring
 - Polysomnography
- Perform, interpret and instruct others in
 - lumbar puncture & CSF analysis
 - Tensilon testing
 - Ice water caloric testing
 - Apnea testing
- Interpret other tests
 - Neuropsychological testing
 - Perimetry
 - Audiometry
 - Autonomic testing
- Interpret gross and microscopic biopsy specimens of the nervous system

Practice Based Learning and Improvement

- The resident will demonstrate his/her skills for independent self-improvement in the practice of neurology. This shall include use of:
 - medical libraries
 - information technology, Internet, Medline and other medical/drug databases
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)
 - calling national experts with specific questions not readily answered in the literature
 - citing the relevant literature during teaching rounds and in conferences
 - The resident will evaluate caseload and practice experience in a systematic manner. This may include:
 1. Case-based learning
 2. Use of best practices through practice guidelines or clinical pathways (AAN website)
 3. Review of patient records (CPRS at the VAMC)
 4. Obtaining evaluations from patients (e.g., outcomes and patient satisfaction forms)
 5. Employment of principles of quality improvement in practice
 6. Obtaining appropriate supervision and consultation
 7. Participating in the QA/QI conference for examining errors in practice and initiating improvements to eliminate or reduce errors
- The resident will demonstrate an ability to critically evaluate the relevant medical literature. This should include:
 1. knowledge of common methodologies employed in clinical research
 2. implementation of new knowledge to change practice and improve patient care, including the use of AAN practice guidelines and other evidence-based literature to make patient care decisions
 3. use of reliable assessment techniques to monitor improvement by the change in practice (e.g., Quality Improvement performance measure)
 4. writing journal article critiques for portfolio and participating in Journal Club
 5. writing CPC discussions for portfolio and participating in CPC conferences
 6. preparing case studies with literature reviews for portfolio and for teaching purposes
 7. developing and completing a research project
 8. developing effective remediation strategies that are based on critical review of the scientific literature

- Demonstrate self-learning by reading textbook chapters and relevant journal articles about their patient problems.
- Demonstrate scholarship by citing references

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan
 - Educate and counsel patients and their families in a clear and meaningful fashion regarding
 19. Disease process, prevention and prognosis
 20. Informed consent including risk versus benefits of a procedure
 21. Alternatives to proposed treatment
 22. Compliance with a therapeutic plan
 23. End of life and palliative care
 24. Genetic counseling
 - Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
 - Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
 - Communicate effectively and work collaboratively with nurses, students, clerks and other healthcare professionals involved in the patient's care.
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 1. Knowing when to solicit consultations
 2. Communicating clearly the reason for the consultation
 3. Discussing the consultation findings with the consultant
 4. Discussing the consultation findings with the patient and family
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 13. Clarifying the consultation question by speaking directly with the physician requesting the consult
 14. Maintaining the role of consultant in follow-up
 15. Communicating clear and specific recommendations verbally and in writing
 16. Respecting the expertise of the requesting professionals when disagreements occur
- The resident shall maintain up-to-date medical records by
 4. Writing timely legible notes
 - a. Complete H&Ps
 - b. Concise substantive daily progress notes using the S.O.A.P. format
 - c. Concise discharge summaries
 - d. Patient instructions
 11. Writing timely legible orders
 12. Writing legible prescriptions.
 13. Dictating reports with clarity
- The resident shall demonstrate the ability to effectively lead a multidisciplinary treatment team, including being able to:

1. Listen effectively
 2. Elicit needed information from team members
 3. Integrate information from different disciplines
 4. Manage conflict
 5. Clearly communicate an integrated treatment plan
 6. Delegate work and responsibilities in an equitable fashion
 7. Maintain poise and exert firm collegial control of the ward team
- The resident shall demonstrate the ability to communicate effectively with
 16. Concise and accurate oral presentations
 17. Careful listening
 18. Effective command of pertinent patient details to answer questions
 19. Incisive questioning posed to the attending and others
 20. Literature citations relevant to the discussion
 - The resident shall demonstrate the ability to teach medical students
 - In the fundamentals of daily routines (e.g., how to access labwork, patient records, neuroimaging and scheduling clerks, write orders and progress notes)
 - The neurological exam
 - Neuroanatomical localization of the lesion
 - Formulation of a diagnostic and therapeutic plan
 - Feedback on medical student notes that the resident co-signs
 - Counseling and educating patients and their families
 - Supervision of lumbar punctures and other procedures
 - How to prepare for oral presentations to the attending
 - Fundamentals of major disorders in brief 15-20 min daily sessions

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Seeing patients promptly in clinic without prolonged delays
 - Seeing patients promptly in consultation at the ER, ICU and in the hospital
 - Rounding with the ward team on time
 - Communicating with the attending in a timely fashion
 - Ordering laboratory and diagnostic tests in a timely manner.
 - Arranging back-up for emergent and urgent care when necessary
 - Documenting the patient's course in the medical records in a timely fashion
 - Arranging coverage for absence (for example, when out of town or on vacation)
 - Coordinating care with other members of the medical and/or multidisciplinary team
 - Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary
 - Genuinely taking the attitude "the buck stops with me" and "I will go the extra mile" in the care of his/her patient.
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care
- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- The resident shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
- The resident shall review their professional conduct and remediate when appropriate.
- The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.

- The resident shall acknowledge medical errors, should they occur, and engage in their remediation.
- The resident shall demonstrate leadership qualities and provide a role model for medical students and for other residents.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
 - Use of practice guidelines from the American Academy of Neurology website
 - Ability to access community and national resources that improve the quality of life of patients with chronic neurological illnesses (e.g., National Epilepsy Foundation, ALS society, Muscular Dystrophy Association, National Parkinson's Foundation)
 - Leading and/or delegating authority (as ward chief) to service team members and other healthcare personnel to provide comprehensive care for patients.
 - Demonstration of skills in Neurology Clinic,
 - including time management (e.g., identifying patient bottlenecks and correcting them)
 - clinical scheduling
 - efficient communication with referring physicians
 - constructive feedback to questionnaires designed to improve clinic efficiency
6. Timely consultation for the optimal management of patients with complicated medical illness
7. Arranging and providing timely cross-coverage
8. Recognizing potential errors in reported medical data due to systems problems
- delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
9. Recognizing medical errors committed by health care providers and other personnel through periodic QA/QI conferences.
- The resident shall demonstrate
 - An understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Cooperation with case managers
 - Use of critical pathways
 - Ability to recognize and pre-empt non-medical reasons that prolong hospital length of stay
 - Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers
 - the ability to act as patient advocate.
 - knowledge of the legal aspects of neurological diseases as they impact patients and their families
 - an understanding of risk management by participating in the annual full day UT sponsored course.
 - Knowledge of managed health systems including utilization review and patient safety.
 - knowledge of and interaction with community services that offer skilled nursing care, rehabilitation, substance abuse facilities, halfway houses, nursing homes and hospices.
 - The resident shall demonstrate
 - A working understanding of patient safety issues that include
 - Prevention of the transmission of infectious diseases by health care personnel (e.g., annual TB testing, routine washing hands, wearing gloves and masks, reports of needle sticks)
 - OSHA regulations (e.g., by taking the mandatory annual UT sponsored course)

- Hospital disaster drills (active participation in periodic code delta exercises at the VAMC)
 - The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)
- Learn to recognize and forestall non-medical issues that prolong hospital length of stay
- Learn to be more selective in costly diagnostic tests
- Cooperate with Pharmacy to use the most cost effective drugs.

Ward chief duties: Residents serve in a teaching and leadership capacity as ward/consultation Chief at the various hospitals. The ward chief assigns patients to junior residents and medical students, closely supervises patient care, actively participates in the teaching of first year Residents and medical students, and works closely with Staff. The ward chief is responsible for signing out patients to the new ward chief at the end of the month. Senior Residents help in the planning, structure and scheduling of teaching conferences and the educational program for students, residents and faculty. Ward chiefs spend much of their time teaching. They instruct Junior Residents and medical students in the fundamentals of neurological history taking and examination, and discuss diagnostic and management issues of all ward patients on a daily basis. They read and critique patient orders and notes written by Residents and students. During morning rounds, new admissions and problem patients are discussed at the bedside. The ward chief directs the discussion and assures that the pertinent neurological findings are shown to all members of the ward. The ward chief provides relevant articles to the ward team and assigns either a Junior Resident or a medical student to give a brief (no longer than 5-8 min) synopsis of a specific clinical problem (or a journal article) dealing with one of the ward patients. Morning rounds should not last longer than one hour, but the length and the time is at the discretion of the ward chief. In addition, the ward chief holds sign-out rounds usually between 4:30 PM and 5:30 PM (Mon-Fri) with individual Junior residents. The day's investigative results, patient status, discharge planning and plans for the next day are reviewed at this time. On most days, the ward chief should give focused 15-20 minute presentations on common neurological problems especially as they are relevant to specific patients. Senior Residents also instruct ward team members in OSHA regulations governing biohazards (ie. needle disposal, accidental needle sticks, etc) and see to it that both Residents and medical students attend the various teaching conferences ("mother hen" duties). **At the end of the clinical rotation, the ward chief is responsible for signing out patients to next month's chief. This must be done person to person on the last day of the rotation and not through an intermediary such as the junior resident or through a list that can be misplaced and lost.**

The ward chiefs at MUH, the MED and VAMC are actively involved in Quality Assurance/Quality Improvement (QA/QI) monitoring for the inpatient service. The resident rotating on the Stroke Service at MUH also participates. **At the end of each month, each ward chief completes a Death and Complications form (see Appendix) for later discussion in the monthly QA/QI meetings (to be held after Neurology Grand Rounds at 9 am on the first Friday of each month).** The VA ward chief should attend the Neurology Service Staff meeting on the second Wednesday of each month at noon in the VAMC Neurology conference room on the 5th floor. Here they discuss issues relevant to the ward and consultation service.

At least one senior resident must attend the Residency Training Committee (RTC), which meets periodically to evaluate, discuss problems and solutions regarding the training program. All residents are welcome to attend, and the majority do so.

Policy on Patient Transfers from Outlying Hospitals When you are called or paged by an outlying emergency room, hospital, or physician regarding the transfer of their patient to one of our affiliated hospitals (Methodist University Hospital, Regional Medical Center, Veterans Administration Hospital, LeBonheur Children's Hospital) you are required to 1) politely explain to the caller that you are not permitted to accept a transfer patient since that is the responsibility of the Attending Neurologist, 2) explain that in all likelihood you will be taking care of the patient after the Attending Neurologist agrees to accept the patient so request and record all pertinent medical/neurological information about the patient, 3) record the phone number of the caller where they may be reached in the next few minutes when the Attending Neurologist returns their call, 4) contact the Attending Neurologist with the caller's phone number and a description of the patient that is under consideration for transfer, and 5) ask the Attending Neurologist to call you back to inform you of whether he/she accepted the patient in transfer and to discuss diagnostic and treatment options on the patient.

NEUROLOGY RESIDENT EVALUATION (CLINICAL ROTATIONS)

Attending _____ Resident _____

Rotation _____ Month/Year of Rotation _____

ACGME mandated:

Curriculum reviewed with the resident at start of the rotation? Yes___ No___ N/A___

Evaluation reviewed with the resident at the end of the rotation? Yes___ No___ N/A___

Ratings are: 1-3 unsatisfactory 4 marginal 5-6 satisfactory 7-9 superior

Patient Care 1 2 3 4 5 6 7 8 9 N/A

Incomplete, inaccurate H&P; poor review of other data
Incompetent performance of LP and other procedures;
Poor formulation of clinical data; unsound medical
judgment. Ignores patient preferences. Poor
documentation and tardy discharge summaries.

Accurate, comprehensive H&P
Reviews all data. Excellent
technical skills. Sound judgment
Addresses patient preferences
Excellent notes and discharge
summaries.

Performance needs attention: _____

Medical Knowledge 1 2 3 4 5 6 7 8 9 N/A

Limited knowledge of anatomy, basic & clinical
neuroscience; minimal interest in learning;
does not understand complex neurological
relationships or mechanism of disease. Poor
differential.

Superior understanding of anatomy,
basic & clinical neuroscience; highly
resourceful in seeking out literature
& developing an understanding of
disease mechanisms at the bedside

Performance needs attention: _____

Practice Based Learning Improvement 1 2 3 4 5 6 7 8 9 N/A

Fails to perform self-evaluation; lacks insight
and initiative; resists or ignores feedback;
fails to use information technology to enhance
self-improvement.

Constantly evaluates own performance.
Uses feedback to improve performance.
Effectively uses information for patient
care and
technology in patient care and self improvement.
Engages in research, publishes in peer reviewed
journals

Performance needs attention: _____

Leadership Skills 1 2 3 4 5 6 7 8 9 N/A

Disorganized ward rounds; ineffective supervision of
students & house staff; uninspiring role model;
arbitrary or unfair distribution of clinical work
and settling disputes.

Organized, efficient ward rounds,
excellent supervision of house staff
and an outstanding role model; fair in
delegating ward work and settling disputes

Performance needs attention: _____

Interpersonal & Communications Skills 1 2 3 4 5 6 7 8 9 N/A

Does not establish even minimally effective
relationship with patients and families;
Does not listen patiently, show compassion,
counsel or educate patients and families.

Highly effective therapeutic relationship
with patients & family. Outstanding bedside
skills in listening, verbal & non-verbal
communication, counseling and patient educ.

Performance needs attention: _____

Psychiatry (PGY-3 or PGY-4) directed by Norman Von Buttlar, M.D. and Sandra Balz M.D.

The goal of this rotation is for Residents to become familiar with the DSMIV diagnostic terminology (American Psychiatric Association's Diagnostical and Statistical Manual of Mental Disorders, 4th ed. revised), learn the general principles of the psychiatric interview, special interviewing techniques in emergency, psychotic and severely depressed patients, and patients with hysteria versus organic brain syndrome. The resident must learn the psychological aspects of the patient-physician relationship, the importance of personal, social and cultural factors in disease processes and their clinical expression. A secondary goal is for residents to learn practical knowledge regarding common psychiatric disorders, antipsychotic & neuroleptic drug administration, drug toxicity, ethical and legal issues in the use of patient restraints.

Objectives The residents are expected to achieve the following objectives:

Patient Care

- **Develop and document:**
 - **An appropriate DSM-IV multi-axial differential diagnosis**
 - An integrative case formulation that includes neurobiological, phenomenological, psychological, and sociocultural issues involved in diagnosis and management
 - An evaluation plan, including appropriate laboratory, imaging, medical, and psychological examinations
 - A comprehensive treatment plan addressing biological, psychological, and sociocultural domains
- **Recognize and document a patient's potential harm to him/herself or to others. This shall include: An assessment of risk, knowledge of involuntary treatment standards and procedures, effective intervention and prevention methods against self-harm and harm to others.**
- **Demonstrate competency in diagnostic interviewing, mental status examination, psychological and educational testing, ordering laboratory tests, ordering Imaging studies.**
- **Conduct therapeutic interviews (e.g., enhance the ability to collect and use clinically relevant material through the conduct of supportive interventions, exploratory interventions, and clarifications)**
- **Conduct a range of individual, group, and family therapies using standard, accepted models, and to integrate these psychotherapies in multi-modal treatment, including biological and sociocultural interventions**
- **Recognize and treat psychiatric disorders of multiple types.**
- **Recognize psychogenic neurologic manifestations, including somatization and conversion and their management.**

Medical Knowledge

- Develop knowledge of:
- **Interviewing techniques**
 - **Pharmacotherapy of major drugs (e.g., antipsychotics, antidepressants, antianxiety agents, mood stabilizers)**
 - **Drug side effects (e.g., acute, motor, neuroleptic malignant syndrome)**
 - **Neurological side effects of alcohol and substance of abuse, withdrawal, toxicity and treatment.**
 - **Major psychiatric disorders including bipolar disease, schizophrenia, depression and personality disorders**
 - **Human growth and development, including normal biological, cognitive, and psychosexual development, including sociocultural factors**
 - **When pertinent to their patient care, residents will demonstrate knowledge of learning theory, theories of normal family organization, dynamics, and communication, theories of group dynamics and process, anthropology, sociology, and theology, transcultural psychiatry, community mental health, epidemiology and psychodynamic theory**
 - **Nonpharmacologic treatments and management**
 - **Specific forms of psychotherapies**
 - **Brief therapy**
 - **Cognitive behavioral therapy**
 - **Psychodynamic therapy**
 - **Psychotherapy combined with psychopharmacology**
 - **Supportive therapy**
 - **All delivery systems of psychotherapies**
 - **Individual**
 - **Group**
 - **Family**
 - **Treatment of psychosexual dysfunctions**
 - **Electroconvulsive therapy**

Practice Based Learning and Improvement

- **Recognize the limitations of their knowledge base and the lifelong obligation to improve their skill.**
- **Demonstrate ability in securing key literature from libraries, websites, medline and other databases.**

- Demonstrate active participation in educational conferences.
- Use and document best practices through practice guidelines or clinical pathways.
- Obtain appropriate supervision and consultation when confronted with a problem they cannot solve.
- Participate in Quality Assurance/Quality Improvement
- Demonstrate an ability to critically evaluate relevant medical and scientific literature (Journal Club).

Interpersonal and Communication Skills

- Residents will demonstrate the following abilities:
- Listen to and understand patients and attend to nonverbal communication
 - Demonstrate socio-cultural sensitivity to patients and their families
 - Respect the patients' cultural, ethnic, religious, and economic circumstances.
 - Communicate effectively with patients and family using layman language
 - Education and counseling
 - Implementation and maintenance of a therapeutic plan
 - Maintain confidentiality
 - Gain the patient's and family's trust to promote a therapeutic alliance
 - Communicate effectively and work collaboratively with allied medical personnel and other professionals including:
 - Medical Consults
 - Nursing
 - Technicians
 - Social Service
 - Hospital volunteers
 - Maintain up-to-date concise medical records and write legible prescriptions.
 - Lead a multidisciplinary team (when pertinent):
 - G. Physicians shall demonstrate the ability to communicate effectively with patients and their families while respecting confidentiality. Such communication may include:
 1. The results of the assessment
 2. Use of informed consent when considering investigative procedures
 3. Genetic counseling and palliative care when appropriate
 4. Consideration and compassion for the patient in providing accurate medical information and prognosis
 5. The risks and benefits of the proposed treatment plan, including possible side-effects of medications and/or complications of nonpharmacologic treatments
 6. Alternatives (if any) to the proposed treatment plan
 7. Appropriate education concerning the disorder, its prognosis, and prevention strategies

Professionalism

- Respect patient confidentiality
- Demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Establishing and communicating back-up arrangements, including how to seek emergent and urgent care when necessary
 - Using medical records for appropriate documentation of the course of illness and its treatment
 - Providing coverage if unavailable, (for example, when out of town or on vacation)
 - Coordinating care with other members of the medical and/or multidisciplinary team
 - Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary
- Demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care, including matters of informed consent/assent, professional conduct, and conflict of interest.
- Demonstrate respect for patients and their families, and their colleagues as persons, including their ages, cultures, disabilities, ethnicities, genders, socioeconomic backgrounds, religious beliefs, political leanings, and sexual orientations.
- Physicians shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
- Physicians shall review their professional conduct and remediate when appropriate.
- Physicians shall participate in the review of the professional conduct of their colleagues.
- Physicians shall be aware of safety issues, including acknowledging and remediating medical errors, should they occur.

Systems Based Practice

- **Recognize and use supportive services in the community (e.g., Alcoholics Anonymous, Rape Crisis Center, Memphis Family Shelter, half-way homes)**
- Have a working knowledge of the diverse systems involved in treating patients
- Use of practice guidelines
- Ability to access community, national, and allied health professional resources that may enhance the quality of life of patients with chronic psychiatric and neurological illnesses

- Demonstration of the ability to lead and delegate authority to healthcare teams needed to provide comprehensive care for patients with psychiatric and neurological disease
- Demonstration of skills for the practice of ambulatory medicine, including time management, clinical scheduling, and efficient communication with referring physicians
- Use of appropriate consultation and referral mechanisms for the optimal clinical management of patients with complicated medical illness
- Demonstration of awareness of the importance of adequate cross-coverage
- Use of accurate medical data in the communication with and effective management of patients
- Recognize the limitation of healthcare resources and demonstrate the ability to act as an advocate for patients within their sociocultural and financial constraints
- Demonstrate knowledge of the legal aspects of psychiatric and neurological diseases as they impact patients and their families
- Demonstrate an understanding of risk management.
- Demonstrate knowledge of and interact with managed health systems, including:
 - Participate in hospital utilization reviews and, when appropriate, advocating for quality patient care
 - Educating patients concerning such systems of care
- **Demonstrate knowledge of community systems of care and assist patients to access appropriate care and other support services. This requires knowledge of treatment settings in the community, which include ambulatory, consulting, acute care, partial hospital, skilled care, rehabilitation, and substance abuse facilities; halfway houses; nursing homes and home care; and hospice organizations. Physicians shall demonstrate knowledge of the organization of care in each relevant delivery setting and the ability to integrate the care of patients across such settings.**

To achieve these objectives, residents spend one month on the VAMC Psychiatry Consultation and Liaison Service which is staffed by a neuropsychiatrist. The neurology Resident is responsible for 2-4 new consults per day in addition to the follow-up care of 4-6 consults/day under the supervision of a Staff psychiatrist. Residents will also continue to follow any patient transferred for the Consult Service to the Inpatient Psychiatry Service including participation in Multidisciplinary Treatment Team Staffing. Work and teaching rounds are usually completed in the morning, and afternoons are reserved for seeing outpatients and/or new consults. Residents will attend one afternoon outpatient clinic which is usually the VA Women's clinic or UTMG clinic.

The residents continue to attend two half day Neurology clinics and continue to take Neurology weekend night call (average 1 - 2 calls per month). In addition, residents have the option to take Psychiatry night calls with a senior psychiatry resident covering the MED ER until 10 PM. They can also elect to cover the VAMC through the evening and night. VAMC call typically consists of 2-5 phone calls, usually before midnight, and very rarely an ER patient. After 10 PM, the resident takes VAMC call from home. Since this call is educational, the resident must leave the hospital by 10 PM so as to have a minimum 10 hour duty free period before returning to the hospital next morning.

Residents attend the Psychiatry Teaching Conferences which include VAMC Grand Rounds, Case Conferences, Departmental Grand Rounds, and Journal Club. In the first week, the resident listens to audiotapes of the American Academy of Neurology "Essential Psychiatry for Neurologists". The residents are also expected to attend Neurology teaching conferences at noon. **When a conflict exists between neurology and psychiatry conferences, Psychiatry will take priority.** Planned absences from psychiatry conferences or morning work rounds must be cleared by the Psychiatry attending. The psychiatry staff understands that the resident will be absent two half days per week when attending the MEDPLEX or the VAMC Clinic.

Residents are assigned chapters from Kaplan and Saddock's fifth edition of The Comprehensive Textbook of Psychiatry and are expected to become familiar with the use of the American Psychiatric Association's Diagnostical and Statistical Manual of Mental Disorders, 4th edition revised (DSMIV-R). Residents are required to read selected chapters from the textbook The Psychiatric Interview in Clinical Practice by R.A. MacKinnon and R. Michels. Chapters 1 and 2, which cover general principles of the interview and psychodynamics, provide the Residents with a description of the basic skills for interviewing neurologically and psychiatrically ill patients. In addition, the Residents are urged to read the appropriate chapters which cover interview techniques for emergency, psychosomatic and depressed patients, patients with hysteria, and organic brain syndrome.

Evaluation: At the end of the month, the residents receive a global evaluation by their attending. The behavioral neurology portion of the RITE in March will also be carefully reviewed. Poor performance in either may necessitate a second month of psychiatry. Vacation should not be planned during the psychiatry rotation or limited to a week if overriding circumstances dictate. This restriction does not hold more than a single month of psychiatry is taken.

Night Float (PGY2,3,4) directed by Dr. Jacewicz

This is essentially a consult service covering the MUH, MED and VAMC. The night floater has on-call duties from 5 PM to 7 AM during weekdays. The rotation lasts one month. The rotation provides the resident with increased responsibility in the front line management of urgent and emergent neurological patients. The resident sees consultations in the ER, ICU and ward. He or she may admit the patient to the Neurology service from the ER in which case he or she writes the H&P and admitting orders. The patient must contact the attending immediately upon completion of his/her evaluation in order to discuss the case when major decisions are yet to be made. The resident signs out all the night's activity to the ward chief at the three hospitals on the next morning. At 5 PM, the ward chief resident contacts the night floater of any special problems, lab tests or patient follow-ups from the daytime service.

Neurology residents are responsible for evaluating (history, physical, admission/consult note, follow-up care and notes) all neurological patients that they are requested to see by any hospital physician or support staff. For example, whether the "Attending of Record" on the patient is a UT neurologist or a Wesley neurologist is irrelevant. However, the Attending neurologist for the patient must exam the patient, communicate diagnostic and treatment plans with the neurology resident, and place a note in the patient's chart indicating that he/she has seen the patient and agrees with or has modified the recommendations/orders of the resident within 24 hours of the admission or consult request. If any of the latter Attending responsibilities are not being met, then the Department Chair and Dr. Bertorini should be notified immediately. If the consult request is communicated by someone other than a physician, ask the person calling who the physician of record is and then call this physician to clarify the consult requests and to provide further details about the patient. This policy applies to Night Float and to weekend call and to all hospitals covered by night float and weekend call.

Objectives

Patient Care

- The resident must demonstrate competency in
 - neurological history taking
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (especially for children)
 - performing a general physical exam
 - performing a methodical and accurate neurological exam
 - determining if there is disease of the nervous system or of another origin (e.g., psychiatric or systemic)
 - recognizing functional, non-physiological signs and symptoms.
 - applying neuroanatomic principles in localizing the lesion
 - formulating a differential diagnosis
 - making informed decisions about diagnostic testing
 - developing and implementing a patient management plan
 - employing specific treatments using evidence-based medicine
 - obtaining appropriate consults
 - educating and counseling patients and family
 - considering patient preferences
 - obtaining informed consent
- Recognize which diagnostic tests are indicated including
 - CT, CT angio, MRI, MRA, Cerebral angiography, CT myelogram and Doppler Ultrasound
 - EEG, EMG, evoked potentials, and sleep studies
- Recognize neurological emergencies, institute therapy and call for help when necessary.
- Obtain and maintain ACLS certification
- Demonstrate skill in the use of electronic systems to access medical, scientific, and patient information

Medical Knowledge

- Demonstrate knowledge of
 - Major disorders especially those presenting as neurological emergencies, including but not limited to the following domains
 - Acute stroke
 - Hydrocephalus and raised intracranial pressure
 - CNS infections
 - Acute motor paralysis
 - Spinal cord injury
 - Recurrent seizures and status epilepticus
 - Delirium

- Toxic-metabolic coma
 - Visual loss
 - Brain tumors
 - Knowledge will include
 - a. epidemiology with considerations of age, gender, race, and ethnicity
 - b. etiology
 - c. phenomenology
 - d. pathophysiology, molecular mechanisms and pathology
 - e. impact of illness on the patient's functioning
 - f. appropriate family counseling
 - g. effective emergent treatments (evidence-based)
 - h. course and prognosis
 - Healthcare delivery systems
 - Medical ethics
- Demonstrate ability to distinguish neurological from non-neurological complaints.
- Develop a refined working knowledge of neuroanatomy including
 - Functions of gray matter versus white matter
 - Deep and superficial cerebral map (Brodmann areas)
 - Brainstem anatomy
 - Spinal cord anatomy,
 - Major long tracts, how they laminate and where they cross.
 - Understand neurologic disorders in the context of the anatomy they affect.
- Demonstrate ability to localize the lesion anatomically.
- Identify the pathophysiology.
- Interpret emergency neuro-radiological studies including
 - CT, CT angiograms and CT myelograms
 - MRI of brain and spine, MRA and MRV
 - Spectral and functional MRI
 - Plain x-ray films and myelograms
 - Cerebral angiograms
- Demonstrate a basic working knowledge for
 - Interpreting ultrasound reports (Duplex, transcranial Doppler)
 - Interpreting neurophysiological reports
 - NCV/EMG
 - EEG, evoked potentials, EEG-video monitoring
 - Polysomnography
 - Performing & interpreting neurological procedures
 - lumbar puncture & CSF analysis
 - Tensilon testing
 - Ice water caloric testing
 - Apnea testing
 - Interpreting other tests
 - Neuropsychological testing
 - Perimetry
 - Audiometry
 - Autonomic testing
 - Interpreting reports of gross and microscopic biopsy specimens of the nervous system

Practice Based Learning and Improvement

- The resident will demonstrate his/her skills for independent self-improvement in the practice of neurology. This shall include use of:
 - medical libraries
 - information technology, Internet, Medline and other medical/drug databases
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)
 - calling national experts with specific questions not readily answered in the literature
 - citing the relevant literature during teaching rounds and in conferences
 - The resident will evaluate caseload and practice experience in a systematic manner. This may include:
 1. Case-based learning
 2. Use of best practices through practice guidelines or clinical pathways (AAN website)
 3. Review of patient records (CPRS at the VAMC)
 4. Obtaining evaluations from patients (e.g., outcomes and patient satisfaction forms)
 5. Employment of principles of quality improvement in practice
 6. Obtaining appropriate supervision and consultation
 7. Participating in the QA/QI conference for examining errors in practice and initiating improvements to eliminate or reduce errors

- The resident will demonstrate an ability to critically evaluate the relevant medical literature. This should include:
 1. knowledge of common methodologies employed in clinical research
 2. implementation of new knowledge to change practice and improve patient care, including the use of AAN practice guidelines and other evidence-based literature to make patient care decisions
 3. use of reliable assessment techniques to monitor improvement by the change in practice (e.g., Quality Improvement performance measure)
 4. developing effective remediation strategies that are based on critical review of the scientific literature
- Demonstrate self-learning by reading textbook chapters and relevant journal articles about their patient problems.
- Demonstrate scholarship by citing references

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan
 - Educate and counsel patients and their families in a clear and meaningful fashion regarding
 25. Disease process, prevention and prognosis
 26. Informed consent including risk versus benefits of a procedure
 27. Alternatives to proposed treatment
 28. Compliance with a therapeutic plan
 29. End of life and palliative care
 30. Genetic counseling
 - Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
 - Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
 - **Communicate effectively and work collaboratively with nurses, students, clerks and other healthcare professionals involved in the patient's care.**
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 1. Knowing when to solicit consultations
 2. Communicating clearly the reason for the consultation
 3. Discussing the consultation findings with the consultant
 4. Discussing the consultation findings with the patient and family
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 - 17. Clarifying the consultation question by speaking directly with the physician requesting the consult**
 18. Maintaining the role of consultant in follow-up
 - 19. Communicating clear and specific recommendations verbally and in writing**
 - 20. Respecting the expertise of the requesting professionals when disagreements occur**
- The resident shall maintain up-to-date medical records by
 5. Writing timely legible notes
 - a. Complete H&Ps
 - b. Patient instructions

- 14. Writing timely legible orders
 - 15. Writing legible prescriptions.
- The resident shall demonstrate the ability to communicate effectively during phone conversation with the attending including
 - 21. Concise and accurate oral presentations**
 - 22. Careful listening
 - 23. Effective command of pertinent patient details to answer questions**
 - 24. Incisive questioning posed to the attending**
 - 25. Literature citations relevant to the discussion
 - The resident shall demonstrate the ability to teach junior residents
 - In the fundamentals of daily routines (e.g., how to access labwork, patient records, neuroimaging and scheduling clerks, write orders and progress notes)
 - The neurological exam
 - Neuroanatomical localization of the lesion
 - Formulation of a diagnostic and therapeutic plan
 - Feedback on progress notes
 - Counseling and educating patients and their families
 - Supervision of lumbar punctures and other procedures
 - How to prepare for an oral presentation by phone to the attending

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - **Responding to communication from patients and health professionals in a timely manner**
 - **Seeing patients promptly in consultation at the ER, ICU and in the hospital**
 - **Communicating with the attending in a timely fashion**
 - **Ordering laboratory and diagnostic tests in a timely manner.**
 - **Calling the back-up for simultaneous emergencies when necessary**
 - **Documenting the patient's course in the medical records in a timely fashion**
 - Arranging coverage for absence (for example, when out of town or on vacation)
 - **Blocking out clinic in a timely fashion**
 - Providing for continuity of patient care, including appropriate consultation and follow-up in clinic
 - Genuinely taking the attitude "the buck stops with me" and "I will go the extra mile" in the care of the patient.
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care
- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and medical personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- The resident shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
- The resident shall review his/her professional conduct and remediate when appropriate.
- The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.
- The resident shall acknowledge medical errors, should they occur, and engage in their remediation by participating in QA/QI.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
- Use of practice guidelines from the American Academy of Neurology website

- Timely consultation for the optimal management of patients with complicated medical illness
- Arranging and providing timely cross-coverage
- Recognizing potential errors in reported medical data due to systems problems
 - delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
- Recognizing medical errors committed by health care providers and other personnel through periodic QA/QI conferences.
- The resident shall demonstrate
 - An understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Use of critical pathways
 - Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers

 - the ability to act as patient advocate
 - knowledge of the legal aspects of neurological diseases as they impact patients and their families
 - Knowledge of managed health systems including utilization review and patient safety.
- The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)

Neuro-ophthalmology directed by Andrew Lawton, M.D.

This rotation is designed to provide an overview of the diagnosis and management of common neuro-ophthalmic disorders, including optic neuritis, ischemic optic neuropathy, transient monocular blindness, giant cell arteritis, idiopathic intracranial hypertension and a variety of eye movement disorders.

Educational objectives include:

Patient Care

- Demonstrate competency in
 - Neuro-ophthalmological history taking
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (especially for children)
 - **performing a methodical and accurate neuro-ophthalmological exam**
 - determining if there is disease of the nervous system or of another origin (e.g., psychiatric or systemic)
 - recognizing functional, non-physiological signs and symptoms.
 - applying neuroanatomic principles in localizing the lesion
 - formulating a differential diagnosis
 - making informed decisions about diagnostic testing
 - developing and implementing a patient management plan
 - employing specific treatments using evidence-based medicine
 - educating and counseling patients and family
 - obtaining informed consent
- **Recognize when specific diagnostic tests are indicated in neuro-ophthalmology**
 - **CT, MRI, MRA, Cerebral angiography, oculonystagmography, fluorescein angiography, visual perimetry, slit-lamp exams.**
- **Recognize neuro-ophthalmological emergencies, institute therapy and call for help when necessary.**
- **Recognize a wide range of systemic and neurological disease with ophthalmic manifestations.**
- **Become acquainted with specialized examination techniques used by ophthalmology (e.g. indirect ophthalmoscopy, slit lamp biomicroscopy, automated threshold perimetry, contact lens examination of the fundus, red lens testing for diplopia, Lancaster red-Aftandilian goggles, etc.)**
- **Perform and interpret visual field examinations**
- **Examine blepharospasm patients and observe botulinum toxin injections.**
- Demonstrate skill in the use of electronic systems to access medical, scientific, and patient information

Medical Knowledge

- Demonstrate knowledge of
 - The most important neuro-ophthalmological disorders, including
 - a. epidemiology with considerations of age, gender, race, and ethnicity
 - b. etiology
 - c. phenomenology
 - d. pathophysiology, molecular mechanisms and pathology
 - e. impact of illness on the patient's functioning
 - f. appropriate family counseling
 - g. effective treatment strategies
 - h. course and prognosis
 - Healthcare delivery systems
 - Medical ethics
- Demonstrate ability to distinguish neurological from non-neurological complaints.
- **Develop a refined knowledge of the neuroanatomy of vision and eye movements**
- **Develop a refined knowledge of the physiology of vision and eye movements**
- Demonstrate ability to localize the lesion anatomically.
- Identify the pathophysiology.
- Interpret neuro-radiological studies including
 - CT, MRI
 - Cerebral angiograms
 - **Interpreting orbital and vascular ultrasound reports (Duplex, transcranial Doppler)**
 - **Interpreting neurophysiological reports**

- **Blink reflex EMG**
 - Autonomic testing
- Interpreting reports of gross and microscopic biopsy specimens of the visual system

Practice Based Learning and Improvement

The resident will demonstrate his/her skills for independent self-improvement. This shall include

- Reading assigned chapters in Miller's Walsh' Textbook of Neuro-ophthalmology, von Noorden's Atlas of Strabismus, Harrington's The Visual Fields and Anderson's Perimetry With and Without Automation which are available in the Department Ophthalmology Library.
 - information technology, Internet, Medline and other medical/drug databases
 - **University of Utah Library collection of Neuro-ophthalmology of retinal pictures, videoclips and audiotapes**
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)
 - calling national experts with specific questions not readily answered in the literature
 - citing the relevant literature during teaching rounds and in conferences
- The resident will demonstrate an ability to critically evaluate the relevant medical literature. This should include:
 1. knowledge of common methodologies employed in clinical research
 2. implementation of new knowledge to change practice and improve patient care, including the use of AAN practice guidelines and other evidence-based literature to make patient care decisions
 3. use of reliable assessment techniques to monitor improvement by the change in practice (e.g., Quality Improvement performance measure)
 4. writing journal article critiques for portfolio and participating in Journal Club
 5. writing CPC discussions for portfolio and participating in CPC conferences
 6. preparing case studies with literature reviews for portfolio and for teaching purposes
 7. developing and completing a research project
 8. developing effective remediation strategies that are based on critical review of the scientific literature
- Demonstrate self-learning by reading textbook chapters and relevant journal articles about patient problems.
- Demonstrate scholarship by citing references

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan
 - Educate and counsel patients and their families in a clear and meaningful fashion regarding
 31. Disease process, prevention and prognosis
 32. Informed consent including risk versus benefits of a procedure
 33. Alternatives to proposed treatment
 34. Compliance with a therapeutic plan
 35. Genetic counseling
 - Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
 - Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
 - Communicate effectively and work collaboratively with nurses, students, clerks and other healthcare professionals involved in the patient's care.
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.

- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 1. Knowing when to solicit consultations
 2. Communicating clearly the reason for the consultation
 3. Discussing the consultation findings with the consultant
 4. Discussing the consultation findings with the patient and family
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 21. Clarifying the consultation question by speaking directly with the physician requesting the consult
 22. Maintaining the role of consultant in follow-up
 23. Communicating clear and specific recommendations verbally and in writing
 24. Respecting the expertise of the requesting professionals when disagreements occur
- The resident shall maintain up-to-date medical records by
 6. Writing timely legible notes
 - a. Complete H&Ps
 - b. Concise substantive daily progress notes using the S.O.A.P. format
 - c. Concise discharge summaries
 - d. Patient instructions
 16. Writing timely legible orders
 17. Writing legible prescriptions.
 18. Dictating reports with clarity
- The resident shall demonstrate the ability to effectively lead a multidisciplinary treatment team, including being able to:
 1. Listen effectively
 2. Elicit needed information from team members
 3. Integrate information from different disciplines
 4. Manage conflict
 5. Clearly communicate an integrated treatment plan
- The resident shall demonstrate the ability to communicate effectively during rounds with
 26. Concise and accurate oral presentations
 27. Careful listening
 28. Effective command of pertinent patient details to answer questions
 29. Incisive questioning posed to the attending and others
 30. Literature citations relevant to the discussion
- The resident shall demonstrate the ability to teach medical students
 - In the fundamentals of daily routines (e.g., how to access labwork, patient records, neuroimaging and scheduling clerks, write orders and progress notes)
 - The neurological exam
 - Neuroanatomical localization of the lesion
 - Formulation of a diagnostic and therapeutic plan
 - Feedback on medical student notes that the resident co-signs
 - Counseling and educating patients and their families
 - Supervision of lumbar punctures and other procedures
 - How to prepare for oral presentations to the attending

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Seeing patients promptly in clinic without prolonged delays
 - Seeing patients promptly in consultation at the ER, ICU and in the hospital
 - Rounding with the ward team on time
 - Communicating with the attending in a timely fashion
 - Ordering laboratory and diagnostic tests in a timely manner.
 - Arranging back-up for emergent and urgent care when necessary
 - Documenting the patient's course in the medical records in a timely fashion
 - Arranging coverage for absence (for example, when out of town or on vacation)

- Coordinating care with other members of the medical and/or multidisciplinary team
- Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care
- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- The resident shall review their professional conduct and remediate when appropriate.
- The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.
- The resident shall acknowledge medical errors, should they occur, and engage in their remediation.
- The resident shall provide a role model for medical students and for other residents.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
- Use of practice guidelines from the American Academy of Neurology website
- Ability to access community and national resources that improve the quality of life of patients with visual loss
- Timely consultation for the optimal management of patients with complicated medical illness
- Recognizing potential errors in reported medical data due to systems problems
 - delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
- The resident shall demonstrate
 - An understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Cooperation with case managers
 - Use of critical pathways
 - Ability to recognize and pre-empt non-medical reasons that prolong hospital length of stay
 - Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers
 - the ability to act as patient advocate.
 - knowledge of the legal aspects of neurological diseases as they impact patients and their families
 - an understanding of risk management by participating in the annual full day UT sponsored course.
 - Knowledge of managed health systems including utilization review and patient safety.
 - knowledge of and interaction with community services that offer skilled nursing care, rehabilitation, substance abuse facilities, halfway houses, nursing homes and hospices.
- The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)

To achieve these objectives, the Resident has supervised exposure to an average of 50 outpatients weekly in a private referral type practice and approximately 20 patients weekly in referral neuro-ophthalmology clinics held at the Regional Medical Center and Veterans' Administration Medical Center. In addition, the Resident either assists in or initially answers all the inpatient consultations weekly (approximately seven) received from the Methodist Hospital, and Le Bonheur Children's Medical Center.

The Resident prepares and presents at least one case at the monthly neuro-ophthalmology conference held at the Coleman Building in the Department of Ophthalmology. The Resident attends weekly rounds of the ophthalmology faculty and Residents (included Regional Medical Center and Baptist Hospital), Grand Rounds of Ophthalmology and Grand Rounds of Neurology during the month. The Resident may be asked to present cases at any of these sessions. The Resident reads assigned chapters in Miller's Walsh' Textbook of Neuro-ophthalmology, von Noorden's Atlas of Strabismus, Harrington's The Visual Fields and Anderson's Perimetry With and Without Automation which are available in the Department Ophthalmology Library.

Neuromuscular and EMG Rotation directed by Tulio Bertorini M.D. and Daniel Menkes M.D.

Educational Goal

The purpose of this elective is for residents to learn additional principles of clinical neurophysiology including nerve conduction studies and needle EMG. The resident will be expected to understand how disorders of the peripheral nervous system are assessed with these modalities. A secondary goal is for residents to broaden their understanding of the pathophysiology, diagnosis and treatment of neuropathies, neuromuscular junction disorders and myopathies.

Objectives

The residents are expected to achieve the following objectives:

Patient Care

- Demonstrate competency in obtaining an accurate and comprehensive history in patients with neuromuscular diseases including:
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (especially for children)
- Demonstrate competency in performing a neurological exam with special attention to the peripheral nervous system.
- Demonstrate competency in the formulation, differential diagnosis, laboratory investigation, and management plan.
- Demonstrate use of appropriate clinical neurophysiological (CNP) tests to evaluate and manage patients.
- Develop the technical skills to perform and/or interpret NCV, EMG and related studies
- Identify and discriminate among the neurological disorders of the central and peripheral nervous systems that are diagnosed based on clinical neurophysiology testing.
- Provide a compassionate approach in the performance of CNP studies

Medical Knowledge

- Demonstrate knowledge of the major neuromuscular disorders, including
 - epidemiology with considerations of age, gender, race, and ethnicity
 - etiology
 - phenomenology
 - pathophysiology, molecular mechanisms and pathology
 - impact of illness on the patient's functioning
 - appropriate family counseling
 - effective treatment strategies
 - course and prognosis
- Demonstrate ability to distinguish neurological from non-neurological complaints.
- Develop a refined working knowledge of neuroanatomy with special attention to
 - Cranial nerve anatomy
 - Spinal cord, root and plexus anatomy
 - Peripheral nerve, neuromuscular junction and muscle.
- Understand neuromuscular disorders in the context of the anatomy affected.
- Understand the basics of muscle and nerve physiology
- Understand the basics of instrumentation and signal processing
- Provide clinical correlations of NCS and EMG studies of:
 - Peripheral nerve disease: diffuse, focal
 - Neuromuscular junction disease
 - Muscle disease
 - Patterns: prognosis, evolution of disease, artifacts, repetitive stimulation

Practice Based Learning and Improvement

- Read assigned chapters from Kimura's *Electrodiagnosis in Diseases of Nerve and Muscle* and Bertorini's *Clinical Evaluation and Diagnostic Tests of Neuromuscular Disorders*
- View Muscle Pathology
- Seek out pertinent literature on interesting cases by searching
 - Library books, journals and databases
 - Medline and other websites
- Participation in neuromuscular conferences
- Participate in Journal Club when neuromuscular articles are discussed
- Participation in a research project
- Access the AAN website for best practices and clinical pathways involving neuromuscular patients
- Attend conferences and/or present a paper at national meetings

Interpersonal and Communication Skills

- Present case histories in a concise and clear manner especially in conference.
- Use layman terms and avoid jargon to counsel and educate patients and families about NCV, EMG and related neurophysiological procedures
- Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
- Demonstrate socio-cultural sensitivity to patients & families and their preferences
- Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
- Partner with patients to assure compliance with a treatment plan
- Educate and counsel patients and their families in a clear and meaningful fashion regarding

36. Disease process, prevention and prognosis
37. Informed consent including risk versus benefits of a procedure
38. Alternatives to proposed treatment
39. Compliance with a therapeutic plan
40. End of life and palliative care
41. Genetic counseling

- Ask the patient and/or family to describe the therapeutic plan to make certain that it is understood.
- Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
- Communicate effectively and work collaboratively with EMG techs, nurses, students, clerks and other healthcare professionals involved in the patient's care.
- The resident shall demonstrate the ability to write reports that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:

25. Clarifying the consultation question by speaking directly with the physician requesting the consult
26. Maintaining the role of consultant in follow-up
27. Communicating clear and specific recommendations verbally and in writing
28. Respecting the expertise of the requesting professionals when disagreements occur

- The resident shall maintain up-to-date medical records.
- Teach medical students

Professionalism

- Demonstrate collegial respect for patients and all personnel involved in their care.
- Respond to communication from patients and health professionals in a timely manner
- Communicating with the attending in a timely fashion.
- Ordering appropriate laboratory and diagnostic tests in a timely manner.
- Documenting the patient's course in the medical records in a timely fashion
- Demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care.
- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes

- Appropriate dress
- Introductions and shaking hands on meeting the patient and family
- Maintaining eye contact during conversations
- Sensitivity to special cultural or ethnic needs of patients
- Collegiality in interactions with patients and surrounding personnel

- Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- Demonstrate understanding of and sensitivity to end of life care and issues.
- The resident shall review his/her professional conduct and remediate when appropriate.
- The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.
- The resident shall acknowledge medical errors, should they occur, and engage in their remediation.
- The resident shall provide a role model for medical students and for other residents.

Systems Based Practice

- Develop a better understanding of costs of EMG/NCVs and related procedures.
- Participate in any QA/QI that involves EMG/NCVs or related procedures.
- Use practice guidelines developed by the AAN for neuromuscular disorders.
- Access community, national, and allied health professional resources that may enhance the quality of life of patients with chronic neuromuscular disorders
- Demonstrate the ability to accept authority in healthcare teams needed to provide comprehensive care for patients
- Demonstrate skill in time management, clinical scheduling, and efficient communication with referring physicians
- Use appropriate consultation and referral mechanisms for the optimal clinical management of patients with complicated medical illness

To achieve these objectives, residents spend one or more months (up to six months maximum) at the Methodist University Hospital (Dr. Bertorini), Regional Medical Center (Dr. Menkes) or the VAMC (Dr. Menkes). Residents attend the weekly Muscular Dystrophy Association Clinic, where they see a wide variety of neuromuscular diseases, including hereditary neuropathies, dystrophies, polymyositis, myasthenia gravis and motor neuron disorders. Residents see patients first and write clinic notes after discussing the patients with an attending. They read assigned chapters from Kimura's Textbook of Electromyography, Bertorini's *Clinical Evaluation and Diagnostic Tests of Neuromuscular Disorders* and participate in a biweekly muscle biopsy review. Residents review muscle and nerve biopsies twice a week with members of the neuromuscular team using a multi-headed microscope and have the opportunity to review specimens from teaching files. Residents learn to perform nerve conduction and electromyographic studies under supervision. Approximately 6 cases are performed daily, which provides an ample opportunity to learn. Also, once a week selected cases are studied from the Neuromuscular Clinic. Residents are exposed to a variety of sophisticated electrophysiological techniques (e.g. single muscle fiber recordings) and have the opportunity to participate in clinical research projects (e.g. investigative therapies such as apheresis and other immunomodulatory therapies.)

Evaluation The resident will be evaluated within the framework of the objectives outlined above. The number of EMG and NCV studies that the residents perform will be monitored and included in the end of the month evaluation of the resident.

The Neurology Subspecialty Clinic rotation (Michael Jacewicz MD interim director)

Description and Objectives

Residents rotate through subspecialty clinics for one month in the PGY3 year. They may do so in the PGY2 or PGY4 year as an elective. The resident will examine patients under the supervision of attending neurologists with expertise in a subspecialty area. The patient encounters and clinical teaching should familiarize the resident with the subspecialties, and he/she should become aware of specific management issues common to each. This rotation may motivate the resident to identify a subspecialty interest prompting the resident to participate in a more concentrated subspecialty elective, engage in a research project or pursue a post-graduate fellowship.

The subspecialties covered include:

- 1. Epilepsy Wahba & Adamolekun
- 2. Neuromuscular Bertorini, Menkes & MDA clinic
- 3. Multiple sclerosis Levin
- 4. Movement disorders Pfeiffer
- 5. Stroke & headache Giraldo

Monday	Tuesday	Wednesday	Thursday	Friday
Adamolekun Bertorini	Menkes Bertorini	Pfeiffer Wahba MDA clinic	Pfeiffer Wahba	Bertorini
Adamolekun Wahba Pfeiffer Bertorini	Menkes Giraldo Bertorini	Pfeiffer Wahba Levin	Wahba Bertorini	Pfeiffer Bertorini

With input from the Director, the resident chooses among the subspecialty opportunities offered by the schedule above.

Clinics start at 8:30 AM and end at 5 PM

Residents will continue to attend their VA and Medplex clinics during this rotation.

Educational Objectives common to all the subspecialties will include

Patient Care

- Demonstrate competency in
 - neurological history taking
 - a. Chief complaint
 - b. History of present illness
 - c. Past medical history
 - d. A comprehensive review of systems
 - e. A biological family history
 - f. A sociocultural history
 - g. A developmental history (especially for children)
 - performing a general physical exam
 - performing a methodical and accurate neurological exam
 - determining if there is disease of the nervous system or of another origin (e.g., psychiatric or systemic)
 - recognizing functional, non-physiological signs and symptoms.
 - applying neuroanatomic principles in localizing the lesion
 - formulating a differential diagnosis
 - making informed decisions about diagnostic testing
 - developing and implementing a patient management plan
 - employing specific treatments using evidence-based medicine
 - obtaining appropriate consults
 - educating and counseling patients and family
 - considering patient preferences
 - obtaining informed consent
- Recognize which diagnostic tests are indicated including

- CT, CT angio, MRI, MRA, Cerebral angiography, CT myelogram and Doppler Ultrasound
 - EEG, EMG, evoked potentials, and sleep studies
- Recognize neurological emergencies, institute therapy and call for help when necessary.
- Obtain and maintain ACLS certification
- Demonstrate skill in the use of electronic systems to access medical, scientific, and patient information

Medical Knowledge

- Demonstrate knowledge of
 - Major disorders, including
 - a. epidemiology with considerations of age, gender, race, and ethnicity
 - b. etiology
 - c. phenomenology
 - d. pathophysiology, molecular mechanisms and pathology
 - e. impact of illness on the patient's functioning
 - f. appropriate family counseling
 - g. effective treatment strategies
 - h. course and prognosis
 - Healthcare delivery systems
 - Medical ethics
- Demonstrate ability to distinguish neurological from non-neurological complaints.
- Develop a refined working knowledge of neuroanatomy including
 - Functions of gray matter versus white matter
 - Deep and superficial cerebral map (Brodmann areas)
 - Brainstem anatomy
 - Spinal cord anatomy,
 - Major long tracts, how they laminate and where they cross.
 - Understand neurologic disorders in the context of the anatomy they affect.
- Demonstrate ability to localize the lesion anatomically.
- Identify the pathophysiology.
- Interpret neuro-radiological studies including
 - CT, CT angiograms and CT myelograms
 - MRI of brain and spine, MRA and MRV
 - Spectral and functional MRI
 - Plain x-ray films and myelograms
 - Cerebral angiograms
- Demonstrate a basic working knowledge for
 - interpreting neuro-imaging films and their reports
 - Plain film x-rays of the spine and skull
 - CT of the head and spine, CT angio, CT myelogram
 - MRI of the head and spine, MRA, MRV, MRS
 - Cerebral angiography
 - SPECT & PET
 - Interpreting ultrasound reports (Duplex, transcranial Doppler)
 - Interpreting neurophysiological reports
 - NCV/EMG
 - EEG, evoked potentials, EEG-video monitoring
 - Polysomnography
 - Performing & interpreting neurological procedures
 - lumbar puncture & CSF analysis
 - Tensilon testing
 - Ice water caloric testing
 - Apnea testing
 - Interpreting other tests
 - Neuropsychological testing
 - Perimetry
 - Audiometry
 - Autonomic testing
 - Interpreting reports of gross and microscopic biopsy specimens of the nervous system

Practice Based Learning and Improvement

- The resident will demonstrate his/her skills for independent self-improvement in the practice of neurology. This shall include use of:
 - medical libraries
 - information technology, Internet, Medline and other medical/drug databases
 - educational conferences at the local and national level
 - American Academy of Neurology Practice Guidelines (website and distributed on CD)

- calling national experts with specific questions not readily answered in the literature
- citing the relevant literature during teaching rounds and in conferences
- The resident will evaluate caseload and practice experience in a systematic manner. This may include:
 1. Case-based learning
 2. Use of best practices through practice guidelines or clinical pathways (AAN website)
 3. Review of patient records (CPRS at the VAMC)
 4. Obtaining evaluations from patients (e.g., outcomes and patient satisfaction forms)
 5. Employment of principles of quality improvement in practice
 6. Obtaining appropriate supervision and consultation
 7. Participating in the QA/QI conference for examining errors in practice and initiating improvements to eliminate or reduce errors
- The resident will demonstrate an ability to critically evaluate the relevant medical literature. This should include:
 1. knowledge of common methodologies employed in clinical research
 2. implementation of new knowledge to change practice and improve patient care, including the use of AAN practice guidelines and other evidence-based literature to make patient care decisions
 3. use of reliable assessment techniques to monitor improvement by the change in practice (e.g., Quality Improvement performance measure)
 4. writing journal article critiques for portfolio and participating in Journal Club
 5. writing CPC discussions for portfolio and participating in CPC conferences
 6. preparing case studies with literature reviews for portfolio and for teaching purposes
 7. developing and completing a research project
 8. developing effective remediation strategies that are based on critical review of the scientific literature
- Demonstrate self-learning by reading textbook chapters and relevant journal articles about their patient problems.
- Demonstrate scholarship by citing references

Interpersonal and Communication Skills

- In the presence of patients and their families, the resident shall demonstrate the ability to:
 - Carefully listen to patients and attend to nonverbal communication so as to understand their questions and concerns.
 - Demonstrate socio-cultural sensitivity to patients & families and their preferences
 - Speak plainly in jargon-free layman terms to communicate clearly and effectively (or otherwise gear the level of communication to the patient's educational and professional level).
 - Develop a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort
 - Partner with patients to assure compliance with a treatment plan
 - Educate and counsel patients and their families in a clear and meaningful fashion regarding
 42. Disease process, prevention and prognosis
 43. Informed consent including risk versus benefits of a procedure
 44. Alternatives to proposed treatment
 45. Compliance with a therapeutic plan
 46. End of life and palliative care
 47. Genetic counseling
 - Ask the patient and/or family to describe the therapeutic plan to make certain it is correctly understood.
 - Control the resident's own feelings and behavior so that it does not interfere with appropriate treatment
 - Communicate effectively and work collaboratively with nurses, students, clerks and other healthcare professionals involved in the patient's care.
- The resident shall demonstrate the ability to write notes that describe essential information with clarity and that are useful to other health professionals.
- The resident shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:
 1. Knowing when to solicit consultations
 2. Communicating clearly the reason for the consultation
 3. Discussing the consultation findings with the consultant
 4. Discussing the consultation findings with the patient and family

- The resident shall demonstrate the ability to serve as an effective consultant to other medical specialists. This shall include:
 - 29. Clarifying the consultation question by speaking directly with the physician requesting the consult
 - 30. Maintaining the role of consultant in follow-up
 - 31. Communicating clear and specific recommendations verbally and in writing
 - 32. Respecting the expertise of the requesting professionals when disagreements occur
- The resident shall maintain up-to-date medical records by
 - 7. Writing timely legible notes
 - a. Complete H&Ps
 - b. Concise substantive daily progress notes using the S.O.A.P. format
 - c. Concise discharge summaries
 - d. Patient instructions
 - 19. Writing timely legible orders
 - 20. Writing legible prescriptions.
 - 21. Dictating reports with clarity
- The resident shall demonstrate the ability to effectively lead a multidisciplinary treatment team, including being able to:
 - 1. Listen effectively
 - 2. Elicit needed information from team members
 - 3. Integrate information from different disciplines
 - 4. Manage conflict
 - 5. Clearly communicate an integrated treatment plan
- The resident shall demonstrate the ability to communicate effectively during rounds with
 - 31. Concise and accurate oral presentations
 - 32. Careful listening
 - 33. Effective command of pertinent patient details to answer questions
 - 34. Incisive questioning posed to the attending and others
 - 35. Literature citations relevant to the discussion
- The resident shall demonstrate the ability to teach medical students
 - In the fundamentals of daily routines (e.g., how to access labwork, patient records, neuroimaging and scheduling clerks, write orders and progress notes)
 - The neurological exam
 - Neuroanatomical localization of the lesion
 - Formulation of a diagnostic and therapeutic plan
 - Feedback on medical student notes that the resident co-signs
 - Counseling and educating patients and their families
 - Supervision of lumbar punctures and other procedures
 - How to prepare for oral presentations to the attending

Professionalism

- The resident shall demonstrate responsibility for their patients' care, including:
 - Responding to communication from patients and health professionals in a timely manner
 - Seeing patients promptly in clinic without prolonged delays
 - Seeing patients promptly in consultation at the ER, ICU and in the hospital
 - Rounding with the ward team on time
 - Communicating with the attending in a timely fashion
 - Ordering laboratory and diagnostic tests in a timely manner.
 - Arranging back-up for emergent and urgent care when necessary
 - Documenting the patient's course in the medical records in a timely fashion
 - Arranging coverage for absence (for example, when out of town or on vacation)
 - Coordinating care with other members of the medical and/or multidisciplinary team
 - Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary
 - Genuinely taking the attitude "the buck stops with me" and "I will go the extra mile" in the care of his/her patient.
- The resident shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care

- The resident shall demonstrate a courteous respect for patients and their families, regardless of their age, culture, disability, ethnicity, gender, socioeconomic background, religious belief, political leaning, and sexual orientation. Respect includes
 - Appropriate dress
 - Shaking hands on meeting the patient and family
 - Maintaining eye contact during conversations
 - Sensitivity to special cultural or ethnic needs of patients
 - Collegiality in interactions with patients and personnel
 - Delivering on promises to return a patient call, submit a timely prescription or fill out an insurance form.
- The resident shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care.
- The resident shall review their professional conduct and remediate when appropriate.
- The resident shall participate in the review of the professional conduct of his/her colleagues when circumstances require it.
- The resident shall acknowledge medical errors, should they occur, and engage in their remediation.
- The resident shall provide a role model for medical students and for other residents.

Systems Based Practice

The resident shall have a working knowledge of the diverse systems involved in treating patients. This will include the:

- Mandatory attendance at the campus wide lecture series on systems based practice
- Use of practice guidelines from the American Academy of Neurology website
- Ability to access community and national resources that improve the quality of life of patients with chronic neurological illnesses (e.g., National Epilepsy Foundation, ALS society, Muscular Dystrophy Association, National Parkinson's Foundation)
- Leading and/or delegating authority (as ward chief) to service team members and other healthcare personnel to provide comprehensive care for patients.
- Demonstration of skills in Neurology Clinic,
 - including time management (e.g., identifying patient bottlenecks and correcting them)
 - clinical scheduling
 - efficient communication with referring physicians
 - constructive feedback to questionnaires designed to improve clinic efficiency
- 6. Timely consultation for the optimal management of patients with complicated medical illness
- 7. Arranging and providing timely cross-coverage
- 8. Recognizing potential errors in reported medical data due to systems problems
 - delays in transferring samples to the lab,
 - laboratory error
 - mistaken identity
 - mistaken entry into a computerized data base.
- 9. Recognizing medical errors committed by health care providers and other personnel through periodic QA/QI conferences.
- The resident shall demonstrate
 - An understanding of health care costs and cost containment including
 - Selectivity in ordering neuro-imaging and other tests
 - Consideration of cost when treatments are comparable in efficacy
 - Cooperation with Pharmacy to use the most cost effective drugs.
 - Cooperation with case managers
 - Use of critical pathways
 - Ability to recognize and pre-empt non-medical reasons that prolong hospital length of stay
 - Accurate coding (CPT & ICD9) and proper documentation to secure timely reimbursement from third party payers
 - the ability to act as patient advocate.
 - knowledge of the legal aspects of neurological diseases as they impact patients and their families
 - an understanding of risk management by participating in the annual full day UT sponsored course.

- Knowledge of managed health systems including utilization review and patient safety.
 - knowledge of and interaction with community services that offer skilled nursing care, rehabilitation, substance abuse facilities, halfway houses, nursing homes and hospices.
- The resident shall demonstrate
 - A working understanding of patient safety issues that include
 - Prevention of the transmission of infectious diseases by health care personnel (e.g., annual TB testing, routine washing hands, wearing gloves and masks, reports of needle sticks)
 - OSHA regulations (e.g., by taking the mandatory annual UT sponsored course)
 - Hospital disaster drills (active participation in periodic code delta exercises at the VAMC)
- The resident shall demonstrate
 - A working understanding of patient privacy issues that include
 - HIPPA regulations (e.g., by taking the mandatory annual UT and VAMC sponsored course)
 - Cybersecurity training (e.g., by taking the mandatory annual VAMC sponsored course)
- Learn to recognize and pre-empt non-medical issues that prolong hospital length of stay
- Learn to be more selective in costly diagnostic tests
- Cooperate with Pharmacy to use the most cost effective drugs.

Objectives that are specific to each subspecialty are listed below:

Epilepsy

1. The resident will learn to take a competent Epilepsy history. This includes but is not limited to distinguishing seizures from syncope and other alterations in consciousness.
2. Based on the history, neuro-exam and other data, the resident will formulate a differential and offer a specific syndromic diagnosis.
3. The resident will learn the major seizure types and to recognize the advantages and limitations of current classification schemes such as the International Classification of Epileptic Seizures.
4. The resident will learn when to order diagnostic tests for Epilepsy such as EEG and video-EEG monitoring as well as their utility and limitations.
5. The resident will learn how specific seizure types are treated with specific anti-epileptic drugs (AEDs).
6. The resident will learn the pharmacology, efficacy, cost and toxicity of the AEDs and understand the issues involved in monotherapy versus polytherapy treatment.
7. The resident will learn about non-pharmacological treatments for epilepsy such as surgery, ketogenic diets and vagus nerve stimulation.
8. The resident will learn how patients cope with epilepsy and the socio-economic burden epilepsy places upon them.
9. The resident will learn how to educate the patient regarding driving, operating heavy machinery, bathing alone and other potentially hazardous activities.

Neuromuscular

1. The resident will learn to take a competent Neuro-muscular history and perform a neurological exam focused on muscle and nerve.
2. The resident will learn to recognize patterns of neuromuscular weakness and generate a differential diagnosis based on the presentation and examination (myopathy versus neuropathy).

3. The resident will learn the clinical presentations and neurological signs in patients with specific neuromuscular disorders (ALS, myotonic dystrophy, FSH dystrophy, dystrophinopathies, hereditary neuropathies, myasthenia gravis).
4. The resident will learn what diagnostic testing is indicated for the evaluation of patients with neuromuscular disease, including NCV/EMG, MRI, PFT, genetic and biochemical testing.
5. The resident will learn the treatments available, pharmacological and other, for neuromuscular disorders, their efficacy and limitations.
6. The resident will learn the multi-disciplinary needs and care options for patient with chronic and progressive neuromuscular diseases.

Multiple Sclerosis

1. The resident will learn to take a competent neurological history with special attention to issues common in multiple sclerosis (MS).
2. The resident will learn to recognize different presentations of MS, order appropriate diagnostic evaluations, and provide a differential for disorders that mimic MS.
3. The resident will learn to recognize the differing clinical courses of MS (e.g., relapsing remitting, secondary progressive, primary progressive) and their treatment and prognosis.
4. The resident will learn how to treat MS in an outpatient setting, including FDA approved drugs for prophylaxis and investigational drugs under study.
5. The resident will learn to recognize and treat common primary and secondary symptoms of MS and the potentially adverse effects of immunotherapy.

Movement Disorders / Parkinson Disease

1. The resident will learn to take a competent movement disorders history and refine his/her skills examining the pyramidal and extra-pyramidal motor systems.
2. The resident will learn to recognize common presentations of Parkinson's disease (PD) and other movement disorders and provide a differential diagnosis for conditions that mimic PD.
3. The resident will learn what diagnostic tests to order, their utility and limitations in the diagnosis of movement disorders.
4. The resident will learn how to administer a UPDS test.
5. The resident will learn to treat the parkinsonian features of PD with drugs, learn their utility, limitations and adverse effects.
6. The resident will learn to recognize the non-Parkinsonian symptoms of PD and to treat them.
7. The resident will learn to prescribe basic rehabilitation modalities (physical therapy, occupational therapy, speech therapy) for PD and other movement disorders including the use of assistive devices (walkers, wheelchairs, splints).

Stroke and Headache

Stroke

1. The resident will learn to take a competent cerebrovascular history and perform a careful neurological exam with special attention to the cardiovascular system.

2. The resident will learn to use his/her knowledge of neuroanatomy to reach an anatomic diagnosis with respect to the site of the stroke.
3. The resident will learn the risk factors for stroke and their treatment.
4. The resident will learn to diagnose the major types of stroke, including major arterial occlusive disease, small vessel disease and cardioembolism and provide secondary drug prophylaxis against future stroke.
5. The resident will learn to prescribe rehabilitation modalities (physical therapy, occupational therapy, speech therapy, dysphagia treatment) and to assess need for assistive devices.

Headache

1. The resident will learn to take a competent headache history and perform a careful neurological exam with special attention to the cranium, cranial nerve exam and funduscopy.
2. The resident will learn to recognize signs and symptoms that alert the physician of a potentially serious cause of the headache.
3. The resident will learn when to order additional tests such as CT or MRI in the evaluation of headache.
4. The resident will learn the utility and limitations of various headache classifications including the International Headache Society's classification scheme.
5. The resident will learn evidence-based medical treatments of migraine.
6. The resident will learn the efficacy and toxicity of various medications used to treat headache.
7. The resident will learn to provide the patient with education and to develop a treatment plan tailored to individual headache patient.

Resident evaluation

A global evaluation by each clinic attending will be forwarded to the Director of the rotation (temporarily Michael Jacewicz, MD) who will synthesize a summary within the format of the six core competencies. The resident will be given a standard evaluation form to fill out regarding the teaching and overall experience.

Child Neurology directed by Fred Perkins, MD (LBCMC, SJCRH)

The goals of this required four month rotation include: 1. the resident demonstrates competency in interviewing a child with neurological illness, 2. performs an accurate pediatric neurologic examination, 3. acquire skills in the diagnosis and management of common neurologic disorders such as epilepsy , 4. recognizes and identifies the diverse pathology offered by two major tertiary referral centers including but not limited to pediatric neuro-oncology., 5. develops personal qualities (i.e., dependability and promptness) and interpersonal skills in patient care (Humanistic attributes), 6. learns to assume increasing responsibility and demonstrates more accurate decision making as the training progresses, 7. develops a highly professional attitude and mannerism. The rotation includes the inpatient consult service at Le Bonheur Children's Medical Center and the Newborn Center, the outpatient service at the Physician's Office Building and experience with childhood neuromuscular disorders in the Muscular Dystrophy Clinic, and consultations at St. Jude Children's Research Hospital. Three months are spent at LeBonheur and one month at St. Jude. Residents are responsible for seeing all inpatient consults first, formulating their diagnostic and treatment plan, and writing the initial consult note. The diagnosis and plan are reviewed by the Child Neurology Attending. The Residents evaluate general pediatric neurology outpatients and present the patients to the attending Child Neurologist in one or more of the daily clinics. They attend the weekly Muscular Dystrophy Clinic and present the patients they have evaluated to their Attending. Residents will attend a weekly Pediatric Neurology conference at LeBonheur Thursday, 11 a.m.—noon. **The resident will present a patient and discuss their illness at this conference at least twice a month, while on the LCMC rotation. They will do at least one presentation a month while at SJCRH.** In addition, Pediatric Grand Rounds and Neurology Grand Rounds have regularly scheduled presentations devoted to child Neurology. The Child Neurology Library contains relevant texts and journals, a reprint file of selected articles, an EEG reading table for teaching Residents pediatric EEG, a VCR and monitor for reviewing educational tapes on pediatric neurology topics. The Program Director has accumulated case vignettes to study. **During the LeBonheur rotation, there will be an educational call coverage on Wednesdays from 5 PM to 10 PM and on Saturdays from 7 AM to 7 AM Sunday. During this period, the resident will be excused from weekend adult neurology call but may be included in backup call.**

Evaluation will be through global assessment by the attending and by an oral exam given at the end of the rotation. A written pretest and posttest exam will be developed during the course of the year.