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I. NEUROLOGY RESIDENCY PROGRAM GOALS AND OBJECTIVES

A. Introduction: Baylor College of Medicine Department of Neurology

1. Mission: Education, Patient Care, and Research

The mission of the Department of Neurology at Baylor College of Medicine is to translate advances in the basic science laboratory into meaningful therapy for the neurological afflictions of patients. At the same time, we provide an environment in which students and residents can learn medical and research skills and develop into the preeminent physicians and scientists of tomorrow.

In the past several years, we have seen an explosion of new knowledge and understanding of the biochemical, physiological, pharmacological, and molecular make-up of the nervous system. These advances in basic neuroscience have led to new ways of diagnosing human neurological disease, new methods for treating previously untreatable diseases, and new insights into the effective control of stroke, dementia, epilepsy, Parkinson's Disease, ALS, multiple sclerosis, Alzheimer's disease, a variety of other neurologic diseases. Our primary goal in the Department of Neurology is to continue these advances through basic research and intensive educational activities and to integrate them into patient care. Through this approach, we will achieve excellence in the clinical, research, and educational inquiry into the human brain and nervous system.

Training the next generation of neurologists is central to the department's overarching mission.

2. Code of Professionalism

The Baylor College of Medicine Neurology Department Residency program believes that a professional gains its credibility by its commitment to society. As a professional group, we recognize our obligation to our patients, colleagues, community, families, and ourselves. Realizing that it is a privilege and an honor to be a medical professional, we the residents, fellows, and faculty of the Baylor College of Medicine embrace the following ideals:

- Patient welfare is our primary concern, for only by commitment do we justify the trust placed in us by patients and the community at large. Although we hold the acquisition of knowledge and the development of technical skills essential to patient care, we shall strive to balance the science with the art of medicine by maintaining respect and compassion for the dignity of all patients. Each patient shall receive our best efforts regardless of personal feelings or biases. Desires for social or economic gain shall not affect the honesty and integrity with which we deal with patients. Nor shall the pressures placed upon the members of our profession compromise the quality of care we provide.

- Relationships with our colleagues are an exceedingly important part of professional conduct. Our interactions with colleagues provide us a sense of support, trust, and sharing. As members of a community professional, we shall be aware that our personal conduct reflects upon others of that community. We shall be willing to share our knowledge and expertise with colleagues and remain open to their advice and criticism. We shall fulfill our own responsibility and, in the spirit of professional cooperation, accommodate a colleague if our assistance is requested. We shall be sensitive to the physical and emotional weaknesses of a colleague and shall lend support in time of need. Further, our responsibility to patient care implies identification of colleagues whose ability to provide care is impaired. This must be followed by our full support toward the rehabilitation of those colleagues, and their reintegration into the professional community.

- Integrating personal growth into our professional development is essential to our commitment to medicine. To this end, we shall be attentive to our needs for physical, spiritual, and emotional well being. We shall allow time for personal and family relations which enrich our lives and promote self knowledge. Attention to personal maturation, family commitments and professional growth represent a continuing challenge throughout our career.

- As medical professional, we realize that we share with all citizens certain civic duties. We shall strive to be responsible citizens. Our professional status shall not be used as a means to power and control. Rather, we seek to offer informed and compassionate leadership.
B. Mission Statement: A Commitment to Residents

It is the mission of the Baylor College of Medicine Neurology Department Residency Program to

- Foster a resident's growth into a compassionate, intellectually curious, and critically thinking neurologist who is empowered to provide expert care for patients suffering from the most common to the rarest of neurological conditions;
- Nurture a learning, work, research, and patient care environment characterized by professionalism, integrity, mutual respect, cooperation, mentorship, and open lines of communication;
- Promote a consistently high level of intellectual integrity and achievement;
- Encourage balance between professional and personal life.

C. ACGME Core Competencies: Introduction and Definitions

The overarching goal of the Baylor College of Medicine Neurology Residency Program is to provide an educational and clinical experience in which residents develop into physicians who are capable of practicing neurology compassionately, competently, and independently and who engage in the habits of self-reflection, critical thinking, and life-long learning. Residents are trained so that they may successfully achieve certification by the American Board of Psychiatry and Neurology and pursue a wide variety of careers ranging from academic subspecialty neurology to general neurology private practice. Residents work and learn in a wide variety of clinical settings and are actively taught in a variety of formats to ensure proficiency in the six ACGME Core Competencies - Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism, and Systems-Based Practice - as they apply to Neurology. Thus, the goals of the program are to train residents to perform the following competently:

- **Patient Care** — Provide patient care across the lifespan in both the outpatient and inpatient settings (wards, consultations, emergency department, and intensive care units) that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.
- **Medical Knowledge** — Acquire knowledge about established and evolving basic sciences, clinical sciences, epidemiological and social-behavioral sciences and analyze and apply this medical knowledge to the care of patients with neurological disorders.
- **Practice-Based Learning and Improvement** — Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of neurology, and improve patient care practices.
- **Interpersonal and Communication Skills** — Employ the interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients (many of who may either suffer cognitive impairment or may not speak English), patients' families, and professional associates to provide optimal care.
- **Professionalism** — Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a diverse patient population.
- **Systems-Based Practice** — Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value.

D. Goals and Objectives by Year of Training

1. **PGY1**

The Neurology Review Committee of the ACGME has set forth special supervision and duty hour restrictions for PGY1 residents since they are First Year Residents. All objectives outlined below are fulfilled within the context of a residency training infrastructure complaint with the ACGME supervision and duty hour regulations.

a) **Patient Care**

The PGY1 resident serves as the principal physician interfacing with the patient and the patient's family. PGY1 residents spend nine months of the year caring for patients on the general internal medicine services, sub-speciality internal medicine services, the Medical Intensive Care Unit (MICU), the Emergency Center. PGY1 residents spend one month caring for patients with psychiatric illness on the psychiatry consult service, one month on an inpatient neurology stroke service, and one month in the Neurological Intensive Care
Unit (NICU). The resident provides documentation of patient illness, manages and schedules tests, and deals with logistics of patient care with the assistance and supervision of the Senior Resident (depending on the service), the fellow (depending on the service), and the attending physician. The PGY1 resident will obtain competence in identification of medical and psychiatric emergencies and in the management of common conditions for which patients are hospitalized on internal medicine services. The PGY1 resident will gain confidence in developing a thoughtful differential diagnosis and an appropriate, holistic management plan that addresses both medical and psychosocial issues.

Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the outpatient and inpatient adult neurology patient presenting with a variety of medical, neurological, or psychiatric issues. Residents are expected to:

- Develop the necessary skills to take a complete history and physical examination of both the awake cognitively intact, awake cognitively impaired, and the unconscious patient in the inpatient setting presenting with a medical emergency, an acute exacerbation of a chronic medical problem, or a psychiatric problem.
- Develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the medical inpatient and outpatient as well as the patients seen on the psychiatry consultation service.
- Understand the diagnostic and laboratory studies for diagnosis and management including radiography, and laboratory blood, cerebrospinal fluid, and tissues analysis.

b) Medical Knowledge

The PGY1 resident must acquire and demonstrate increasing medical knowledge of major medical conditions of the adult medical patient presenting to the emergency department or admitted to either an internal medicine ward or a medical intensive care unit. The resident must demonstrate a basic understanding of commonly encountered psychiatric illnesses in the general medical setting. This knowledge base must account for considerations relating to age, gender, race, ethnicity, inheritance pattern, socioeconomic status, and sexual orientation and based on the scientific literature and standards of practice. Residents are expected to:

- Identify the acute and chronic presentations of common illnesses in the adult patient with diseases that require hospitalization.
- Translate this knowledge into an appropriate differential diagnosis and an appropriate management plan formulated under the supervision of a senior resident and attending physician. At the PGY1 level the emphasis will be on the identification, differential diagnosis, and initial management of the common diseases, including emergencies, of the adult population encountered in the inpatient setting. Diseases encountered and managed will including, but will not be limited to, the following medical sub-specialties:
  - Infectious Diseases
  - Cardiology
  - Pulmonology
  - Nephrology
  - Gastroenterology
  - Endocrinology
  - Rheumatology
  - Dermatology
  - Critical Care
  - Hematology
  - Oncology
  - Neurology, with an emphasis on neurological complications of systemic illness
  - Psychiatry, including complications of alcoholism and substance abuse
  - Medical management of the surgical patient

- Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events for common medical and psychiatric diseases.
- Become familiar with non-pharmacologic management and monitoring of outcomes and progression of common medical and psychiatric diseases.
- Become familiar with indications for specialty evaluation and implement the appropriate patient referrals.
- Identify abnormalities important for the management of medical emergencies on radiographic and laboratory studies.
c) Interpersonal and Communication Skills

PGY1 residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to perform the following:

- To communicate effectively with patients using verbal, nonverbal, and written skills as appropriate regarding:
  - Clinical impression and results of assessment
  - Outcomes and prognosis
  - Recommended treatment and management plans and associated risks and benefits
  - Genetic counseling and palliative care
  - Alternative treatment plans
  - Education about the conditions and referral to reliable outside sources of education, advocacy, and support
- To develop a physician-patient relationship based upon honest and open communication and respect and to partner with patients to develop a treatment and healthcare management plan.
- To become proficient at communicating effectively and working collaboratively with allied health professionals and other professionals involved in patient care.
- To become proficient at educating patients, families, and professionals about issues related to medical, psychiatric, and neurological conditions.
- Maintain accurate and clear medical documentation.
- Write legible prescriptions and orders.
- Dictate accurate and clear documentation of patient encounters and assessment for the medical fact.

d) Practice-Based Learning and Improvement

PGY1 residents must demonstrate the skills for obtaining up-to-date information from scientific and practice literature to assist in quality patient care. Residents are expected to perform the following:

- Use web-based databases available within and outside the hospital setting with reliable medical information.
- Use medical libraries within and outside the hospital setting.
- Maintain attendance at didactics and conferences that provide continual education. While rotating on internal medicine rotations, PGY1 residents should attend all required internal medicine didactics. While rotating on psychiatry, PGY1 residents should attend the didactic psychiatry didactics developed for neurology residents. While rotating on the neurology service, PGY1 residents should attend required neurology didactics.

e) Professionalism

PGY1 residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Resident must demonstrate an understanding of professional conduct for themselves and other professionals and remediate when appropriate. Residents are expected to:

- Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Adequately document patient care management and patient interaction.
- Obtain informed consent from patients for all procedures in which they participate.

f) Systems-Based Practice

PGY1 residents must demonstrate knowledge of the systems involved in treating the inpatient, use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:

- Access and utilize practice guidelines and parameters.
- Access community and allied health professional resources, including but not limited to social work services, disease specific advocacy organizations, indigent care or charity programs, drug assistance programs.
- Participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
• Understand the challenges and available resources in providing care to low income and medically uninsured or underinsured patients in the Harris County Hospital District system and navigate the system to the benefit of patients.
• Understand and navigate the system of healthcare delivery offered by the Veterans Administration as practiced at the Michael E. DeBakey Veterans Affairs Medical Center to the benefit of patients.
• Understand and navigate the system of healthcare delivery offered by private hospitals and clinics and the challenges facing patients with adequate health insurance to the benefit of patients.
• Participate as appropriate in multidisciplinary conferences.

2. PGY2

The Neurology Review Committee of the ACGME considers the PGY2 resident an Intermediate Year resident for purposes of supervision and duty hour requirements. All objective outlined below are fulfilled within the context of a residency training infrastructure complaint with the ACGME supervision and duty hour regulations.

a) Patient Care

The PGY2 resident serves as the principal neurologist interfacing with the patient, the patient's family etc. The resident provides documentation of patient illness, manages and schedules tests, and deals with logistics of patient care with the assistance and supervision of the Final Year Resident (depending on the service) and the attending physician. The PGY2 will evaluate and manage patients on the neurology wards, on the neurology consultation service, in the emergency department, and in the Neurological Intensive Care Unit (NICU) as well as on in the outpatient clinic. The PGY2 will build on patient care skills developed during the PGY1 year and achieve competence in the identification of neurological emergencies and common neurological diseases seen in general neurology. S/he will gain confidence in developing an appropriate differential diagnosis grounded in neuroanatomical localization and in the development of an appropriate, patient-centered management plan that addresses both medical and psychosocial issues.

The PGY2 resident must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the outpatient and inpatient adult neurology patient presenting with a variety of neurological issues. The PGY2 resident expected to develop competency in performing the following patient care responsibilities:

• Develop the necessary skills to take a complete history and physical examination of both the awake cognitively intact, awake cognitively impaired, and the unconscious patient in the inpatient setting presenting with a neurological emergency, an acute exacerbation of a chronic neurological problem, or a neurological complication of a systemic disease.
• Develop the necessary skills to take a complete history and physical examination of the adult patient presenting to the Neurology clinic with a common neurological problem.
• Develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the neurology inpatient and outpatient.
• Understand the diagnostic and laboratory studies for diagnosis and management including radiography, electrodiagnostic studies, and laboratory blood, cerebrospinal fluid, and tissues analysis.
• Perform lumbar punctures in the outpatient and inpatient settings and monitor response and possible adverse effects.

b) Medical Knowledge

The PGY2 resident must build on the medical knowledge acquired during the PGY1 year and acquire and demonstrate increasing medical knowledge of major neurological conditions and neurological complications of systemic diseases including considerations relating to age, gender, race, ethnicity, inheritance pattern, socioeconomic status, and sexual orientation and based on the scientific literature and standards of practice. The PGY2 resident is expected to perform the following competently:

• Demonstrate knowledge of the adult presentation of acquired and inherited disorders of the central and peripheral nervous systems including the relevant genetics, pathophysiology, diagnosis, and management.
• Identify the acute and chronic presentations of common neurological diseases, translate this knowledge into an appropriate neurological differential diagnosis including appropriate localization in the neuroaxis, and then translate this differential diagnosis to an appropriate management plan. At the PGY2 level the emphasis will be on the identification, differential diagnosis, and initial management of the neurological emergencies (inpatients) and the common outpatient neurological diseases. See Appendix B for a list of commonly seen neurological diseases with which the resident should
acquire familiarity over the PGY2 year (the PGY2 resident who has not had a Child Neurology rotation is not expected to obtain familiarity with Child Neurology diseases unless s/he rotates on the Child Neurology resident during that year).

- Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events for common neurological diseases.
- Become familiar with non-pharmacologic management and monitoring of outcomes and progression of common neurological disease.
- Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.
- Identify abnormalities important for the management of neurological emergencies and common outpatient neurological diseases on CT and MRI of the brain and spinal cord as well as CT and MR angiography of the cerebrovascular system.

c) Interpersonal and Communication Skills

The PGY2 resident must build on the skills acquired during the PGY1 year and acquire and demonstrate the ability to communicate effectively with the neurology patient, patient advocates, other health care providers, and community and hospital-based programs. Residents are expected to perform the following:

- Communicate effectively with both neurology outpatients and inpatients using verbal, nonverbal, and written skills as appropriate regarding:
  - Clinical impression and results of assessment
  - Outcomes and prognosis
  - Recommended treatment and management plans and associated risks and benefits
  - Genetic counseling and palliative care
  - Alternative treatment plans
  - Education about the conditions and referral to reliable outside sources of education, advocacy, and support
- Develop a physician-patient relationship based upon honest and open communication and respect.
- Partner with patients to develop a patient-centered treatment and healthcare management plan that takes into account the patient's medical and psychosocial needs.
- Become proficient at communicating effectively and working collaboratively with allied health professionals and other professionals involved in patient care.
- Become proficient at educating patients, families, and professionals about issues related to neurological conditions.
- Maintain accurate and clear medical documentation.
- Write legible prescriptions and orders.
- Dictate accurate and clear documentation of patient encounters and assessment of the medical facts.

d) Practice-Based Learning and Improvement

The PGY2 resident must build on the knowledge skills acquired during the PGY1 year and must demonstrate the skills for obtaining up-to-date information from scientific and practice literature to assist in quality patient care in neurology. Residents are expected to perform the following:

- Use web-based databases available within and outside the hospital setting with reliable medical information.
- Use medical libraries within and outside the hospital setting.
- Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology.

e) Professionalism

The PGY2 resident must build on the skills developed during the PGY1 year and demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals in a timely and appropriate manner. The PGY2 resident must demonstrate an understanding of professional conduct and remediate when appropriate. Residents are expected to perform the following:

- Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
• Adequately document patient care management and patient interaction.
• Obtain informed consent from patients for neurology procedures in which they participate.
• Guard the patient's privacy.

**f) Systems-Based Practice**

The PGY2 resident must build upon knowledge developed during the PGY1 year and demonstrate knowledge of the systems involved in treating the inpatient and outpatient neurology patient, use of the systems as part of a comprehensive system of care of patients with neurological disorders, and how to assist patients with neurological disorders to access appropriate care. Residents are expected to perform the following:

• Access and utilize practice guidelines and parameters of the American Academy of Neurology and other relevant academies and institutions of authority.
• Access community and allied health professional resources, including but not limited to social work services, disease specific advocacy organizations, indigent care or charity programs, and drug assistance programs.
• Participate with healthcare teams to provide comprehensive care for the neurology patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
• Understand the challenges and available resources in providing care to low income and medically uninsured or underinsured neurology patients in the Harris County Hospital District system and navigate the system to the benefit of patients.
• Understand and navigate the system of healthcare delivery offered by the Veterans Administration to the neurology patient as practiced at the Michael E. DeBakey Veterans Affairs Medical Center to the benefit of patients.
• Understand and navigate the system of healthcare delivery offered by private hospitals and clinics to the neurology patient and the challenges facing patients with adequate health insurance to the benefit of patients.
• Participate as appropriate in multidisciplinary conferences.

3. **PGY3**

The Neurology Review Committee of the ACGME has designated the PGY3 resident as a Final Year Resident for the purposes of supervision and duty hour rules. All objective outlined below are fulfilled within the context of a residency training infrastructure complaint with the ACGME supervision and duty hour regulations.

**a) Patient Care**

The PGY3 resident will build on patient care competency developed in the PGY1 and PGY2 and perform the following:

• Interpret genetic, laboratory and procedural results and apply this information to diagnose and manage the adult and child* neurology patient.
• Understand and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, electrodiagnostic tests, specialty consultations.
• Identify and describe abnormalities on neuroradiographic tests and propose appropriate interventions based on accurate interpretations.
• Understand the interpretation of neuropathology reports and propose interventions based on accurate interpretations.
• Become familiar with EMG/NCV reports and the interpretation of data and propose appropriate interventions based on accurate interpretations.
• Become familiar with EEG reports and the interpretation of data and propose appropriate interventions based on accurate interpretation.
• Attain competence in evaluating patients on other services for whom a neurological consultation is requested in the inpatient setting, emergency center, and intensive care unit settings and communicate a cogent differential diagnosis and management plan to the consulting team.
• Attain competence in evaluating common neurological disease seen in sub-specialty neurology clinics.
• Obtain a complete History and Physical Examination in a child* presenting with a neurological issue and understand the basics of pediatric neurological differential diagnosis and management.
• Demonstrate appropriate Patient Care by passing all of the required American Board of Psychiatry and Neurology (ABPN) NEX clinical examination by the end of the PGY3 year (with the exception of child neurology if that rotation has not been completed).
b) Medical Knowledge

The resident will incorporate the following medical knowledge objectives in addition to those acquired in the PGY1 and PGY2 year. Residents are expected to:

- Refine and deepen understanding of the neurological disorders listed in Appendix B as well as other disorders that are encountered on clinical services but not listed in the Appendix including disease seen in the pediatric population (deferred until PGY4 if PGY3 resident does not complete a Child Neurology rotation during the PGY3 year).
- Synthesize this knowledge into expanded differential diagnostic ability grounded in neuroanatomical localization.
- Employ the patient's history and physical examination findings to distinguish among the possible differential diagnostic possibilities and synthesize the data to propose an appropriate, evidence-based patient-centered management plan.
- Improve ability to localize lesions in the neuroaxis and synthesize this knowledge into a differential diagnosis.
- After accurately identifying abnormalities on common neuroimaging studies, implement an appropriate treatment plan to address the abnormality.
- Increase confidence in interpretation of cerebrovascular studies such as CT and MR angiogram and conventional 4-vessel angiography.
- Apply knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
- Apply knowledge of non-pharmacologic management and monitoring of outcomes and progression.
- Institute appropriate subspecialty and non-neurology evaluations, including surgical and endovascular interventions, and implement the appropriate patient referrals.
- Understand the results of neuropsychological testing and the patterns expected in different dementia and psychiatric syndromes.
- Help facilitate resident and Physician's Assistant educational conferences including journal clubs and Performance Improvement (PI) Conferences.
- Demonstrate appropriate Medical Knowledge by passing all of the required ABPN NEX examination by the end of the PGY3 year (with the exception of child neurology if that rotation has not been completed).

c) Interpersonal and Communication Skills

The resident will incorporate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to perform the following:

- Communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care in multidisciplinary rounds and other venues.
- Educate patients, families, and professionals in the about issues related to neurological conditions.
- Obtain, interpret, and evaluate consultations from other medical specialties.
- Serve as a consultant to other medical specialists, mental health professionals, and community agencies and communicate assessment, management plan, and follow up clearly and effectively.
- Review and supervise documentation and medical records of junior residents and medical students in order to maintain accurate and clear medical documentation.
- Edit and correct dictations and medical reports for medical records.
- Demonstrate appropriate Interpersonal and Communication skills by passing all of the required ABPN NEX examination by the end of the PGY3 year (with the exception of child neurology if that rotation has not been completed).

d) Practice-Based Learning and Improvement

The resident will incorporate the following competency objectives in addition to those acquired in the PGY1 and PGY2 year. Residents are expected to perform the following:

- Utilize practiced-based guidelines for evaluation and management of the neurology adult patient.
- Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.
- Present cases for discussion during PI conferences, identify the competencies implicated and propose a quality improvement project to address the errors.
• Present articles in journal club using the techniques of Evidence-Based Medicine.

e) **Professionalism**

The resident will incorporate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to perform the following:

- Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
- Provide and ensure adequate cross coverage of patients.
- Coordinate care of other health care providers and multidisciplinary team members in care of patients in outpatient clinics and on inpatient services.

f) **Systems-Based Practice**

The resident will incorporate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to perform the following:

- Coordinate and participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
- Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
- Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

4. **PGY4**

The Neurology Review Committee of the ACGME has also designated the PGY4 resident as a Final Year Resident for the purposes of supervision and duty hour rules. All objective outlined below are fulfilled within the context of a residency training infrastructure compliant with the ACGME supervision and duty hour regulations.

a) **Patient Care**

The PGY4 resident will incorporate the following competency objectives in addition to those acquired in the PGY1, PGY2, and PGY3 years. The PGY4 resident will perform the following:

- Know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases including the following studies:
  - EMG/NCV and Repetitive Nerve Stimulation
  - Evoked potentials
  - EEG and Epilepsy monitoring
  - Polysomnography
  - Special studies of CSF, blood, and tissue
  - Non-neurologic tests important for the evaluation and treatment of patients with neurological disease (e.g. Pulmonary Function Tests in neuromuscular patients)
- Identify and describe abnormalities on neuroradiographic tests, including the following studies:
  - Transcranial Doppler
  - PET/SPECT functional imaging
  - MRI/ Diffusion Tensor imaging
  - MR Spectroscopy
  - Cerebral Angiography
- Identify and describe gross and microscopic specimens taken from a patient brain, muscle, and nerve biopsy to aid in diagnosis and management.
b) Medical Knowledge

The PGY4 resident will incorporate the following competency objectives in addition to those acquired in the PGY1, PGY2, and PGY3 years. The PGY4 resident is expected to perform the following:

- Synthesize knowledge of the neurological disease to be able to teach peers, junior residents, allied health professionals, and medical student effectively about the pathophysiology and management of these disorders (see Appendix B).
- Demonstrate advanced knowledge of neurogenetic disorders and syndromes including mechanisms of disease and therapeutic and experimental intervention.
- Demonstrate knowledge and management of neuropsychiatric disorders including malingering, somatiform disorders as they relate to neurological disease. Know diagnostic and interventions to determine organic versus psychogenic etiologies.
- Demonstrate increasing confidence in the evaluation and management of children presenting with common neurological diseases.

c) Interpersonal and Communication Skills

The resident will incorporate the following competency objectives in addition to those acquired in the PGY1, PGY2, and PGY3 years. The PGY4 resident is expected to perform the following:

- Lead the team in communication with consulting services, allied health professional, family and patients.
- Coordinate patient care conferences with consulting services, social services, and support staff to communicate treatment and management plans.
- Communicate goals of team to junior residents and students as outlined by the attending physician and effectively supervise team performance and communicate performance evaluation under direction and guidance of attending physician.

d) Practice-Based Learning and Improvement

The PGY4 resident will incorporate the following competency objectives in addition to those acquired in the PGY1, PGY2, and PGY3 years. The PGY4 resident is expected to perform the following:

- Participate in local, national, and possibly international continuing medical education conferences and courses to advance knowledge and up date clinical practices.

e) Professionalism

The resident will incorporate and demonstrate competency in all objectives listed in the PGY1, PGY2, and PGY3 years of training. PGY4 residents will also perform the following:

- Role-model professional behavior for lower level residents and medical students.

f) Systems-Based Practice

The resident will incorporate the following competency objectives in addition to those acquired in the PGY3 year. PGY4 residents will also perform the following:

- Coordinate care plans within a multidisciplinary team for outpatient and inpatients.
- Participate in ongoing monitoring of patient outcomes through follow up care.
E. Supervision and Progressive Responsibility for Patient Management

This general overview of the roles, responsibilities and functions of a neurology resident in the Baylor College of Medicine Department of Neurology addresses issues relating to degrees of independent clinical practice, interactions with and supervision by faculty, performance of procedures and interactions with or supervision of other residents or medical students. It is expected that residents will demonstrate ongoing professional maturity and increasing responsibility during each training year and will progressively transition into the next level by the end of each academic year. The ultimate decision as to the readiness of a resident to assume greater responsibility for patient care as the resident moves along the continuum of neurology residency training rests with the Neurology Residency Program Director in consultation with the Education Committee of the Department of Neurology. All decisions are made with adherence to Accreditation Council for Graduate Medical Education, American Board of Psychiatry and Neurology, the Texas Medical Board, and Baylor College of Medicine Graduate Medical Education and Neurology Department policies.

Residents are under the ultimate supervision of attending physicians who are members of the faculty and active medical staff with appropriate credentials and clinical privileges. The teacher/trainee relationship is fundamental to this policy and is founded on respect and professionalism. Much of the learning process and the development of progressive responsibility are based on teaching by example under supervision. Supervision and close observation prove to supervising faculty members, Program Director, the Program's Education Committee the ability to ascertain when a resident is ready and able to assume progressive responsibility for patient care. This readiness is reflected in the evaluation process with evaluations completed in a timely fashion and addressing the achievement of core competencies at levels commensurate with year of training. Patient safety and continued performance improvement in patient care are fundamental to this policy on Supervision and Progressive Responsibility.

Explicit written descriptions of supervisory lines of responsibility for the care of patients by year of training, developed by the Neurology Residency Program and enumerated below, are communicated to all residents and all attending physicians within the Program. Residents have reliable systems for communication and interaction with supervisory Final Year residents and attending physicians. Residents are supervised in such a way that the resident assumes progressively increasing responsibility according to his or her level of education, ability and experience. On-call schedules for attending physicians and Final Year residents are structured to ensure that supervision is readily available to residents on duty.

1. Expectations and Obligations of Attending Physicians Supervising Residents

The supervising attending physician has the following obligations to his or her residents regardless of the residents' year of training:

- Acknowledging his or her responsibility for all medical decisions regarding his/her patient;
- Providing oversight and supervision of all care residents provide in a manner that ensures patient safety and respects the educational process of residency training;
- Assuring his or her accessibility to residents at all times either in person or through telecommunication technology as required by ACGME policy and as the resident and the clinical situation demand for optimal patient safety;
- Role-modeling professional behavior at all times;
- Encouraging residents to seek guidance from the attending physician at any time the resident believes it to be helpful in the care of the patient;
- Stipulating that it is only the failure to seek guidance the will be considered problematic;
- Providing feedback that is timely, appropriate, and respectful;
- Developing and documenting a medical management plan for each patient in conjunction with the house staff and consulting services;
- Ensuring that the residents to whom the attending delegates responsibility for implementation of the medical management plan have sufficient training, experience, competence, and technical and intellectual support to undertake such management; and
- Communicating clearly to each resident when he or she expects to be contacted by the resident. At a minimum, the trainees must be told to notify the attending physician of the following situations regardless of the time of day or day of the week:
  - Significant changes in the patient's medical or neurological condition;
  - Transfer of a patient to the intensive care unit;
  - Need for intubation or ventilator support;
  - Cardiac arrest or significant changes in hemodynamic status;
  - Medication errors or any other medical errors requiring clinical intervention;
  - Any significant clinical problem that will require an invasive procedure or operation;
  - End-of-life decision making process resulting in code status change;
2. First Year Resident (PGY1)

The PGY1 year is the preliminary training year of the Baylor College of Medicine Neurology Residency Program. The First Year Neurology resident spends eight months on internal medicine rotations (including ICU, wards, subspecialty, and night float rotations), one month on an emergency medicine rotation, one month on a psychiatry consultation rotation, and two months on an inpatient neurology rotation. The First Year Resident is expected to develop a solid grounding in internal medicine and emergency medicine, a basic understanding of psychiatric disease, and an introduction to medically complex neurology patients. During this year, the PGY1 serves as the principal physician interfacing with the patient (family, associates, etc.). The PGY1 resident provides documentation of patient illness, manages and schedules tests, and deals with logistics of care. The PGY1 provides this care under direct supervision or under indirect supervision with direct supervision immediately available by a senior resident, fellow, or attending physician. Under these appropriate lines of supervision as mandated by the ACGME, the First Year Resident's duties thus include:

- Rounding daily on all patients on the service, sharing responsibility for weekend rounds with the Senior Resident;
- Writing a full admission note emphasizing the relevant service's required aspects of diagnosis, formulation, planned evaluations, and therapies;
- Writing daily progress notes summarizing the patient status, analysis, and formulation of diagnosis and plan;
- Presenting patients to the ward attending on floor patients, the clinic attendings on outpatient rotations, the critical care attending and fellow on ICU patients, the emergency medicine attending on the emergency medicine rotation, and the psychiatry attending on the psychiatry consultation and Liaison service;
- Presenting and demonstrating the salient findings and discusses diagnosis and rationale of plan with the upper level resident and Attending;
- Participating in weekly multidisciplinary Social Work rounds as required by the service;
- Attending Morning Report on internal medicine rotations and all required noon conferences on all rotations;
- Sharing night coverage that is compliant with ACGME Work Hour and Supervision Rules;
- Teaching medical students, with an emphasis on practical aspects of daily patient care;
- Recognizing the limits of his or her own knowledge and asking for help from colleagues and attending physicians as the clinical circumstances dictate;
- Engaging in self-care to mitigate fatigue and risk of burn-out;
- Utilizing appropriate psychosocial support to handle the stresses of residency training when needed.

3. Intermediate Level Resident (PGY2)

The Neurology Residency Review Committee of the ACGME designates the PGY2 resident as an Intermediate Year resident. The intermediate year neurology resident rotates on a variety of inpatient and outpatient rotations to gain a solid understanding of the basic management of neurological patients with a wide range of conditions in a variety of clinical settings. Therefore, the Intermediate Year Resident continues to serve as the principal physician interfacing with the patient (family, associates, etc.). With a solid foundation in internal medicine and exposure to psychiatry and neurology obtained during the first year of training, the PGY2 neurology resident is now able to focus clinical attention on patients with neurological disease and provide documentation of the patient's illness, manage and schedule tests, and deal with logistics of care. The Intermediate Year resident provides this care under direct supervision, indirect supervision with direct supervision immediately available, or indirect supervision with direct supervision available by a senior resident, fellow, or attending physician. Under these appropriate lines of supervision as mandated by the ACGME, the Intermediate Year Resident's duties thus include:

- Rounding daily on all patients on an inpatient service, sharing responsibility for weekend rounds with the Senior Resident;
- Seeing assigned clinic patients on an outpatient service;
- Writing a full admission note or an outpatient clinic note emphasizing neurologic aspects of diagnosis, formulation, planned evaluations, and therapies;
- Writing daily progress notes summarizing the patient status, analysis, and formulation of diagnosis and plan for assigned inpatients;
• Presenting patients to the ward attending on floor patients, the clinic attendings on outpatient rotations, and the neurocritical care attending and fellow on NICU patients;
• Presenting and demonstrating the salient neurological findings and discusses diagnosis and rationale of plan with the upper level resident and attending for inpatient rotations and with the attending for outpatient rotations and with the fellow and attending for NICU rotations;
• Participating in weekly multidisciplinary Social Work rounds as required by the inpatient service;
• Attending all required noon conferences and Professor rounds on all rotations;
• Sharing night coverage that is compliant with ACGME supervision and duty hours rules;
• Teaching medical students and interns, with an emphasis on practical aspects of daily patient care;
• Recognizing the limits of his or her own knowledge and asking for help from colleagues and attending physicians as the clinical circumstances dictate;
• Engaging in self-care to mitigate fatigue and risk of burn out; and
• Utilizing appropriate psychosocial support to handle the stresses of residency training when needed.

4. Final Years Residents (PGY3 and PGY4)

The Neurology Residency Review Committee of the ACGME designates PGY3 and PGY4 residents as Final Years Residents. Among the Final Year residents, the PGY3 resident's leadership and supervisory skills are acknowledged to be relatively less well formed than the PGY4 resident's abilities. Both levels are expected to have achieved sufficient competency to supervise First Year and Intermediate Year residents. Final Years Residents provide direct supervision or indirect supervision immediately available to PGY1 residents. They also provide direct supervision and indirect supervision immediately available or available to Intermediate Year residents. The attending physician is expected to provide supervision of the Final Years residents ranging from direct supervision to indirect supervision available depending on the clinical situation and the clinical skills and competency of the individual resident. The attending physician is expected to provide closer supervision of the PGY3 Final Year Resident, especially early in the transformative process from Intermediate Level resident to Final Year Resident, then s/he may provide the PGY4 Final Year Resident. The supervising attending physician is expected to pay special attention to the core competencies as allied to the supervisory and management capacities of the Final Year residents.

The PGY3 Final Year Residents (e.g., Consultation Services Chief at BTGH and the MEDVAMC and NICU Chief at SLEH) directly manage Consultation Services and importantly oversee the details of day-to-day decisions regarding triage and admission, as well as diagnosis and therapy. They round daily with the Attending physician on Attending Work Rounds and may participate in Resident Work Rounds. They direct patient-related decisions in consultation with the Attending Physician or fellow as needed. The PGY3 Final Year Residents also play a major role in teaching medical students the fundamental aspects of neurology, including the neurological examination and basic care of those with neurological impairment. Under appropriate lines of supervision as mandated by the ACGME, the PGY3 Final Year Resident's duties thus include:

• Supervising directly care of all patients on an inpatient or NICU service (direct evaluation of each patient and ongoing monitoring of all diagnostic studies, therapy, and patient status);
• Overseeing the quality and timeliness of chart documentation by the First Year and Intermediate Year Residents on consultation services and adding a formulation, clarification summary note on complex admissions or during the course of a complex course of illness;
• Assuring the timely dictation of discharge notes, including sharing this duty with the First Year and Intermediate Year Resident;
• Reporting to, consulting with, and rounding with the Attending Neurologist daily on consult patients and the neurocritical care Attending and Fellow on NICU patients;
• Assisting and fill in for the First Year or Intermediate Year Resident during the daytime when they are absent or too busy to provide timely coverage of patients on the Service, or consultation on other services including the Emergency Department;
• Providing direct supervision or indirect supervision immediately available to First Year Residents as they provide patient care;
• Providing direct supervision, indirect supervision immediately available, or indirect supervision available back-up coverage for the Intermediate Year Resident while providing patient care both during the day and on night call (BTGH and MEDVAMC) unless service policy is for the Intermediate Year Resident to contact the fellow or attending physician directly for supervision (SLEH, MDACC, TCH);
• Attending all required conferences and facilitating a certain number of resident conferences such as the Physician Assistants neurology lecture series, Performance Improvement Conference, and Journal Clubs;
• Sharing night coverage that is compliant with ACGME work hour and supervision rules;
Recognizing the limits of his or her own knowledge and asking for help from colleagues and attending physicians as the clinical circumstances dictate;

Engaging in self-care to mitigate fatigue and risk of burn out; and

Utilizing appropriate psychosocial support to handle the stresses of residency training when needed.

The Final Year PGY4 Residents (e.g., BTGH and MEDVAMC Ward Chiefs and BTGH/MEDVAMC Clinic Chief) directly manage Neurology Ward and Clinic Services and importantly oversee the details of day-to-day decisions regarding triage and admission, as well as diagnosis and therapy. They round daily with the Attending physician and may participate in Resident Work Rounds. They direct patient-related decisions on neurology inpatients in consultation with the Attending Physician or fellow as needed. The PGY4 Final Year Residents also play a major role in teaching medical students and junior residents the fundamental aspects of neurology, including the neurological examination and basic care of those with neurological impairment. Under appropriate lines of supervision as mandated by the ACGME, the PGY4 Final Year Resident's duties thus include:

- Supervising directly care of all patients on an inpatient neurology services (direct evaluation of each patient and ongoing monitoring of all diagnostic studies, therapy, and patient status);
- Overseeing the quality and timeliness of chart documentation by the First Year and Intermediate Year Residents on inpatient services and adding a formulation, clarification summary note on complex admissions or during the course of a complex course of illness;
- Assuring the timely dictation of discharge notes, including sharing this duty with the First Year and Intermediate Year Resident;
- Reporting to, consulting with, and rounding with the Attending Neurologist daily on patients admitted to the neurology service;
- Assisting and filling in for the First Year or Intermediate Year Resident during the daytime when they are absent or too busy to provide timely coverage of patients on the Service, or consultation on other services including the Emergency Department;
- Providing direct supervision or indirect supervision immediately available to First Year Residents as they provide patient care;
- Providing direct supervision, indirect supervision immediately available, or indirect supervision available back-up coverage for the Intermediate Year Resident while providing patient care both during the day and on night call (BTGH and MEDVAMC) unless service policy is for the Intermediate Year Resident to contact the fellow or attending physician directly for supervision (SLEH, MDACC, TCH);
- Attending all required conferences and facilitating a certain number of resident conferences such as the Physician Assistants neurology lecture series, Performance Improvement Conference, and Journal Clubs;
- Sharing night coverage that is compliant with ACGME work hour and supervision rules;
- Recognizing the limits of his or her own knowledge and asking for help from colleagues and attending physicians as the clinical circumstances dictate;
- Engaging in self-care to mitigate fatigue and risk of burn out; and
- Utilizing appropriate psychosocial support to handle the stresses of residency training when needed.

F. Methods of Evaluation

1. Evaluation of Resident Performance

The supervising teaching faculty will discuss expectations with each resident at the initiation of the rotation. At each clinical encounter the attending will discuss performance with each resident, providing verbal feedback regarding strengths areas for improvement and suggesting educational goals for subsequent outpatient experiences. Supervising faculty is encouraged to notify the program director at any time during the rotation with either commendation or concern regarding the resident performance.

Formal evaluation will include an individual monthly evaluation performed by the attending faculty. Faculty members directly supervising residents will complete a computer based evaluation form using the residency management software system (E*Value) monthly. This evaluation will be reviewed personally with each resident by the supervising faculty member at the end of a one month rotation. Competency in six core areas will be assessed. A semi-annual evaluation will also be performed with the Program Director or his designees. Multi-source evaluations will be implemented. Assessors will include peers, medical students, selected nursing and ancillary personnel, patients, and administrative personnel at a number of clinical sites. Residents will also conduct a self-assessment semi-annually prior to the semi-annual review with the program director and develop an action plan to remedy any perceived deficiencies. The Program Director will provide individual counseling regarding strengths and potential weakness and help refine the
resident's action plan. Career development will be discussed and each resident will have an opportunity to discuss their concerns. The summary report will be signed by both the resident and the program director and will become part of the permanent record.

2. Evaluation of Faculty/Educational Program

Neurology faculty involved in teaching the residents will be evaluated anonymously by the residents using the electronic residency management software system (E*Value). Monthly rotation evaluations will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.

Residents will evaluate the program and faculty annually using the electronic residency management software system (E*value). This evaluation with be both confidential and anonymous. The residents will have informal opportunities to provide feedback about the program to faculty, Program Director, and the Chief Residents at any time. Furthermore, regular town hall meetings held by the Chief Residents and without faculty present will allow for a review of the program. The Program Director will address all the issues to the best of his ability and provide a follow-up session in which the Program Director discusses interventions performed in response to the town hall meeting. All program feedback will allow the Program Director to develop an annual Action Plan for Program Improvement.
II. EVALUATION POLICIES AND REQUIREMENTS

A. Program Evaluation

The program undergoes evaluation in many formats. Residents are given multiple opportunities to evaluate the Program in writing and in person. The faculty also evaluates the Program annually.

1. Rotation Evaluations (E*Value)

An important part of the program evaluation process is the monthly evaluations that residents complete evaluating their interactions with faculty, the educational value of the rotation, and the experience working at the assigned clinical site. Faculty members do not have access to the results of the resident rotation evaluations until five evaluations of that faculty member/rotation have been completed, ensuring that the faculty evaluation of the resident is free of bias. The months of the rotation are not identified. The rotation evaluations ask questions such as the following:

- Mix of subspecialty cases
- Balance between education and service
- Rotation faculty teaching quality
- Balance between autonomy and supervision
- Presence of a coordinated educational experience
- Rotation compliance with ACGME duty hour and supervision rules
- Quality of clinical facilities, equipment, and technical assistance
- What did the resident enjoy most about the rotation
- Suggestions for improvement
- Would resident recommend this rotation

2. Town Hall Meetings

Town hall meetings occur regularly, but not less frequently than every third month. There are three formats:

- Semiannual town hall meeting run by the Chief Residents without faculty attendance. This town hall meeting provides residents an opportunity to discuss issues relevant to the entire residency. Chief Residents are asked to review each rotation and each hospital carefully with the residents. All issues are on the table for discussion. After this town hall, the Chief Residents compose a composite report that is sent to the Program Director.
- Semiannual town hall meetings by class: Each class has its own town hall meeting twice a year, attended by the Program Director, in which class-specific issues are addressed. Chief Residents may attend at the discretion of the class.
- Quarterly residency wide town hall: This town hall meeting, which the Program Director attends, is an opportunity for the Program Director to review and update policies and obtain in-person feedback about the residency experience. Additionally, the Program Director uses this venue to "close the loop" on issues raised at previous town hall meeting.

3. Annual ACGME Resident Survey

The Program Director uses the results of the annual ACMGE as part of his annual program review and in the creation of his annual Action Plan. The Program Director reviews the results of the survey during a residency-wide town hall meeting to get feedback about the meaning of the answers and what experiences generated negative answers. This information allows the Program Director to make the necessary program improvements.
4. **Resident Annual Program Evaluation (E*Value)**

Every spring, residents receive a comprehensive Annual Program Evaluation via E*Value. This evaluation addresses the quality of the Program Director, the Program Coordinator, each specific rotation, the didactic curriculum, and the general impression residents have of the program. They are also asked to evaluate the physical facilities at which they rotate, the quality of clinical support, and their access to information technology. They are also asked to identify the strengths and weaknesses of the Program.

5. **Faculty Annual Program Evaluation**

Every spring, the faculty is asked to assess the Program as a whole. The faculty members are asked generally about their impression of the residents' competency in each of the ACGME core measures: patient care, medical knowledge, interpersonal and communication skills, professionalism, practice-based learning and improvement, and systems-based practice. They are also asked for suggestions for improvement and for their impressions regarding the strengths and weaknesses of the program.

6. **Annual Resident Evaluation of the Faculty (E*Value)**

Residents evaluate the faculty in a few formats. Monthly they are asked about faculty in the rotation evaluations. Faculty quality is also an important part of the Resident Annual Program Evaluation. Finally, there is a separate survey in which residents rate the quality of the faculty as a whole.

B. **Resident Evaluation**

The quality of a resident's performance is evaluated in many ways by many types of evaluators. All evaluations are confidential. Residents may review the results of their evaluations at any time via E*Value or by review of their physical file in the Program Coordinator's office. All evaluations probe resident competency in the six ACGME core competencies: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism, and Systems-Based Practice. Faculty members do not have access to the resident rotation/faculty evaluations until five evaluations of that faculty member have been completed, ensuring that the faculty evaluation of the resident is free of bias.

1. **Monthly Faculty Evaluation of Residents (E*Value)**

Faculty is required to complete a competency-based evaluation of the resident's performance at the end of each rotation. The faculty members are expected to provide both mid-rotation formative feedback as well as end-of-rotation summative feedback.

2. **Multi-Source Evaluations**

The Program uses many other sources of information to obtain feedback on resident performance.

- Monthly peer evaluations
- Ongoing evaluations by multiples nurses working in the resident's continuity clinic (either Michael E. DeBakey Veterans Affairs Medical Center or Ben Taub General Hospital)
- Monthly evaluations by the Stroke Coordinator/Stroke Unit Assistant Nurse Manager at Ben Taub General Hospital
- Monthly evaluations by the clinical pharmacist at St Luke's General Hospital
- Monthly evaluations by Case Manager of the Neurology Care Line at the Michael E. DeBakey Veterans Affairs Medical Center.
- Semi-Annual evaluations by the resident's continuity clinic patients selected by the nurses.
3. Examination Results

Residents have a number of formal examinations in which their competency is assessed.

a) ABPN NEX Examinations

Successful completion of five NEX examinations is required for certification by the American Board of Psychiatry and Neurology (ABPN). Successful completion of the five NEX examinations is also a residency graduation requirement. During the NEX, a faculty member of the resident's choosing observes both the history taking and the neurological examination of a real patient. Residents are evaluated on how well they obtain an appropriate history and perform the neurological examination to allow a reasonable formulation of the case. Residents must complete one NEX in each of the following five domains: ambulatory, neuromuscular, neurodegenerative, critical care, and child neurology. A resident is allowed multiple times to retake the examination in the event of failure. However, failure of the examination will require the development of a formal Remediation Plan (see below for details) to ensure that specific benchmarks for improvement are met. In addition to their being a formal ABPN requirement for certification, the NEX examinations are also an opportunity for faculty to provide formative feedback in the domains of Patient Care, Medical Knowledge, Interpersonal and Communication Skills, and Professionalism.

b) RITE Examination

Although the Residency Inservice Training Examination (RITE) examination by itself is not used as a marker for promotion decisions, the Program does review the score results carefully as a reflection of the resident's medical knowledge and requires the resident to integrate a low score into an Action Plan for Improvement.

c) Quality of Scholarship

Residents are required to produce three examples of scholarships. The requirements are as follows:

- Grand Rounds in the PGY4 year on a topic of the resident's choice. A faculty mentor should help guide the resident and review the talk prior to presentation.
- BCM Neurology Case-of-the-Month Publication: The Program maintains a web-based, open access program wherein care reports are published in an interactive manner. The viewer can choose the data s/he wants in order to come to a differential diagnosis and result. Included in the care report is a review the diagnosis and management of the neurological condition presented.
- Another publication of the resident's choice (in consultation with a faculty mentor and/or the Program Director). Choices include:
  - Another BCM Neurology Case-of-the-Month
  - Poster presentation at a regional or national meeting
  - Case Report published in a scientific journal
  - Another type of scholarly article published or accepted for publication in a scientific journal (case series, care report, etc.)
  - Performance Improvement Project with results presented to the appropriate hospital or clinical facility
C. Semi-Annual Meeting with the Program Director

The Program Director and/or Associate Program Director meet with residents twice per year. This meeting is documented in a Core Competency-based format and is reviewed with the resident. Both the Program Director and resident sign the document. The resident may view it and his/her entire file again by contacting the Program Coordinator during regular business hours. These evaluations are formative. However, prior to the end of training, residents undergo a final summative evaluation that documents the resident's ability to practice neurology without direct supervision. The goals of these meetings are manifold:

- Review a resident's progress toward attaining competence in the Core Competencies as they apply to the practice of neurology as demonstrated by faculty and multi-source evaluations as well as by examination performance, peer, and other healthcare staff, and patient evaluations;
- Allow residents to reflect on their own educational experience and assess strengths and weakness, sources of achievements and barriers to success;
- Develop an individualized learning plan for the next six months and for the rest of residency;
- Discuss elective rotations, fellowship applications, and career planning as applicable to level of training;
- Provide the Program Director with feedback about the strengths and weaknesses of the Program;
- Ensure that the resident is meeting all graduation requirements; and
- Develop a remediation plan for those residents who are not achieving competency in any one of the Core Competencies as appropriate for level of training.
  - Remediation Plan: If a resident requires remediation in any one of the six Core Competencies, the Program Director and the resident develop a Remediation Plan. This written plan, signed by both the Program Director and the resident, addresses the Core Competencies that are deficient and provides specific requirements for remediating the deficiency. It also specifies a set timeframe over which this remediation must take place.
  - The Remediation Plan is NOT reported to the Senior Associate Dean for Graduate Medical Education (GME) or to the Texas State Medical Board (TSMBE). The Remediation Plan is NOT the same as probation, but rather it allows residents who are not meeting competency goals for level of training to improve performance and graduate from residency in a timely manner with the ability to practice neurology safely, competently and independently.
  - If the objectives of the remediation plan are not met, then a resident may be asked to extend training and/or be subjected to Probation. Probation is discussed elsewhere in this manual and follows the Baylor College of Medicine GME procedure. Probation is extremely rare and is used when a deficiency is severe. Some deficiencies may be so severe as to require initiation of the probation procedure and bypassing the remediation procedure.
III. WORK ENVIRONMENT

A. Commitment to Patient Safety

The Neurology Residency program educates residents and faculty members concerning the professional responsibilities of physicians to appear for duty appropriately rested and fit to provide the services their patients require. An annual Grand Rounds about the signs and symptoms of sleep deprivation marks the first Grand Rounds of each academic year. Sleep education is incorporated into the resident didactic curriculum.

The program is committed to and responsible for promoting patient safety and resident well-being in a supportive educational environment. Neurology residents are integrated into and actively participate in interdisciplinary clinical quality improvement and patient safety programs at many of our affiliated clinical sites. Our Performance Improvement Conference (formerly known as Morbidity & Mortality) is a monthly conference where performance improvement issues are identified and performance improvement initiatives presented.

The learning objectives of the program are accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events. These duties not compromised by excessive reliance on residents to fulfill non-physician service obligations.

The program fosters a culture of professionalism that supports patient safety and personal responsibility. Residents and faculty members must demonstrate an understanding and acceptance of their personal role in the following:

- Assurance of the safety and welfare of patients entrusted to their care;
- Provision of patient- and family-centered care;
- Assurance of their fitness for duty;
- Management of their time before, during, and after clinical assignments;
- Recognition of impairment, including illness and fatigue, in themselves and in their peers;
- Common Program Requirements;
- Attention to lifelong learning;
- The monitoring of their patient care performance improvement indicators; and,
- Honest and accurate reporting of resident duty hours, patient outcomes, and clinical experience data.

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

B. Transitions of Care

Clinical assignments are designed to minimize the number of transitions in patient care.

The program ensures and monitors effective, structured hand-over processes to facilitate both continuity of care and patient safety.

Hand-offs between residents must be in person and must also be in writing. Each affiliated site uses a standardized hand-off form that details important information of which the in-coming team must be aware. This hand-off form must be updated daily and reflect the latest developments in all patients' hospital course. Residents are encouraged to provide feedback about the quality of the sign out to the colleague who provided the initial hand-off as part of continuous performance improvement. Attending physicians are also encouraged to obtain feedback on the quality of the hand-offs daily.

Any hand-offs between junior residents must be supervised by the supervising senior resident. This supervision ensures that residents are competent in communicating with team members in the hand-over process.

To ensure the proper continuum of care exists for all patients, the program disseminates to the clinical sites a schedule detailing which members of the health care team of attending physicians and residents is currently responsible for each patient's care.
C. Alertness Management and Fatigue Mitigation

The program educates all faculty members and residents to recognize the signs of fatigue and sleep deprivation via a Neurology Department Grand Rounds targeting faculty and residents as well as an on-line sleep education module. It also educates all faculty members and residents in alertness management and fatigue mitigation processes.

The Program has also adopted a fatigue mitigation process to manage the potential negative effects of fatigue on patient care and learning through the use of back-up call schedules. This back-up system ensures the continuity of patient care in the event that a resident may be unable to perform his/her patient care duties. Every week a resident is assigned as the "jeopardy" resident in the event that an assigned resident is indisposed to take call as an assume patient care duties due to fatigue, illness, or other excused reason.

Each of the Program's sponsoring institutions provides adequate sleep facilities and/or safe transportation options for residents who may be too fatigued to return home safely. The program will reimburse a resident for taxi fare home and then back to work the next morning if s/he feels too fatigued to drive home safely post-call.

D. Team Work and Supervision of Residents

In the clinical learning environment, each patient at all the program's clinical sites has an identifiable, appropriately-credentialed, and privileged attending physician who is ultimately responsible for that patient's care. This information is available to residents, faculty members, and patients. Residents and faculty members are required to inform patients of their respective roles in the patient's care.

Residents care for patients in an environment that maximizes effective communication. Residents routinely work as a member of an effective interprofessional team that is appropriate to the delivery of care in the specialty they are working in (neurology, internal medicine, emergency medicine, or psychiatry depending on the rotation).

The program ensures that the appropriate level of supervision is in place for all residents who care for patients. Supervision is exercised through a variety of methods. Some activities require the physical presence of the supervising faculty member. For many aspects of patient care, the supervising physician is a more advanced resident or a fellow. Other portions of care provided by the resident are adequately supervised by the immediate availability of the supervising faculty member or resident physician, either in the institution or by means of telephonic and/or electronic modalities. In some circumstances, supervision of Final Year residents includes a post-hoc review of resident-delivered care with feedback as to the appropriateness of that care.

Faculty supervision assignments are of sufficient duration to assess the knowledge and skills of each resident and delegate to him/her the appropriate level of patient care authority and responsibility. Faculty generally spend two to four weeks working with a resident prior to evaluating the resident.

E. Levels of Supervision

To ensure oversight of resident supervision and graded authority and responsibility, the program uses the following ACGME classification system of supervision:

1. Direct Supervision

The supervising physician is physically present with the resident and patient.

2. Indirect Supervision

With direct supervision immediately available – the supervising physician is physically within the hospital or other site of patient care, and is immediately available to provide Direct Supervision.

With direct supervision available – the supervising physician is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide Direct Supervision.
3. Oversight
The supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered.

F. Progressive Authority and Responsibility
The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each resident is assigned by the program director and faculty members:

- The clinical responsibilities for each resident are based on PGY-level, patient safety, resident education, severity and complexity of patient illness/condition and available support services.
- Residents are educated about the limits of their scope of authority, and the circumstances under which they are permitted to act with conditional independence.
- The program director evaluates each resident's abilities based on specific criteria including previous competency-based performance evaluations and examination results.
- Faculty members functioning as supervising physicians are expected to delegate portions of care to residents, based on the needs of the patient and the skills of the residents.
- Final year residents serve in a supervisory role of junior residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident.

The program has set guidelines for circumstances and events in which a resident must communicate immediately with the appropriate supervising faculty member. This requirement includes at a minimum:

- Transfer of a patient to an intensive care unit;
- End-of-life decisions;
- Patient death;
- Decisions making regarding thrombolysis of acute stroke patients;
- Decisions regarding procedures performed by other services such as interventional radiology or surgery and its sub-specialties;
- Lack of clarity about proper patient evaluation and/or management;
- Mass casualty disaster;
- Excessive work-load and fatigue;
- Discovery of a medical error;
- Any other unanticipated adverse patient outcome;
- Acceptance of any transfer patients from an outside facility;
- Conflicts with other services interfering with providing appropriate patient care;
- Conflicts with patients and/or their families.

G. Supervision by Year of Training

1. PGY1
PGY1 residents are supervised either directly or indirectly with direct supervision immediately available by either faculty or Final Year residents.

2. PGY2
PGY2 residents are intermediate level residents according to the Neurology Review Committee and supervision during this year is either directly available or indirectly available with either direct supervision immediately available or supervision available.

- During overnight call supervision is indirect with supervision available by both the supervising attending physician and the Final Year Resident. PGY2s are required to communicate with either their supervising Final Year resident and attending physician under all circumstances delineated above.
• The PGY2 resident is required to call for indirect supervision (either by the Senior Resident or the supervising faculty) for every new patient evaluated while on call either during the evaluation and management process for direct advice or immediately after the evaluation process for immediate review of impression and management plan. The designated supervisor (either the Attending Physician or Final Year resident, depending on the hospital rotation) will make himself or herself available for direct supervision as the PGY2 and the clinical circumstances require.

• If a PGY2's performance indicates the need for an extended mandatory indirect supervision period, it will be extended by the Program Director until such time as the PGY2 resident is deemed safe to decide on his or her own when s/he needs immediate telephonic or in person review of management decisions.

3. PGY3 and PGY4

PGY3 and PGY4 residents are considered residents in their final years of training ("Final Year Residents") by the Neurology Review Committee. Their supervision ranges from direct supervision to indirect supervision immediately available to indirection supervision available to oversight.

• Final Year residents, as supervisors of PGY1 and PGY2 residents, are supervised gradually more often indirectly with supervision available or at the level of oversight to encourage autonomy and independent thinking.

• Final Year residents are recognized as trainees and are still in need of appropriate supervision. Adjustments in the type of supervision provided to a Final Year resident are based on that resident's clinical skills, the patient's complexity, and hospital policy. Patient safety always takes priority in such assignments.

H. Resident Duty Hours

1. Maximum Hours of Work per Week

Duty hours must be limited to 80 hours per week, averaged over a four week period, inclusive of all in-house call activities and all moonlighting (this Program does not allow moonlighting).

2. Mandatory Time Free of Duty

Residents must be scheduled for a minimum of one day free of duty every week (when averaged over four weeks). At-home call cannot be assigned on these free days.

3. Maximum Duty Period Length

Duty periods of PGY1 residents do not exceed 16 hours in duration.

Duty periods of PGY2 residents and above are scheduled to a maximum of 24 hours of continuous duty in the hospital.

• The Program encourages residents to use alertness management strategies in the context of patient care responsibilities.

• The Program strongly suggest and educates residents about strategic napping, especially after 16 hours of continuous duty and between the hours of 10 p.m. and 8 a.m.

Residents are allowed to remain on-site in order to accomplish transitions of care safely for no longer than four additional four hours.

Residents are not assigned additional clinical responsibilities after 24 hours of continuous in-house duty.

In unusual circumstances, residents, on their own initiative, may remain beyond their scheduled period of duty to continue to provide care to a single patient. Justifications for such extensions of duty are limited to the following:

• Reasons of required continuity for a severely ill or unstable patient,
• Academic importance of the events transpiring, or
• Humanistic attention to the needs of a patient or family.
Under those circumstances, the resident must:

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

The program director will review each submission of additional service, and track both individual resident and program-wide episodes of additional duty.

4. Minimum Time Off between Scheduled Duty Periods

PGY1 residents should have 10 hours, and must have eight hours, free of duty between scheduled duty periods. Only under exception circumstances will PGY1s have fewer than 10 hours between duty periods.

PGY2 residents, as intermediate-level residents should have 10 hours free of duty, and must have eight hours between scheduled duty periods. Only under exceptional circumstances will PGY2 residents have fewer than 10 hours free of duty. PGY2 resident will also have at least 14 hours free of duty after 24 hours of in-house duty.

PGY3 and PGY4 residents, as residents in the final years of education, must be prepared to enter the unsupervised practice of medicine and care for patients over irregular or extended periods.

- This preparation only occurs within the context of the 80-hour, maximum duty period length, and one-day-off-in seven standards.
- Although every effort will be made to ensure that Final Year Residents have eight hours free of duty between scheduled duty periods, there are some Neurology Review Committee sanctioned circumstances when these residents must stay on duty to care for their patients or return to the hospital with fewer than eight hours free of duty.
- The Neurology Review Committee has sanctioned the following circumstances as instances when this exception comes into play:
  - Required continuity of care for a severely ill or unstable patient or a complex patient with whom the resident has been involved;
  - Events of exceptional educational value; or
  - Humanistic attention to the needs of a patient or family.
- Circumstances of return-to-hospital activities with fewer than eight hours away from the hospital by residents in their final years of education will be monitored by the program director.

5. Maximum Frequency of In-House Night Float

Residents will never be scheduled for more than six consecutive nights of night float and will almost never be scheduled for more than five consecutive nights of night float.

The maximum number of consecutive weeks of night float shall be no greater than two consecutive weeks or half of a calendar month (maximum 16 days).

6. Maximum In-House On-Call Frequency

PGY2 residents and above are never scheduled for in-house call more frequently than every third-night (when averaged over a four-week period).

7. At-Home Call

Time spent in the hospital by residents on at-home call must count towards the 80-hour maximum weekly hour limit.

The frequency of at-home call is not subject to the every-third-night limitation, but must satisfy the requirement for one-day-in-seven free of duty, when averaged over four weeks.
At-home call must not be so frequent or taxing as to preclude rest or reasonable personal time for each resident.

I. Recording of Duty Hours

All residents are required to record their duty hours in E*Value daily. Every day must be accounted for, including days off. Residents are requested to pay close attention to shift lengths and to record their actual time worked as accurately as possible. Residents are reminded that while on home call, they are to record any time that they spend in the hospital. Time at home does not count towards duty hours.

Residents will be alerted on a weekly basis if they fail to record their duty hours in a timely manner. Failure to complete duty hour logs will result in an unpaid suspension by the GME office.

1. Management of Duty Hour Violations

Residents are expected to comply with ACGME duty hour regulations. However, the ACGME recognizes extenuating circumstances when a resident may choose to stay on duty longer than the expected shift length in order to care for a particular patient in need or to take advantage of an educational opportunity. The program anticipates that these instances will be rare. In the event that a resident chooses to stay beyond the regulated shift length, s/he is expected to log the reason for this choice in E*Value. S/he should also inform the Program Director of this situation. However, the Program Director runs a weekly report that includes an analysis of duty hour violations. The Program Director will email a resident with a violation to explain the reason for the violation. This email is not a punitive action, but rather an opportunity to understand and document the circumstances resulting in the violation. Appropriate action will be taken to ensure continued compliance with the ACGME standards.
IV. ATTENDANCE AND RELATED POLICIES

A. Attendance Requirements for Didactic Experiences

Attendance at all conferences is required unless the resident is post-call, on night float, on an approved vacation or conference or in the event of a patient care emergency.

Residents are required to sign the attendance sheet to document attendance. Non-emergent routine patient care activities are not considered excused absences.

If a resident is not able to attend conference because of emergent patient care activities, it is the responsibility of the resident to notify the education Chief Resident.

Attendance at lecture is monitored by the residency Program Coordinator, the Program Director, and the Education Chief Resident. If there are other obstacles preventing consistent attendance at lecture, the resident should inform either the Program Director or Chief Resident so that these obstacles can be eliminated.

Excluding excused absences listed above, residents are required to attend at least 85% of mandatory lectures. The residency program director will then discuss absenteeism with the resident with one of the following action courses:

- One month of poor attendance:
  - Encouragement of more frequent attendance in accordance with a formal Attendance Action Plan; and
  - Mandatory reading assignments with post-test.
- Two months of poor attendance:
  - As above and an additional service day, call, or jeopardy week that is compliant with ACGME work hour rules.
- Three months of poor attendance (does not require consecutive poor attendance)
  - As above but also there will be a mandatory review of the resident's performance by the Education Committee and recommendations for action will result from this review.

B. Attendance Requirements for Clinical Duties

Residents have specified duty-free days as specified by BCM GME policy and the ACGME. When assigned clinical duties, residents are expected to be available for patient care as required by the assigned clinical site. A resident who is ill or experiences a qualified personal emergency necessitating personal days or FMLA leave needs to contact the attending physician, rotation chief, Chief Resident, and Program Director immediately so that alternative coverage can be provided for patient care. In non-emergent situations, where an absence is anticipated and allowed under BCM policy, it is the resident's responsibility to provide coverage. Furthermore, all such days require pre-approval by the Program Director. All days free of clinical duty must be sanctioned by BCM GME policy or the BCM Neurology Residency Program Policy. Failure to show up for duty without an excused absence may result in disciplinary action ranging from an Action Plan for Improvement to Probation to Suspension, depending on the gravity and frequency of the problem.

C. Moonlighting

Residents are not permitted to moonlight.

D. Vacation Policy and Educational Leave Policy

Each PGY2-PGY4 will receive 21 calendar days of vacation per year. Each PGY1 resident will receive 14 calendar days of paid vacation per year. Each PGY1 will also have the last seven days of June off as unpaid time.

A resident may not miss more than one week of a month-long rotation.
Vacation scheduling is at the discretion of the Program Director and the Chief Residents. Vacations are usually scheduled only during elective rotations, psychiatry, neurology outpatient rotation, neuro-oncology, and Baylor Clinic outpatient rotations.

All vacation requests must be turned in to the chief residents by March prior to the next academic year. Any changes in vacation assignments subsequent to this date will be made only with the approval of the rotation faculty, program director, and chief residents.

The residents are responsible for notifying and verifying with their continuity clinic site that they have no patients scheduled during their planned vacations, educational days and holidays.

A limited number of educational conference days is available to residents with the approval of chief residents and program director. Educational conference days should not be taken during service months. If taken during service months, it is the responsibility of the resident to find coverage for clinical duties. The Program limits conference day to 20 days over the course of training. Special approval and justification must be obtained from the Program Director if the 20 days of educational conference time is to be exceeded.

Cancelling continuity clinic dates for any reason aside from scheduled vacations requires the approval of the Program Director and either Dr. Goldsmith (BTGH Outpatient Clinic Director) or Dr. Kent (MEDVAMC Neurology Care Line Executive). After obtaining the approval of those involved, it is the resident's responsibility to notify the person responsible for scheduling continuity clinics: Mary Hollis and Patty Flowers for the MEDVAMC and Barbara Masi, R.N. for BTGH.

E. Sick Leave

All trainees are entitled to up to 14 calendar days paid sick leave per year. Unused sick days will be carried forward and be available to the trainee in the subsequent academic year. These days can only be used in the event of an actual illness.

All sick days and absences must be reported to the senior resident on the rotation, the attending physician, the Program Coordinator, Program Director, and the Chief Residents.

Sick time cannot be used for family illness i.e. sick children.

GME will be notified on the third day a trainee is out.

Paid sick leave does not need to be made up to graduate. However, sick leave above the amount entitled must be made up to graduate. Further questions regarding sick leave can be addressed to GME, the Neurology residency's oversight body.

F. Family and Medical Leave Act (FMLA)

Family and Medical Leave act for a serious medical condition of the trainee, the trainee's spouse, the trainee's child or trainee's parent is available. Other qualifying events include birth of a child, house officer's adoption or foster placement of a child. Job protection under this law is a maximum of 12 weeks within a 12 month period. All requests for leave for more than three days will be reported to the Office of Graduate Medical Education. Final approval would be made by the Human Resources Regulatory compliance Office and the Department chair or his or her designee.

In order to be eligible for FMLA, a house officer must have been employed by the college for a minimum of one year and worked at least 60% time during the last 12 months. Absences due to illness, whether of a house officer or a family member, must be verified by a statement form the treating physician. A statement is required from the court system of the involved social services agency to confirm the foster placement, adoption of a child or a birth certificate when adopting.

A house officer taking leave under FMLA must use first accrued paid sick leave, and then can take any available paid vacation and personal leave.

Paternity leave: A house officer may be eligible to take paternity leave under the federal FMLA.

Further information on FMLA can be found on the BCM human resources- regulatory compliance website or calling 713-798-3114.
G. BCM Social Media Policy

Baylor College of Medicine supports the use of Social Media by its community members as a way to facilitate communication. This Policy addresses various forms of Social Media. This Policy applies to College Personnel initiating any Social Media feed that involves the College, its schools, departments, programs, groups, organizations and individuals. The policy includes personal networking behavior when individuals might identify themselves as a representative of the College, infer involvement in College programs or initiatives, engage in conduct that would reflect negatively on the College, or use a bcm.edu address in the communication.

Language that is illegal, threatening, infringing of intellectual property rights, invasive of privacy, profane, libelous, harassing, abusive, hateful or otherwise injurious to any person or entity is prohibited and shall be removed.

Do not post anything that you would not otherwise post in a public forum — there is no such thing as a private Social Media site and everything you post can live forever.

Be professional and respectful at all times when using Social Media. Relationships such as doctor-patient, faculty-student, and supervisor-subordinate merit close scrutiny in the Social Media world.

Use good ethical judgment when posting and follow all College policies and all applicable laws/regulations such as, but not limited to, the Health Insurance Portability and Accountability Act (HIPAA) and the Family Educational Rights and Privacy Act (FERPA).

Physicians and those who interact with patients should follow the guidelines promulgated by the American Medical Association (http://www.ama-assn.org/ama/pub/meeting/professionalism-social-media.shtml).

Do not post anything that would do harm to the College, its personnel, patients, or any patients treated by College faculty, staff or learners at any of the College affiliated hospital partners.

When you might be perceived as an agent of the College, make it clear in your postings that you are not representing the position of the College. If you use any College trademark or logo, add a disclaimer that the posting may not necessarily reflect the views and positions of the College.

In the event of a violation of this Policy, the College will take whatever corrective action is necessary to protect the integrity of the institution itself and its research and clinical projects and enterprises. In addition, it may at its discretion impose penalties upon the violator.

The penalties for such violations may range from reprimand, suspension, to termination, and may depend upon the severity of the violation and what can be known about the intentions of the violator.

The Office of Communications oversees the College Social Media presence and authorizes all Social Media sites representing the College. The use of Social Media is recognized as an important way to generate relationships, and the Office of Communication will help departments, labs, programs and individuals develop Social Media messages to support their work while maintaining professional standards and upholding policies. See policies, best practices and guidelines: http://intranet.bcm.edu/?tmp=/pa/socialmedia.

H. Salaries

Baylor College of Medicine has mandated that resident salaries remain at the national mean. Salaries increase to keep pace with the cost of living and the stipends of other programs around the country. The cost of living in Houston is lower than the average of cities of more than 2 millions.

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<tr>
<th>PGY</th>
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<td>1</td>
<td>$44,302</td>
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<tr>
<td>2</td>
<td>$45,961</td>
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<td>3</td>
<td>$47,205</td>
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<td>$49,111</td>
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</table>
I. Insurance and Benefits

Residents receive malpractice, health, dental, disability, and life insurance. One can also carry family members on these policies, if desired. There is a discount on all medical care for Baylor residents, and a psychiatric counseling service is available at no charge. Baylor offers free immunizations and Hepatitis B vaccinations to residents.

J. Books and Conferences

Each year, the department provides a book and travel allowance for residents to attend conferences, as follows:

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<tr>
<th>PGY</th>
<th>Books</th>
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<tr>
<td>1</td>
<td>Required books purchased by department</td>
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<td>2</td>
<td>Required books purchased by department</td>
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<td>3</td>
<td>Required books purchased by department</td>
<td>$1000 (local, state or regional meeting)</td>
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<tr>
<td>4</td>
<td>Required books purchased by department</td>
<td>$2500 (national or international meeting)</td>
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Books need to be purchased through the Program Coordinator. Email the program coordinator Lori Adams-Williams at lowens@bcm.edu with a link to the book that you would like to purchase. Books are purchased three times per year via the Program Coordinator.

Residents are allowed a limited number of days during their elective months to travel to conferences of interest. Please see section on vacation and educational leave policy for further information regarding approval.

**There are many rules and regulations for travel. (Last updated 3/1/2010)**

- All travel requires a preauthorization form which can be found at: https://intranet.bcm.edu/apps/admin_services/downloads/travel/travel_approval.pdf.
- Please allow at least 1 month to have this form approved before booking any hotels, airlines and paying any registration fees for conferences. Turn this form into Lori Adams-Williams.
- Reimbursements must be processed within 30 days of your return.
- It is the traveler's responsibility to stay updated on any changes in procedure by looking at the BCM Travel policies website at https://intranet.bcm.edu/index.cfm?fuseaction=Policy.Display_Policy&Policy_Number=13.1.01.1.

K. Provisions

The department provides white coats, nametags, and subsidized parking at each hospital. Residents can make slides and photocopies free of charge. Residents also have privileges at the Baylor Athletic Facility, a fully equipped gymnasium on campus.

L. Library

The Jesse Jones Texas Medical Center Library, one of the largest in the country, is free to all Baylor residents. The Neurology Department provides residents computer access to on-line databases for literature searches.

M. Social Activities

The Department hosts a welcome party, a winter holiday party, and a formal graduation banquet.
N. Membership

The Department pays for membership in the American Academy of Neurology for all of its house officers, which includes a subscription to the journal *Neurology* and the *Continuum: Lifelong Learning in Neurology*. Additionally, we provide membership in the Texas Neurological Society.

O. Vacations

Neurology residents receive two weeks of paid vacation during their intern year and three weeks paid of vacation in all subsequent years. This vacation time is in addition to the limited number of days allowed to attend conferences. Neurology residents also have one 4-day holiday off per year.

P. Lunch

Lunches are provided by the Department during Grand Rounds, Journal Clubs, and Fridays at noon.

Q. Non-Discrimination and Sexual Harassment Policy

The selection, advancement, retention, graduation of neurology house staff physicians is not influenced by race, gender, age, religion, color, national origin, disability, veteran status, or sexual orientation. These decisions are based on merit only and take into account such factors as preparedness, ability, aptitude, academic credentials, communication skills, motivation, and integrity.

It is the policy of Baylor College of Medicine to provide a work environment free from sexual harassment. Any house staff physician who wishes to report an incident of sexual harassment should contact the Director of the Office of Graduate Medical Education (713-798-3356), the Office of Employee Relations (713-798-4346), or a member of the Committee on Prevention of Sexual Harassment (Chair, Dr. Peggy Smith, 713-798-3601).

R. Counseling Services

Confidential psychological counseling services are available for all residents from the House Staff Physician Psychiatric Counseling Service. The Program Director does not receive any information regarding a resident's use of this service. Residents can call 713-798-4881 to schedule an appointment or for emergencies.

There is no fee for these services.

**Purpose**

Since 1978, BCM Counseling Service has offered up to 12 sessions of psychotherapy at no charge to trainees.

**Population Served**

The program serves medical students, graduate students, residents, physician assistants, nurse anesthetist students and clinical fellows as well as their spouses and significant others.

**Problems Addressed**

Medical and graduate training programs are rewarding and exciting, but they can also be stressful. The most common reasons for seeking counseling include relationship difficulties, anxiety and depression.

**Services Offered**

Services are provided at no cost for up to 12 sessions.

- Individual Counseling
- Premarital Counseling
- Marital or Relationship Counseling
- Psychopharmacology

Services are provided by members of the faculty in the Department of Psychiatry and Behavioral Sciences.

All provided services abide by the strictest rules of confidentiality.

The service does not issue any report to administrative personnel within the resident's department or any others of Baylor College of Medicine.

**How Will I Know I Need the House Staff Psychiatric Counseling Service?**

- Depression/Anxiety
  - I'm depressed much of the time.
  - I'm anxious much of the time.
  - I feel angry much of the time.
  - I'm drinking more.
  - I think I have an eating disorder.

- Work Problems
  - I keep thinking I've chosen the wrong profession.
  - My work is suffering.
  - I feel pulled in too many directions.
  - My relationship with my colleagues is strained.

- Relationship Problems
  - I am having serious doubts about my marriage or relationship.
  - My partner tells me I'm retreating.
  - I don't like going home.
  - My relationship gives me little pleasure.
  - I've lost interest in sex.

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**S. House Staff Reappointment Policy**

**1. Baylor College of Medicine GME Policy**

- House officers shall be evaluated fairly and objectively on the basis of their academic and clinical performance. The evaluation process shall include a written formal evaluation for each rotation or segment of the training program. Evaluations shall be made available for the house officer to review in a timely manner. Promotion shall be on the basis of academic and clinical performance. The residency program shall have written policies for the evaluation and promotion of house staff. Copies of these policies must be made available to the house staff and must be provided to the Associate Dean for Graduate Medical Education.

- Notification of intent to reappoint or not reappoint a house officer shall be made by the program director and department chair no later than four months and no earlier than seven months before completion of the house officer's term of appointment, provided that the house officer is not on probationary status. The decision to reappoint or not reappoint a house officer on probation made be made during the period of probation, or deferred until the end of the probationary period. Any reappointment is conditioned upon the house officer's appropriately and successfully completing training for the current year, continuing to meet the standards of his/her program and department, and maintaining an active registration with the Texas Medical Board. Upon receipt of a letter of reappointment, the house officer shall return the signed contract to his/her program director or department chair within 30 days. After this time period has passed, the offer shall be considered void, and may be rescinded by the program director and/or department chair.

- The house officer shall sign a fitness for duty certification indicating that he or she knows of nothing that would in any way inhibit or prohibit his or her ability to provide safe and proper medical care to patients since the last appointment or reappointment contract was signed. This certification will be included with the reappointment letter.
• The determination to reappoint or not to reappoint a house officer is made by the department Chair and/or Program Director, and can be appealed in accordance with the procedures outlined in GME Policy 25.1.09.

• It is possible to offer reappointment without promotion, that is, to ask a house officer to repeat part of all of the year. This may be done whether or not a house officer is on probation, and can be appealed in accordance with the procedures outlined in GME Policy. Reappointments of this type are to be paid at the level at which the house officer is currently appointed. The offering of a reappointment letter, and the acceptance and signing of such a letter by a house officer, in no way negates the option of the department in regard to probation and/or dismissal of that house officer as defined under Policies 25.1.15 and 25.1.18.

2. Appeal of Non-Reappointment

To appeal a decision of non-reappointment by a program director, the house officer must first appeal the decision to the Chair of the department in writing within 10 working days. The department chair and/or his or her designee shall meet with the house officer to discuss the matter within 10 working days of receipt of the appeal request.

If the issue cannot be resolved to the satisfaction of the house officer after meeting with the Chair, he or she may appeal to the Chair of the Graduate Medical Education Committee within 10 working days. The appeal request shall be in the form of a letter stating that he or she has not been reappointed, with an explanation of why the house officer feels the decision is not appropriate. Such letters may always be hand delivered to the Office of Graduate Medical Education for distribution.

Within 10 working days of receipt of the letter, the chair of the GMEC shall appoint an ad hoc subcommittee to hear and adjudicate the issue. This ad hoc committee shall consist of no less than five, and no more than nine persons, not from the department in question, or otherwise known to the house officer. At least two members of the committee shall be house officers not from the department in question, or otherwise known to the house officer. The list of committee members and time for the appeal will be sent in writing to the house officer. At that time, if the house officer has a concern about a committee member, it may be brought to the attention of the chair of the GMEC. All efforts will be made to convene the committee within 30 days.

In the preparation and presentation of the appeal, the house office may utilize a faculty advisor. Selection of a faculty advisor and the role of that individual are determined in accordance with the guidelines set forth in Policy 25.1.19, Paragraph B. The Department and resident may submit written materials in support of their positions, which the GME Office will copy and distribute to committee members. The Director of the Office of GME will set a reasonable deadline for submission of such materials once a hearing date has been established.

The ad hoc committee shall investigate the appeal and shall render its decision, by simple majority vote, to the house officer and department within 30 days of the hearing, and shall forward a copy of its decision to the Associate Dean for Graduate Medical Education. In the event the committee vote is a tie, the decision to not reappoint shall stand.

Either party shall have the right to appeal this decision to the Associate Dean for Graduate Medical Education. This appeal shall be sent to the Associate Dean in writing within five working days of notification of the ad hoc committee's decision. The Associate Dean will adjudicate the matter with a final decision which shall be binding on all parties involved. This mechanism for adjudication is not a court proceeding and is not bound by the rules of a court of law.

T. Patient-Physician Relationships

Baylor College of Medicine recognizes that appropriate and optimal healthcare cannot be provided without the existence of a formal physician-patient relationship between the care provider and the recipient of that care. For this reason, house staff physicians should not provide medical care of any type (e.g. samples of medications, prescriptions, medical advice) to individuals with whom they do not have a physician-patient relationship. This should include themselves, friends, family members, colleagues, and other work associates. Additionally, medical malpractice insurance provided for BCM house staff physicians is in effect only for patient care provided within the scope of residency program activities. Additional information on the scope of physician practice is available through the American Medical Association (www.ama-assn.org) and the American College of Physicians (www.acponline.org).
U. Impaired Residents

The Neurology Residency Program maintains its policy in conformance with all Baylor College of Medicine GME policies. The department's specific policy does not replace but rather specifies in greater detail the procedure for dealing with an impaired resident.

1. The Program Director (PD) is alerted to a suspected impairment by stakeholders – faculty, other residents, other health care professionals, patients, medical students, administrative staff, technical staff, hospital and out-patient quality assurance process, etc.

2. The PD activates the Professionalism Rapid Response Team (PRRT) composed of the PD, the three Associate PDs, and the Neurology Medical Student Clerkship Director. If the PRRT determines that the allegations raise a concern for impairment, the PD informs the resident of the allegations against him or her. Because the first concern is protecting the safety of patients, the resident is relieved of patient care responsibilities and is put on medical leave pending the conclusion of the investigation. This process is carried out with respect for the resident's privacy as well as for the resident's personal and professional reputation. Patient safety may require informing the appropriate chief of service of a concern about impairment. However, such discussions are first cleared with the Designated Institutional Official (DIO) and any other GME personnel whom the DIO deems appropriate.

3. If circumstances dictate (e.g., acute intoxication or active psychiatric illness that interferes with the safe discharge of patient care responsibilities), the resident is escorted to an appropriate medical facility for an immediate inpatient medical and/or psychiatric evaluation.

4. The Chair and DIO are informed that the PRRT has been activated to investigate allegations of resident impairment. The PRRT investigates the allegations. The Neurology Medical Student Clerkship Director serves as the resident's advocate to ensure lack of bias. The investigation must include an extensive interview with the resident (assuming that the resident is medically/psychiatrically in a position to discuss the events) to discuss the allegations in detail as well as interviews with appropriate witnesses of the concerning behaviors. All efforts will be made to conclude the investigation within five working days of the time of relief of work duties.

5. By the end of this time period, to the extent possible given the resident's medico-psychological condition, the resident will have met with the PRRT. The DIO will be available for guidance and to ensure compliance with Baylor College of Medicine GME policies. This meeting will be documented in written format.

6. If the investigation raises a concern that the resident may be impaired, the PD, as Chair of the PRRT, will advise the Chair and DIO of this determination.

7. If not already performed due to clinical circumstances, the PD, working with the BCM DIO and the department chair, will make arrangements for a confidential evaluation of the resident, which may include a medical, psychiatric, or neuropsychological evaluation of fitness for clinical duty. This evaluator will be a practitioner with experience in dealing with impaired physicians who has no professional or personal relationship with the resident. Baylor College of Medicine has a program for the evaluation and treatment of impaired physicians. This program will be utilized unless specific circumstances of personal or professional relationship require the use of a different evaluation program.

8. Treatment options will be presented to the resident.

9. If a determination is made that the resident is impaired, the resident will either be placed on administrative leave with or without probation and be reassessed at the end of the appropriate treatment time, or be dismissed without first going through the probation process in compliance with Baylor College of Medicine GME policy, including rights of appeal.

V. Disciplinary Action and Appeals

Residents may raise issues of concern with the neurology program by communication with Chief Residents, Program Director or department Chair. Every effort should be made to keep confidentiality during these proceedings. However, a fourth mechanism, if still concerned about confidentiality, would be to call the direct line of the housestaff hotline at the Dean of Graduate Medical Education. This complaint or concern would be responded to within 24 hours. The housestaff hotline number is 713-798-3130.

1. Suspension

*This information is verbatim from the GME section of BCM Policies and Procedure Manual.

Suspension is a remedial action by which a house staff physician is temporarily relieved of his/her duties.

The program director or his/her designee may suspend a house staff physician, with pay, upon receipt of notification that (i) a serious professional charge is brought against the house staff physician, (ii) the house staff physician shows evidence of impairment as
defined by the Texas Medical Board and/or the American Medical Association, or (iii) there is concern that the house staff physician's performance of his/her clinical duties does not meet acceptable standards or that patient care is seriously compromised. To the degree that it is practical, charging parties should put their allegations concerning professional misconduct, impairment, or performance in writing.

At the time of the filing of charges against the house staff physician, the program director or his/her designee shall consult with the house staff physician and such others as may be necessary to determine if the charges warrant suspension of the house staff physician. If so, the house staff physician will be promptly notified verbally of his/her suspension. Such notice shall also, if practical, be reduced to writing and hand delivered to the house staff physician, with the house staff physician signing and dating a copy to acknowledge receipt or sent by certified mail to the house staff physician's address of record.

After investigation of the charges, the program director or his/her designee may decide, without involvement of a special ad hoc peer review subcommittee, to reinstate a house staff physician. Such a decision must be made within 14 calendar days of notification of suspension. The program director or his/her designee may, on the other hand, convene an ad hoc peer review subcommittee within 14 calendar days of notification of suspension. This ad hoc peer review subcommittee, comprised of the program director or his/her designee and two other physicians from within or without the same department as designated by the program director or his/her designee, shall then have 14 calendar days from appointment of the ad hoc peer review subcommittee to investigate the charges and render a determination of findings and a recommendation of appropriate action. The house staff physician shall have the right to appear before the ad hoc peer review subcommittee. If the house staff physician so requests, he/she may be assisted in presenting his/her case by a faculty advisor chosen by the house staff physician in the manner described in Section 25.1.19, Paragraph B. The house staff physician may not appeal the decision to place the house staff physician on suspension.

Suspension is a mechanism which allows the department time to investigate the matter and determine which action (reinstatement, probation, or dismissal) shall be appropriate. A house staff physician placed on probation or dismissed as a result of a suspension investigation may appeal the probation or dismissal decisions as set forth in GME Section 25.1.19.

The program director must report actions of suspension must be to the Texas Medical Board within seven days of the suspension.

2. Probation and Appeal of Probation

*This information is verbatim from the GME section of BCM Policies and Procedure Manual.*

When there is concern that a house staff physician's performance fails to meet the academic, clinical or other standards set by the training program, the house staff physician may be placed on probation by the program director or his/her designee. Notice of this decision and the reason for the action will be set forth in a written letter to the house staff physician. If practical, the letter will be hand-delivered, with the house staff physician signing and dating a copy to acknowledge receipt. If this is not practical, the letter may be sent certified mail with a return receipt requested, to the address indicated in the record.

The letter of probation must be reviewed by the Associate Dean for Graduate Medical Education and General Counsel within 48 hours of its preparation, if possible. The Associate Dean must be provided all required records which were used by the program director in the formulation of this decision. This includes, but is not limited to, documentation of progression's meetings or meetings with the house staff physician, clinical evaluations, and in-training examination scores.

The program director or his/her designee must also discuss this decision with the house staff physician, and the rationale behind the action. There should be clear documentation that the specific and general areas of concern about the house staff physician's performance have been identified. The department must provide the house staff physician a written delineation of the deficiencies which must be corrected in order for the house staff physician to be removed from probation. The duration of the probation must be specified.

An appropriate period will be allowed for the house staff physician to correct the identified deficiencies. The department must provide both a time frame and a mechanism for re-evaluation. A period of probation may not exceed 12 months. If at the end of the probation period the department determines that the house staff physician has not corrected the identified deficiencies, the house staff physician may be dismissed from the program. If additional deficiencies arise during the probation period, these should be set forth in an additional letter to the house staff physician which shall be delivered in the manner set forth above. The identification of additional deficiencies should not automatically extend the probationary period. If the department is satisfied that the house staff physician has corrected the identified deficiencies and any other problems which may have arisen during the probation period, then the probation status will be lifted.
A house staff physician may be placed on probation at any time. The decision about reappointment of a house staff physician who is on probation may be deferred, at the discretion of the program director or his/her designee, until the end of the probation period. Removal of probation status shall not constitute reappointment.

The program director or his/her designee must notify the Texas Medical Board when a resident is placed on probation. The program director shall do so by completing the "Program Director's Report of Certain Types of Conduct by Permit Holder" form available on the TMB website (http://www.tmb.state.tx.us/). The program director of his/her designee shall notify the TMB within seven days of placing the house staff physician on probation. In the event of an appeal, the program director has seven days after the appeals process has been completed within which to notify the Texas Medical Board.

The resident or fellow may appeal the decision to be placed on probation in accordance with the procedures outline in GME Policy 25.1.17. Instructions about the appeals process should be included in the original probation letter.

If the department elects to dismiss the house staff physician at the end of the probation period, the dismissal can be appealed in accordance with the procedures outlined in GME Policy 25.1.19. A house staff physician who is on probation may be dismissed as provided in GME Policy 25.1.18 at any time during or at the completion of the probation period.

\[ \text{a) Appeal of Probation} \]

The decision of the program director or his/her designee to place a house staff physician on probation may be appealed. When a house staff physician is placed on probation, he/she must be informed that he/she is entitled to appeal the decision in the letter explaining the probationary decision. If he/she wishes to appeal, the following procedures must be followed:

- The house staff physician shall notify the department chair by letter of the request to appeal within 14 calendar days of receiving the notice of probation. This letter should identify the specific reasons the house staff physician believes the action of the department is unwarranted and any other information which he/she feels is relevant. The program director or his/her designee must notify the Texas Medical Board within seven (7) days after placing a resident on probation. This time period is delayed until completion of all appeal processes. However, to invoke this delay, the house officer MUST begin the appeals process before the seven (7) day period has expired.
- Upon receipt of the notice of appeal by the house staff physician, the department chair will set a date to convene a departmental ad hoc review committee to hear the appeal. Requests by a house staff physician for rescheduling shall be honored to the extent practical.
- All proceedings before the department's ad hoc review committee shall be conducted in a manner which ensures that the house staff physician is given an adequate opportunity to fairly present the case for full review and to state the basis for his/her appeal. The appeal mechanism is not a court proceeding and is not bound by the rules of a court of law. The departmental ad hoc committee shall take adequate minutes of any proceedings, and maintain adequate records of all materials presented.
- In the preparation and presentation of the appeal, the house staff physician may utilize a faculty advisor. Selection of a faculty advisor and the role of that individual are determined in accordance with the guidelines set forth in GME Section 25.1.19, Paragraph B.
- After hearing all of the evidence, the ad hoc review committee shall meet and decide if the evidence presented supports the appeal. The decision of the ad hoc review committee shall be presented to the housestaff physician and the department Chair and program director. The house staff physician will be notified of the committee's final decision in writing. The entire appeals process should be completed within 30 calendar days of receipt of the house staff physician's notice of appeal, if possible.
- If the ad hoc review committee's decision is to uphold the appeal, the house staff physician may further appeal the decision to the Chair of the Graduate Medical Education Committee (GMEC), within 14 calendar days of the departmental decision.
- Upon receipt of the notice of appeal by the house staff physician, the Chair of the GMEC will set a date to convene an ad hoc review committee to hear the appeal. Requests by a house staff physician for rescheduling shall be honored to the extent practical. The ad hoc review committee will consist of at least five and no more than nine members. Two of these shall be house staff physicians with whom the house staff physician making the appeal has no working relationship. The other members shall be faculty of Baylor College of Medicine, from departments other than the one involved in the appeal.
- All proceedings before the GMEC's ad hoc review committee shall be conducted in a manner which ensures that the house staff physician is given an adequate opportunity to fairly present the case for full review and to state the basis for his/her appeal. The appeal mechanism is not a court proceeding and is not bound by the rules of a court of law. The GME ad hoc review committee shall take adequate minutes of any proceedings, and maintain adequate records of all materials presented.
In the preparation and presentation of the appeal, the house staff physician may utilize a faculty advisor. Selection of a faculty advisor and the role of that individual are determined in accordance with the guidelines set forth in GME Section 25.1.19, Paragraph B.

After hearing all of the evidence, the GME ad hoc review committee shall meet and decide if the evidence presented supports the appeal. The decision of the committee shall be presented to the house staff physician, department chair and program director. The house staff physician will be notified of the committee's final decision in writing. The entire appeals process should be completed within 30 calendar days of receipt of the house staff physician's notice of appeal, if possible.

If the GME ad hoc review committee's decision is to uphold the appeal, the house staff physician may appeal in writing to the Associate Dean for Graduate Medical Education, within 14 calendar days after receipt of the GME ad hoc committee's decision. The Associate Dean should notify the parties involved of a final decision within 14 calendar days of receipt of the notice of appeal, if possible. The decision of the Associate Dean is binding and cannot be appealed further.

Probationary actions are reportable to the Texas Medical Board. Contracts for renewal may be offered during a probationary period, with the caveat that they are dependent upon successful completion of the probation. Or, the contract may not be offered until the end of the probationary period requirement. No house staff physician shall be promoted to the next level of training while in a probationary period. If the house staff physician fails to meet all the requirements, the house staff physician's probation may be extended or the house staff physician may be dismissed or have his or her contract not renewed.

### 3. Dismissal and Appeal of Dismissal

*This information is verbatim from the GME section of BCM Policies and Procedure Manual.*

A house staff physician is subject to immediate dismissal by his/her program director or designee during the term of the house staff physician's appointment including, but not limited to, the following reasons:

- If his/her performance presents a serious compromise to acceptable standards of care or jeopardizes patient welfare;
- If he/she is impaired (as defined by the Texas Medical Board [www.tmb.state.tx.us](http://www.tmb.state.tx.us) and/or the American Medical Association [www.ama-assn.org](http://www.ama-assn.org));
- For unethical conduct (as embodied by in the Principles of Medical Ethics of the American Medical Association [www.ama-assn.org/ama/pub/category/2512.html](http://www.ama-assn.org/ama/pub/category/2512.html));
- For illegal conduct;
- If he/she fails to report to work as scheduled without justification acceptable to the program director;
- For violation of the rules, regulations and policies of the College or its affiliated hospitals.

Written notification of dismissal shall be delivered by hand by the program director or his/her designee or sent by certified mail (return receipt requested) to the house staff physician at his/her address of record with copies to the Associate Dean of Graduate Medical Education and the Chair of the Graduate Medical Education Committee. This letter will stipulate the reasons for such action. A house staff physician dismissed for one of the reasons set forth above may appeal the decision as set forth in GME Section 25.1.20. A house staff physician who is dismissed will be given a copy of this policy as soon as practicable following his/her dismissal and will be told of his/her right to appeal.

The letter of dismissal must be reviewed by the Associate Dean for Graduate Medical Education or his/her designee prior to being given to the house staff physician. This letter shall be reviewed within 48 hours of its preparation.

#### a) Appeal of Dismissal

A dismissed house staff physician, who is entitled to appeal and wishes to do so, must proceed according to the following procedures:

1) He/she shall notify the Chair of the Graduate Medical Education Committee by letter sent by certified mail (return receipt requested) within five (5) calendar days of receipt of notification of dismissal. This letter shall set out the specific reasons the house staff physician believes the action of the department is unwarranted and any other information which he/she feels is relevant.

2) Upon receipt of the notice of appeal by the house staff physician, the Chair of the GMEC will appoint, within seven (7) calendar days, an ad hoc appeal review subcommittee to hear the appeal. This ad hoc appeal review subcommittee will consist of nine members, at least two of whom shall be house staff from departments other than the department involved in the proceedings. The Chair of the ad hoc appeal review subcommittee shall not be personally involved in the controversy,
have an appointment in the department involved, be intimately acquainted with the Chair or any member of the department involved in the controversy or a personal acquaintance of the appealing house staff physician. Five members, including one house staff physician\(^2\) will constitute a quorum.

All proceedings before the ad hoc appeal review subcommittee or the GMEC shall be conducted in a manner which ensures that the house staff physician is given an adequate opportunity to present fairly the case for full review and to state the basis for his/her appeal. The appeal mechanism is not a court proceeding and is not bound by the rules of a court of law. However, the hearing before the ad hoc appeal review subcommittee will be the sole presentation of facts, witnesses and evidence by both parties. Therefore, each party is encouraged to fully investigate and prepare its presentation for the ad hoc appeal review subcommittee. The parties will not be permitted to introduce additional evidence in any further appeals which they could have presented at the initial hearing before the ad hoc appeal review subcommittee.

In the preparation of the appeal, the house staff physician may utilize a "faculty advisor". A faculty advisor is a salaried Baylor faculty member who is familiar with the appeal process and the structure of the house staff training programs at Baylor and who advises the house officer during an appeal process and hearing. The faculty advisor should have no direct previous involvement with the house staff physician and should not be a member of the house staff physician's department. The GMEC maintains a roster of faculty members who have agreed to serve in this capacity. A house staff physician who initiates an appeal may select a faculty advisor from this roster or the faculty at large. The faculty member, is, however, free to decline to serve as an advisor. The house staff physician is not obligated to select a faculty advisor. If the house staff physician utilizes a faculty advisor, he or she must notify the department in writing five (5) calendar days in advance of the hearing that the advisor will be present at the appeal hearing. At the appeal hearing, the faculty advisor may make a statement to the ad hoc appeal review subcommittee if the faculty advisor and house staff physician mutually agree. Any statement by the faculty advisor will be considered part of the house staff physician's presentation for purposes of presentation order and time limitations. Other than this statement, the role of the faculty advisor at the appeal hearing will be limited to advising the house staff physician and shall not include questioning of witnesses, parties, or ad hoc appeal review subcommittee members. A faculty advisor shall not be permitted to vote or to be present for, or participate in the deliberations of the ad hoc appeal review subcommittee. A faculty advisor may mediate an agreement between the house staff physician and the department, if the department and the house staff physician mutually agree upon that role and function. However, such mediation shall take not take place during any of the hearings or committee deliberations.

The use of an advisor does not modify any time parameters related to the appeal. If he or she wishes, the house staff physician may change faculty advisors, but doing so shall not modify any time parameters related to the appeal.

3) The ad hoc appeal review subcommittee shall set a time and place for a hearing on the appeal at the earliest practicable date. The house staff physician shall have at least seven (7) calendar days from the issuance of notice of the appointment of the ad hoc appeal review subcommittee in which to prepare his/her appeal. Requests by a house staff physician for rescheduling shall be honored to the extent practicable. All efforts should be made to hold the hearing within 30 calendar days from the date of the house staff physician's appeal letter.

4) At least 14 calendar days prior to the hearing the house staff physician shall have access to read his/her departmental training file which shall contain all reports, evaluations and recommendations related to action taken and his/her file as maintained by the Office of Graduate Medical Education. The house staff physician and the department are strongly encouraged to submit written statements setting forth their positions, together with supporting documents. The ad hoc appeal review subcommittee members shall each receive copies of said files\(^3\), the letter of appeal and any other documents the house staff physician or the department wish to present at the hearing. All written documents must be received by the ad hoc appeal review subcommittee at least five (5) calendar days in advance of the hearing. All Baylor College of Medicine documents shall be deemed confidential and returned to the Office of Graduate Medical Education upon close of the hearing.

5) Any hearing held before the ad hoc Appeal Review Subcommittee or any hearing called by the GMEC shall be conducted in accordance with the guidelines provided in GME Section 25.1.20. Additional questioning of the parties or witnesses by the GMEC is not mandated by these provisions.

At the hearing of the ad hoc appeal review subcommittee, the department shall first inform the house staff physician of the reasons for his/her dismissal. The house staff physician shall then have an opportunity to present his/her case. The house staff physician and department representatives shall be permitted to ask questions of the other and of witnesses or ad hoc appeal review subcommittee members, but all questions must be addressed to the subcommittee chair. All evidence offered must be reasonably related to the facts and statements concerning the reasons for dismissal and the house staff physician's appeal. The house staff physician and the department must represent themselves. Both parties may present additional documents at the
hearing that were not available prior to the previously-cited deadline. No evidence may be offered except when both parties are present.

6) A written transcript of the ad hoc appeal review subcommittee meeting shall be made.

7) The house staff physician shall not be compelled to be a witness against himself/herself nor shall he/she be compelled to produce any documents in support of his/her position. Thus, the house staff physician may decline to answer any question put to him/her by the ad hoc appeal review subcommittee or the department's representative.

8) After hearing all of the evidence, the ad hoc appeal review subcommittee shall meet and decide if the evidence presented supports the appeal. Unless a two-thirds majority of subcommittee members present agrees to support the appeal, the dismissal will stand. The ad hoc appeal review subcommittee chair shall prepare a written statement setting out the decision reached and the basis for the decision. This document shall be filed with the GMEC Chair and the Associate Dean for GME, and a copy mailed by certified mail (return receipt requested) to both parties within three (3) calendar days of reaching a decision.

9) The decision of the ad hoc appeal review subcommittee can be appealed to the full Graduate Medical Education Committee (GMEC) by either the house staff physician or the department. At the appeal hearing before the full GMEC, each party shall be allotted 45 minutes to make its initial presentation and 15 minutes for rebuttal. All written materials dealing with the appeal shall be made available to the GMEC members at least five (5) working days in advance. This material shall include, but not be limited to, a transcript of the ad hoc appeal review subcommittee hearing.

A letter requesting an appeal must be sent by certified mail (return receipt requested) to the GMEC Chair and the other party within five (5) calendar days of receipt of notice of the ad hoc appeal review subcommittee's decision.

Both the house staff physician and the department shall have the right to submit written statements of appeal to the GMEC. These statements shall contain the reasons the party believes the decision of the ad hoc appeal review subcommittee is in error or why the appealing party was not accorded all rights. The party should include any supporting documents. These statements and documents shall not introduce facts which were known or should have been known to the party at the time of the initial hearing, but not brought before the ad hoc appeal review subcommittee.

The appellate review before the GMEC shall be held within 30 calendar days of receipt of the notice of appeal. Those members of the GMEC who served on the ad hoc appeal review subcommittee and any member of the GMEC who has an appointment from the department involved shall be ineligible to serve on the GMEC during this appeal process. House staff physician members of the GMEC who served on the ad hoc appeal review subcommittee shall be replaced on the GMEC by an equal number of house staff physicians who shall be appointed as ad hoc members by the Chair of the Chief Residents’ Council. These house staff physician appointees to the GMEC must be from departments other than the department involved in the appeal, must not be close friends of the appealing house staff physician and must have had no involvement in the controversy described in the initial complaint. They shall serve as ad hoc members of the GMEC. A majority of the GMEC members who are eligible to vote shall constitute a quorum.

The GMEC may call either of the parties for additional questioning if it deems such action to be appropriate.

10) The concurrence of two-thirds of the members of the GMEC present and voting shall be required to overturn the dismissal or recommend other action. If two-thirds of the GMEC fails to reach a decision, the dismissal shall stand. A copy of the decision thus made shall be sent by certified mail (return receipt requested) to both parties within three (3) calendar days of the GMEC rendering of the decision.

11) Within three (3) calendar days of receipt of notice of the decision, the house staff physician or the department has the right to appeal the decision of the GMEC to the President of the College. A copy of the appeal must be sent by certified mail (return receipt requested) simultaneously to the other party. The appeal to the President shall be by written submissions by the parties unless the President feels that personal appearances by the parties are necessary to resolve essential issues.

12) Upon receipt of a timely appeal, the President of Baylor College of Medicine shall review the minutes of the proceedings before the GMEC and the ad hoc appeal review subcommittee and such other documents presented before those bodies as he/she shall deem relevant. The President shall also review the written submissions of appeal as presented by both the house staff physician and the department to the GMEC. This appellate review shall not be an opportunity for the parties to present new facts, evidence, and witnesses, but shall only be a review to determine whether the proceedings were conducted in a
proper manner, whether the facts, evidence, and witnesses presented were fairly considered and whether the appellant has been accorded all procedural rights. The President may, at his/her discretion, appoint one or more persons to a committee to investigate or evaluate the appeal on his/her behalf and report its findings to him/her. The President may also take any other discretionary action as he/she deems proper and appropriate to reach a decision.

Additionally, the President may hold another hearing with the house staff physician and the department present, but it is within the President's discretion to not have another hearing. The President may, in his/her discretion, delegate this function to another Officer of BCM. The designees may in his/her sole discretion, exercise any of the rights granted to the President. The decision of the President or his/her designee on this matter shall be final and binding as to all parties to the dispute.

13) All proceedings of the ad hoc appeal review subcommittee, the full GMEC, and the President or his/her designee(s) shall be confidential. Only official minutes shall be kept of such proceedings. The College reserves the exclusive right to make a recording of any or all of these proceedings, with transcripts of these recordings made available for review during a subsequent phase of the appeals process. A copy of these transcripts shall be made available to both parties. The parties shall not be permitted to bring recording equipment to any meetings.

14) The house staff physician shall continue to draw full pay until the end of his/her current appointment or until completion of the appeals process, whichever comes sooner.

15) Where another house staff physician is to serve as member of the ad hoc appeal review subcommittee or the GMEC, all house staff files shall be disclosed to the ad hoc appeal review subcommittee or the GMEC only upon proper written consent of the dismissed house staff physician. Such consent shall be dated and signed by the dismissed house staff physician and must (i) specify the records that may be disclosed; (ii) state the purpose of the disclosure; and (iii) identify the party or class of parties to whom disclosure may be made. If such consent is withheld, the house staff physician shall be deemed to have waived the right to have a fellow house staff physician(s) serve on the ad hoc appeal review subcommittee or the GMEC. Education records may be disclosed to the ad hoc appeal review subcommittee or the GMEC, or the President without the proper written consent of the dismissed house staff physician if no other house staff physicians are to serve on the ad hoc appeal review subcommittee, the GMEC, or any committee appointed by the President to investigate the matter. All BCM documents shall be deemed confidential and returned to the Office of Graduate Medical Education at the conclusion of the hearing.

W. Reporting Information about Housestaff to the Texas Medical Board

The program director of each approved postgraduate training program shall report in writing to the executive director of the Texas Medical Board (TMB) the following circumstances within seven days of the program director's knowledge for any physician-in-training permit (PIT) holder enrolled in post-graduate training:

- If a physician did not begin the training program due to failure to graduate from medical school as scheduled or for any other reason(s);
- If a physician has been or will be absent from the program for more than 21 consecutive days (excluding vacation, family, or military leave) and the reason(s) why;
- If a physician has been arrested after the permit holder begins training in program;
- If a physician poses a continuing threat to the public welfare as defined under Tex. Occ. Code §151.002(a)(2), as amended;
- If the program has taken final action that adversely affects the physician's status or privileges in a program for a period longer than 30 days;
- If the program has suspended the physician from the program;
- If the program has requested termination or terminated the physician from the program, requested or accepted withdrawal of the physician from the program, requested or accepted resignation of the permit holder from the program and the action is final.

If a house staff physician applies for and receives a full License, the PIT permit is immediately invalid, regardless of the date of expiration on the original PIT permit. The license holder is required to provide proof of licensure to the Office of Graduate Medical Education within seven (7) days of receipt. It is the responsibility of the license holder to meet all requirements for maintenance of the license.

If a license holder allows the license to expire, he/she will be taken off duty without pay immediately, and credit for training done with an expired license may be disallowed. It is also the license holders' responsibility to report any and all required information to the TMB as defined by TMB.
V. **NEUROLOGY GOALS AND OBJECTIVES BY ROTATION**

A. Design of the Program

The Baylor College of Medicine Neurology Residency Program is committed to training highly competent, ethical professionals who can thrive in the practice environment of their choice. Our training program is grounded in the values of intellectual curiosity, professionalism, empathy, and integrity. We believe that professional development requires a commitment from a faculty actively engaged in teaching residents both clinical neurology and the scientific underpinnings of neurological disease. Our rotations are chosen first and foremost for their educational value to the residents, not merely for the service needs of faculty members. Our residents care for a culturally and socioeconomically diverse group of patients with a wide variety of neurological conditions at six different hospitals and at the Baylor Clinic. We have created a balanced program that exposes our residents to the gamut of inpatient neurology experiences as well as to outpatient general and subspecialty neurology.

The Department of Neurology offers ten residency positions each year in adult neurology. Our program is a four-year categorical program. Child Neurology and Neurodevelopmental Disabilities residents are required to spend 12 months of the training in adult neurology, and this experience is divided between the PGY3 and PGY4 years. Please see the Child Neurology and Neurodevelopmental Disabilities Web pages for more information.

During the PGY2-PGY4 years, residents enjoy many months of elective time. Additional, one month neurodiagnostic and outpatient selectives in the following areas are also required: EEG/EMU, EMG, Multiple Sclerosis, Movement Disorders, Neuromuscular Diseases, and Neuro-oncology.
## B. Clinical Rotation Schedules

Below is a summary of the structure of rotations (SUBJECT TO CHANGE)

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Site</th>
<th>PGY1</th>
<th>PGY2</th>
<th>PGY3</th>
<th>PGY4</th>
</tr>
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<tbody>
<tr>
<td><strong>Internal Medicine Wards</strong></td>
<td>BTGH</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>MEDVAMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internal Medicine Subspecialties (e.g., Renal, ID, Heme/Onc)</strong></td>
<td>SLEH</td>
<td>2</td>
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<tr>
<td><strong>MICU</strong></td>
<td>BTGH</td>
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<tr>
<td><strong>Emergency Center</strong></td>
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<td>-</td>
<td>-</td>
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<tr>
<td><strong>Cardiology</strong></td>
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<td><strong>Psychiatry Consult Liaison</strong></td>
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<tr>
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<td><strong>Medicine Night Float</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Neurology Consults</strong></td>
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<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>MEDVAMC</td>
<td></td>
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<tr>
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<td><strong>Outpatient Clinics</strong></td>
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<td>-</td>
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<tr>
<td></td>
<td>MEDVAMC</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Neurocritical Care</strong></td>
<td>SLEH</td>
<td>1</td>
<td>2</td>
<td>1</td>
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<tr>
<td><strong>Neuro-oncology Consults</strong></td>
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<tr>
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<td>-</td>
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<td>-</td>
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<tr>
<td><strong>Multiple Sclerosis</strong></td>
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<tr>
<td><strong>Movement Disorders</strong></td>
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<td>-</td>
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<td>-</td>
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<tr>
<td><strong>Neuromuscular Diseases</strong></td>
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<td>-</td>
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<tr>
<td><strong>Child Neurology</strong></td>
<td>TCH</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>EMG</strong></td>
<td>BCM</td>
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<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>EEG/EMU</strong></td>
<td>SLEH</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>Electives</strong> *</td>
<td>-</td>
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</tr>
</tbody>
</table>

BCM = Baylor Clinic, BTGH = Ben Taub General Hospital, MEDVAMC = Michael E. DeBakey Veteran's Affairs Medical Center, MDACC = M.D. Anderson Cancer Center, SLEH = St. Luke's Episcopal Hospital, TCH = Texas Children's Hospital

* Can take place at the Baylor Clinic or any of the affiliated hospitals and include a wide range including EMG, EEG, Neuroradiology, Movement Disorders, Neuromuscular, Dementia, Epilepsy, Sleep, Pain, Neuro-ophtalmology, Neuropathology

^ Resident do a total of four months divided between BTGH consults, MEDVAMC consults, and SLEH NICU chief

## C. Intern Year (PGY1)

### Overview

The first year of residency focuses mainly on training in Internal Medicine but also includes two months of neurology and one month of psychiatry. The PGY1 residents rotate through three clinical sites: St. Luke's Episcopal Hospital (SLEH), Ben Taub General Hospital (BTGH), and the Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC). Residents must develop competency in managing general medical conditions critical to caring for patients with neurological problems. The internal medicine months include two months on medicine subspecialty electives at SLEH (e.g. renal, hematology/oncology, infectious disease, or gastroenterology), one month in the BTGH Emergency Center, one month in the BTGH Medical Intensive Care Unit, one month on the cardiology service at the MEDVAMC, and three months on general medicine wards divided between BTGH and MEDVAMC.
and one month at MEDVAMC divided between night float and an internal medicine subspeciality (either rheumatology or endocrinology). Additionally, residents spend one month on Consult/Liaison Psychiatry at MEDVAMC, one month on the General Neurology/Stroke Service at SLEH and one month in the NICU at SLEH. There is no continuity clinic requirement during the intern year.

**Intern Year Call**

Overnight call is limited during the internal year since the internal medicine service operates a night float system for overnight admissions staffed by upper level residents at both BTGH and MEDVAMC.

For PGY1 residents rotating at SLEH, there will be on average 2-3 (~2.5) calls per month at SLEH. The night call will start at 5 p.m. and finish by 8 a.m. next day (checkout rounds begin between 7-8 a.m.). PGY1 residents who rotate at BT MICU will have on average 2-3 calls per month. There will be two weeks of VA night float for each intern for the entire year. Upper level internal medicine residents are always available in-house during night calls. The BT General Medicine wards, VA General Medicine wards, VA Cardiology, VA electives (two weeks alternate to night float two weeks), BT ER (which is shift work) will all be call free.

The two neurology months and the psychiatry month are free of over-night call. Supervision for all PGY1 rotations is direct or indirect with supervision immediately available.

**D. The Second Year (PGY2)**

The PGY2 year is designed to teach the fundamentals of caring for patients with diseases of the nervous system. Although the emphasis is deliberately on the care of hospitalized patients, residents are also afforded a number of opportunities to develop their skills in the evaluation and management of neurology outpatients both in their own continuity clinic as well as on a number of outpatient clinic rotations. Residents rotate in the Neurological Intensive Care Unit as well as on the general neurology service at SLEH. At MDACC, residents rotate on the neuro-oncology consult service. At both BTGH and MEDVAMC residents assume primary care of patients admitted to the neurology inpatient services. There will be 10 days of night float at SLEH (two 5-day blocks) during the PGY2 year. Night float will begin at 6 p.m. and end at 6 a.m. with an additional hour for safe transition of care.

In addition to the inpatient, consult, and critical care training during the PGY2 year, 2-3 months are reserved for outpatient experiences. PGY2 outpatient experiences will take place in the general neurology and sub-specialty neurology clinics at BTGH and MEDVAMC. In addition to general neurology clinics, subspecialty clinics at BTGH and MEDVAMC include epilepsy, stroke, cognitive disorders, movement disorders, multiple sclerosis, and neuromuscular. Additionally, residents will spend one month rotating in the Maxine Messenger Multiple Sclerosis Clinic, honing their subspecialty neurology skills.

**E. The Third Year (PGY3)**

The third year of neurology training is a time to gain broad exposure to sub-specialty outpatient neurology and hone skills in consultation neurology. Residents serve as consultation chiefs at BTGH and MEDVAMC. They also serve as Chiefs in the SLEH NICU where they hold the stroke pager during the day and are responsible for managing patients undergoing acute thrombolysis for ischemic stroke. Outpatient experiences include neuro-oncology clinic at MDACC, Blue Bird Child Neurology Clinic at TCH, outpatient clinics at BTGH and MEDVAMC, and Movement Disorders at the Baylor Clinic Parkinson's Disease Center and Movement Disorders Clinic. Additionally, residents learn to read EEG and refine epilepsy management skills at the SLEH EMU, the MEDVAMC Epilepsy Clinic and EEG lab, and the TCH EEG lab. Night float at SLEH is limited to 5 days. There are opportunities for elective including additional EEG and EMG as well as a number of subspecialty clinics at the BCM Clinic including Dementia, Movement Disorders, Neuromuscular, Disease, Epilepsy. Other residents elect neuroradiology, neuropathology, Sleep Medicine, or research.

PGY3 residents also take on leadership and teaching roles in their capacity as consultation service and ICU chiefs. Along with their PGY4 colleagues, third year residents also serve as back-up for the PGY2 residents on call at BTGH and MEDVAMC. This responsibility sharpens decision-making, teaching, and leadership skills.

The PGY3 year is also important time for career planning, as most fellowship plans are finalized late in the PGY3 year or early in the PGY4 year. Residents are provided with strong support and career guidance in pursuit of fellowships, academic positions, and practice opportunities.
F. Fourth Year (PGY4)

The final year of training is a time to consolidate the knowledge and skills gained over the previous three years of training and assume a more active leadership and management role. With the help of PGY3 residents, PGY4 residents supervise and assist junior house officers on the wards, on consults, and in the outpatient clinics. While on the wards, upper-level residents round with the junior residents, provide clinical support, and teach the junior residents and students. Senior residents often evaluate patients in the emergency room during the day.

PGY4 residents serve as the inpatient service chiefs at both BTGH and MEDVAMC. They also complete their child neurology requirements with one month of child neurology consults and another month of pediatric neuro-critical care consults. They complete 10 days of night float (divided into two 5-day blocks). They also rotate in the Baylor Neuromuscular Clinic at the BTGH/MEDVAMC Outpatient Clinics. The remainder of the year is reserved for additional electives at the Baylor Clinic or any of the affiliated hospitals.

PGY2 through PGY4 Call

A neurology night float system operates St. Luke's Episcopal Hospital. This night float duty is shared among PGY2, PGY3, PGY4 and Child Neurology/NDD residents on their adult year. Night float duty will be no more than 10 days per year per. At Ben Taub General Hospital and Michael E. DeBakey Veterans Affairs Medical Center, PGY2 or Child Neurology PGY3 level residents share in house call, and upper level residents serve as at-home back-up. Call at Ben Taub and the MEDVAMC is every fifth to sixth night (5-6 calls per month). Call for Texas Children's Hospital and M.D. Anderson Cancer Center is from home.

"Jeopardy" System

If a resident is unable to attend work to cover clinical duties including call, the "jeopardy" resident will fill in for that resident until s/he returns to work. Each week, an upper level resident is assigned "jeopardy" backup. During this 7 day period, the jeopardy resident should remain available for last minute back-up. Each upper level will be assigned between 2-3 weeks of jeopardy per year. Additionally, there will be a back-up to the jeopardy resident in case one than one resident is unavailable or the jeopardy resident is indisposed due to illness or other excused absence.

G. Electives

Dementia
EMG
Epilepsy
Neurophysiology: /EEG/the Epilepsy Monitoring Unit/Evoked Potentials
Movement Disorders
Behavioral Neurology and Neuropsychiatry
Neuromuscular Disorders
Neuro-oncology
Neuro-ophthalmology
Neuro-otology
Neuropathology
Diagnostic Neuroradiology
Interventional Neuroradiology
Neurosurgery / Trauma Neuro ICU
Multiple Sclerosis
Pain Clinic
Research: clinical or basic science
Sleep Medicine
Neuro-infectious diseases/ Neuro-HIV
Neuro-ethics
Outside elective rotations can be arranged
H. Institutional Partners

Residents learn by providing care for patients at six clinical sites: St. Luke's Episcopal Hospital (SLEH), Baylor Clinic, Ben Taub General Hospital (BTGH), Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC), Texas Children's Hospital (TCH), and M.D. Anderson Cancer Center (MDACC). In aggregate, these institutions provide unparalleled educational resources in terms of patient diversity, clinical resources, and associated clinical and basic research. The large number of affiliated institutional partners allows us to select those rotations that offer residents the greatest educational opportunities.

1. St. Luke's Episcopal Hospital (SLEH)

There are 900 adult beds at St. Luke's General Hospital. There is a neurological ICU with 20 beds available for neurology and neurosurgery patients. The neurological ICU at St. Luke's has state-of-the-art equipment, including ICP monitors, Camino monitors, Licox catheters and the Hummingbird system, which allows for multimodality neuromonitoring. Additionally, there is a dedicated Neurology floor where ancillary staff is trained in the management of neurologic disease. Three 1.5 Tesla MRI scanners are available throughout the day and night. There is a portable 64-slice CT scanner available for the neurological ICU. In addition, St. Luke's has a transcranial Doppler ultrasound laboratory equipped to perform routine studies as well as prolonged neuromonitoring. St. Luke's is also a comprehensive stroke center.

Neurology resident rotations at St. Luke's Episcopal Hospital include the Neuro-Critical Care, Stroke, General Inpatient Neurology and Neurophysiology/Epilepsy Monitoring Unit services. Additionally while rotating at SLEH Inpatient Service, residents are exposed to neurological complications of pregnancy through their work at the Texas Children's Pavilion for Women. Residents can pursue elective rotations in interventional neuroradiology.

Five full time neurointensivists/vascular neurologists are on staff at SLEH. Dr. Jose I. Suarez, who is the director of the Neurovascular/Critical Care Program at St. Luke's Episcopal Hospital, has published extensively in prominent journals such as New England Journal of Medicine and Neurology. He has written a comprehensive neuro-critical care textbook. He is also the chair of the Clinical Trials Committee of the Neurocritical Care Society. He and his colleagues are extremely active in resident education. He lectures daily when on service, teaches a neurovascular/critical care module for residents, and is also the fellowship director for neurocritical care at St. Luke's.
2. Baylor Clinics and Labs

Neurology residents at Baylor have an incredible opportunity to rotate in a wide spectrum of subspecialty clinics led by leaders in their respective fields. Residents spend a large portion of their elective time rotating in these specialty clinics. The Clinic includes a general neurology clinic and several prominent subspecialty centers:

- **The Alzheimer's Disease and Memory Disorders Center** is directed by Dr. Rachelle S. Doody and is one of only a few in the country dedicated to both patient care and research. It was the lead site for the development of the most widely prescribed Alzheimer's disease drugs worldwide.

- **The Comprehensive Epilepsy Center and the Peter Kellaway Section of Neurophysiology**, under the direction of Dr. Richard A. Hrachovy, is designated by the National Association of Epilepsy Centers as a Level IV Center providing a full range of services for those with epilepsy. Dr. Hrachovy is the head of the Peter Kellaway Section of Neurophysiology. Along with Dr. Peter Kellaway and our Chair, Dr. Eli Mizrahi, he pioneered neonatal electro-encephalography. He is very active in resident teaching and arranges an epilepsy/EEG module for all neurology residents. Residents rotate with him as upper-levels on the EEG service and often get 1:2 instruction in EEG. He is also the head of Epilepsy at the VA Medical Centers, where he staffs the epilepsy clinic and teaches residents. He is the fellowship director for Neurophysiology. He has published extensively, including many prominent electroencephalography books and chapters.

- **The Clinical Neurophysiology Laboratory** consists of three fully equipped EEG-video monitoring suites, four fully equipped sleep laboratories, two EEG labs, one evoked potential lab, and instrumentation at the beside to perform multiple types of studies.

- **The EMG/NCV Laboratory** is directed by Dr. James M. Killian, one of the most experienced clinicians in this field, and provides strong EMG/NCV training for the neurology residents.

- **The Multiple Sclerosis Comprehensive Care Center** is composed of the Maxine Mesinger Multiple Sclerosis Clinic, Research Unit, and Outreach Program. Dr. George J. Hutton is medical director of the Maxine Mesinger Multiple Sclerosis Clinic and is actively involved in numerous ongoing clinical trials investigating novel treatment strategies in MS.

- **The Neuromuscular Disease Center** has been one of the comprehensive centers for neuromuscular disorders in the southwestern United States for the past two decades. Dr. Yadollah Harati, one of the leading neuromuscular specialists in the nation, directs the center. There are several specialty clinics and labs within the Neuromuscular Disease Center including ALS, Myopathy and Muscular Dystrophy, Myasthenia Gravis and Related Disorders Clinic, a Nerve and Muscle Pathology Laboratory, and a state-of-the-art Autonomic Function Testing Laboratory. The ALS Association Clinic at BCM has been recognized as a Center of Excellence by the ALS Association.

- **The Parkinson Disease Center and Movement Disorders Clinic**, one of the world's leading clinical and research institutions with primary focus on Parkinson's disease and other movement disorders, was founded and directed by Dr. Joseph Jankovic. Dr. Jankovic has served as past president of the Movement Disorders Society, authored over 700 articles and chapters, and published more than 35 books. He is one of the co-editors of Bradley's Neurology in Clinical Practice. There is also a Huntington's Disease Society of America Center of Excellence within the PDCMDC.

3. Ben Taub General Hospital (BTGH)

The Ben Taub hospital provides care to the approximately 1.5 million uninsured patients in Harris County. The Ben Taub General Hospital (BTGH) is a major teaching site for residents at Baylor College of Medicine. BTGH is the flagship hospital of the Harris County Hospital District (HCHD). Harris County is the nation's third largest county with a population of 4.5 million. HCHD provides care for patients across the entire socioeconomic spectrum. Residents are exposed to the gamut of neurological problems common in urban settings, such as stroke, epilepsy, HIV-related neurological disease, neurological complications of pregnancy, substance abuse, and cancer, as well as co-morbid neurological and psychiatric disease. Residents also care for uncommon immune-mediated neurological disease such as neuromyelitis optica, and multiple sclerosis. Ben Taub also serves recently arrived immigrants who have disorders often not seen in the United States such as neurocysticercosis and tuberculous meningitis. Ben
Taub also serves a population with many acute neurological problems such as head trauma, drug overdoses, intracerebral hemorrhages, status epilepticus, Guillain-Barre, myasthenic crisis, and spinal cord compression. Ben Taub is a level I trauma center and has a world-class Neurosurgical ICU. Neurology residents, working as consultants in the Neurosurgical ICU, become familiar with head trauma and gunshot wound complications.

The BTGH Neurology Service provides consultative service as well as inpatient and outpatient care. There is also a wide variety of outpatient subspecialty neurology clinics at BTGH: Epilepsy, Lumbar Puncture, Movement Disorders and Dementia, Botox, Neuro-oncology, Neuromuscular, Stroke, General Neurology, and Multiple Sclerosis/Demyelinating Diseases. These specialty clinics are staffed with experts in the field. Many residents also have their continuity clinics at BTGH. The Thomas Street Clinic (TSC) is affiliated with BTGH and HCHD and provides primary and specialty health care for HIV patients. Neurology residents can choose to do an elective rotation at the TSC Neurology-HIV clinic to gain additional experience in neurological complications in HIV patients.

4. Michael E. DeBakey Veteran's Affairs Hospital (MEDVAMC)

The Michael E. DeBakey Veteran's Affairs Medical Center (MEDVAMC) is the second largest VA hospital in the country and has the largest number of residents of any VA in the country. It is a modern facility completed in 1991 and is a Joint Commission Certified Stroke Center. The MEDVAMC is a specially designated flagship facility equipped with ultramodern resources not found in other VA hospitals. It is equipped with a state-of-the-art 3T MRI and a new 1.5T HDx MRI, two 64 slice CT scans, and a PET/CT facility. A dedicated 3T research MRI is anticipated this year. The faculty is active in both clinical and basic science research.

The MEDVAMC has one of six national Parkinson's Disease Research, Education and Clinical Centers (PADRECC). The MEDVAMC has also received distinction and funding as a national Epilepsy Centers of Excellence (ECoE), directed by Dr. Richard A. Hrachovy. The MEDVAMC has longstanding, very active Epilepsy Monitoring Unit with 4 specially equipped beds for continuous video-EEG monitoring. Furthermore, the MEDVAMC is home to another VA-funded Research Centers of Excellence: Houston Center for Quality of Care and Utilization Studies and Neurorehabilitation -- Neurons to Networks Center of Excellence. It is also home to a VA Quality Enhancement Research Initiative in Substance Use Disorders, a Mental Illness Research and Clinical Care Center. The MEDVAMC is the only VA recognized as a comprehensive stroke center.

The Neurology Care Line Executive, Dr. Thomas A. Kent, is a leading expert on stroke and translational stroke research. He has recently established a new journal, Stroke and Translational Research. He publishes widely in Neurology and Stroke. He serves on the education committee for Baylor Neurology residents.

The MEDVAMC offers extensive inpatient and outpatient training opportunities for neurology residents. It is the site of much EEG, EMG, psychiatry, neuroradiology, and neurosurgery training for our residents. In addition to general neurology clinics, residents at the MEDVAMC rotate through the Stroke, Epilepsy, Cognitive Disorders, PADRECC, Botox, and Lumbar Puncture clinics. Many residents have their continuity clinics at this site.

5. Texas Children's Hospital (TCH) and TCH Pavillon for Women

The adult neurology residency offers three months of pediatric neurology rotations beginning in the PGY3 or PGY4 year. These rotations include one month of pediatric general neurology inpatient consultations, one month of pediatric neurology critical care consultations, and one month of pediatric neurology ambulatory care. All of these rotations are offered at Texas Children's Hospital, one of the highest ranked pediatric hospitals in the nation. Texas Children's has been ranked #6 in general pediatrics and #5 in neurology and neurosurgery in the latest U.S. News & World Report's Best Hospitals rankings. Texas Children's is also the largest pediatric hospital in the nation and is currently constructing the Texas Children's Neurological Research Institute, dedicated to exploring human neuro-developmental and neurodegenerative disorders. It is anticipated that some adult neurology investigators will relocate to this new site.
In 2012, TCH opened the Pavillon for Women, a new inpatient center with state-of-the-art facilities for high risk obstetrics, surgical gynecology, and gynecological oncology.

6. MD Anderson Cancer Center (MDACC)

M.D. Anderson Cancer Center (MDACC) is the nation's leading cancer hospital. The U.S. News & World Report currently ranks M.D. Anderson as the #1 cancer center in the nation. Neurology residents spend two months rotating at MDACC. During the PGY2 year, residents gain exposure to neuro-oncology through the consultation service. On this service, they learn the neurological complications of cancer. As senior residents, they return to MDACC to work in the Primary Brain Tumor Clinic, where they learn the work-up and management of primary CNS neoplasms.
VI. NEUROLOGY GOALS AND OBJECTIVES BY ROTATION

A. BCM

1. Dementia and Cognitive Disorder
   in the Alzheimer Disease and Memory Disorders Clinic

Rotation Mentors
Dr. Rachelle Doody, Dr. Zumbo Albo, Dr. Mimi Dang

Contact Person
Dr. Rachelle Doody
rdoody@bcm.edu

Level of Training
PGY3 or PGY4

Rotation Type
Outpatient setting in the Alzheimer's Disease Center

Length of Rotation
One month

Rotation Overview and Specific Goals by Level of Training

This rotation is an elective for PGY3 and PGY4 neurology residents. All residents are expected to work toward improvement in all six core competencies as applied to patients with dementia and cognitive disorders. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

The goal of this rotation is for residents to obtain an in-depth appreciation for the variety and complexity of cognitive disorders; their phenomenology, characterization, differential diagnosis, work up, and treatment. Residents are also expected to gain an appreciation for the psychosocial aspects of dementia and address these important issues with the patients and their families. Residents will move beyond formulation of a basic management plan for straightforward patients to a deeper understanding of the management of patients with complex or advanced dementia patients with behavioral disturbances. Residents will be assigned new patients on whom to perform an initial history and physical examination. When not seeing new patients independently, residents round with the attending physicians on other clinic patients. Additionally, patients will have the opportunity to observe neuropsychological testing in patients complaining of memory disorders. They are excused from clinic one half day a week to attend continuity clinic as well as for all mandatory educational conferences. Upon initiation of the rotation, residents receive an orientation packet through the clinic.
Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  
  Provide primarily outpatient neurological care to patients with cognitive disorders that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  
  Acquire knowledge about cognitive disorders commonly seen in a tertiary referral specialty clinic including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with cognitive disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of cognitive disorders, and improve patient care practices in a tertiary referral center.

- **Competency 4: Interpersonal and Communication Skills**
  
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care. Residents learn to communicate with patients who are cognitively impaired and suffer profound psychosocial distress because of their cognitive disorder.

- **Competency 5: Professionalism**
  
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

- **Competency 6: Systems-Based Practices**
  
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within in a tertiary referral outpatient specialty setting. Understand the constraints of patient self-care in a population with cognitive disorders.

### Principal Teaching/Learning Activities

1. **ADMDC Clinics and Neuropsychological Testing Sessions**
   
   Scheduled by the Center's staff.

2. **Concensus Conference**
   
   Every Thursday afternoon: The cases of new and follow up patients are reviewed with the attending physicians, neuropsychologists and a multidisciplinary staff.

3. **Continuity Clinics**
   
   Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

4. **Neurology Grand Rounds and Noon Conference**
   
   Monday through Friday from noon until 1 p.m. Attendance is required.

5. **Professors' Rounds**
   
   Biweekly. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.
Principal Learning Objectives

PGY2 residents should gain a basic knowledge and upper level residents should gain advanced knowledge which may include but not necessarily be limited to the following:

- Dementia and Behavioral Neurology
  - Alzheimer's disease.
  - Mild cognitive impairment
  - Vascular Dementia
  - Dementia with Lewy Bodies
  - Frontotemporal Dementia
  - Normal Pressure Hydrocephalus
  - Cognitive Impairment associated with other neurological and general medical conditions
  - Cognitive Impairment and psychiatric disease
  - Fundamentals of Neuropsychological Testing
  - Cognitive sequelae of traumatic brain injury
- Obtain advanced knowledge of the diagnosis and management of cognitive disorders including:
  - Clinically supervised practice in adult populations
  - Understanding basic anatomy and genetics of different cognitive disorders
  - The role of neuropharmacology, cellular biology, and neurochemistry
  - Neuroimaging: CT, MRI, and PET patterns of various disease processes
  - Neuropsychiatric profiles of the various cognitive disorder
  - The role of multidisciplinary team in the management of cognitive disorders
  - Advances in the neuroscience of cognitive disorders

Evaluation Methods

- At the end of the rotation, the attending faculty are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.
- Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

Recommended Resources

- Dementia: A Clinical Approach
- Neurology in Clinical Practice
- Continuum: Dementia
- Continuum: Behavioral Neurology
2. EMG Laboratory

**Rotation Mentors**

Dr. James Killian, Dr. Cecile Phan, Dr. Doris Kung

**Contact Person**

Dr. James Killian
jkillian@bcm.edu

**Level of Training**

PGY3 or PGY4

**Rotation Type**

Outpatient setting in the EMG Laboratory

**Length of Rotation**

One month

**Rotation Overview and Specific Goals by Level of Training**

The resident will become knowledgeable and gain experience in electrodiagnostic evaluation and management of the adult neuromuscular diseased patients including a large tertiary referral population of patients. Residents with also gain experience in the performance and interpretation of electrodiagnostic studies important in the evaluation of the neuromuscular patient including electromyography, nerve conduction and repetitive nerve stimulation studies. Residents will learn to interpret the electrodiagnostic studies in the context of the neurological history and examination.

**Overall Rotation Goals**

- **Competency 1: Patient Care**
  Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the neuromuscular adult neurology patient. Residents are expected to:
    - Develop the necessary skills to take complete pre-EMG history and physical examination of the adult neuromuscular patient suffering from a variety of diseases including ALS, peripheral neuropathy, myasthenia gravis and exacerbation, acute and chronic inflammatory demyelinating polyneuropathy, inflammatory myopathies, muscular dystrophies presenting in adulthood, autonomic dysfunction of myriad causes in the acute and chronic patient, as well as entrapment neuropathies, radiculopathies, and plexopathies.
    - To develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the referred neurology outpatient.
    - To become increasingly familiar with diagnostic and technical aspects of electrodiagnostic studies.
    - To become knowledgeable of the indications for the electrodiagnostic tests to aid in the diagnosis and management of neurological disorders.
    - To interpret electrodiagnostic studies to diagnose and manage the adult neurology patient.
    - Identify and describe expected abnormalities found during electrodiagnostic studies.
    - Learn to conduct nerve conduction studies in a manner that is technically appropriate, reproducible, and accurate.
    - Learn to ensure patient comfort during the nerve conduction and EMG needle examination.
    - Learn to write accurate EMG/NCV reports with accurate interpretation of data

- **Competency 2: Medical Knowledge**
  Residents must acquire and demonstrate increasing medical knowledge of the electrodiagnostic findings and criteria for major neuromuscular disorders including considerations relating to age, gender, race, and ethnicity, inheritance pattern, based on the literature and standards of practice. Residents are expected to:
    - Acquire and demonstrate knowledge of the acute and chronic presentation, including electrodiagnostic presentations and diagnosis of the following non-inclusive conditions:
- Amyotrophic Lateral Sclerosis
- Myasthenia Gravis and myasthenic syndromes
- Inflammatory myopathies
- Immune-mediated polyneuropathy (CIDP, multifocal motor neuropathy)
- Acute Inflammatory polyneuropathy (GBS)
- Inherited and acquired of neuropathies of myriad etiologies
- Inherited and acquired muscle disease of myriad etiologies
- Other motor neuron syndromes (Primary Lateral Sclerosis, progressive muscular atrophy, Kennedy's disease, SMA, Post-polio, HTLV-1 associated spastic paraparesis)
- Fascioscapulohumeral muscular dystrophy
- Inherited sensory and/or motor polyneuropathies
- Periodic paralysis and myotonic disorders, including Myotonic Dystrophy
- Limb girdle muscular dystrophy
- Radiculopathies
- Entrapment neuropathies
- Plexopathies
  - Become familiar with the indications for electrodiagnostic studies in neuromuscular disease.
  - Become familiar with the potential risks and benefits of electrodiagnostic studies, including relative and absolute contraindications.
  - Become familiar with the technical requirements for accurate electrodiagnostic testing such as limb temperature, skin integrity, and other mechanical and patient factors.
  - Understand how the EMG machine works.
  - Understand the techniques of electrodiagnostic testing, including nerve conduction studies, needle EMG, repetitive nerve stimulation, and single fiber EMG among others.
  - Become familiar with the process of interpreting raw data into a report that enhances patient care.

- **Competency 3: Practice-Based Learning and Improvement**
  Residents must demonstrate the skills for obtaining up-to-date information from scientific and practice literature to assist in quality patient care. Residents are expected to:
  - Use web-based databases available within and outside EMG laboratory setting
  - Use medical libraries within and outside the hospital setting
  - Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology
  - Utilize practiced-based guidelines for evaluation and management of the neurology adult patient.
  - Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

- **Competency 4: Interpersonal and Communication Skills**
  Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:
  - To communicate effectively with patients in the EMG laboratory using verbal, nonverbal, and written skills as appropriate:
    - What to expect from the electrodiagnostic procedure
    - Purpose of the electrodiagnostic procedure
    - Clinical impression and results of assessment
    - Outcomes and prognosis
  - To develop a physician-patient relationship based upon honest and open communication and respect and partner with patients to develop a treatment and healthcare management plan.
  - To become proficient at communicating effectively and working collaboratively with allied health professionals and other professionals involved in patient care.
  - To become proficient at educating patients, families, and professionals in the about issues related to neurological conditions.
  - Maintain accurate and clear medical documentation. Write legible prescriptions, orders. Dictate accurate and clear documentation of patient encounters and assessment for the medical records.
  - To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.
  - To educate patients, families, and professionals in the about issues related to neurological conditions.
  - To obtain, interpret, and evaluate consultations from other medical specialties.
  - To serve as a consultant to other medical specialists, mental health professionals, and community agencies and communicate assessment, management plan, and follow up clearly and effectively.

- **Competency 5: Professionalism**
  Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice,
confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Resident must demonstrate an understanding of professional conduct for themselves and other professionals and remediate when appropriate. Residents are expected to:

- Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Adequately document patient care management and patient interaction.
- Obtain informed consent from patients for neurology procedures.
- Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
- Provide and ensure adequate cross coverage of patients.
- Coordinate care of other health care providers and multidisciplinary team members in care of patients on the outpatient work up unit and inpatient services.

**Competency 6: Systems-Based Practices**
Residents must demonstrate knowledge of the systems involved in treating the inpatient and outpatient, use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:

- Access and utilized practice guidelines and parameters.
- Access community and allied health professional resources, including but not limited to social work services, disease specific advocacy organizations, indigent care or charity programs, drug assistance programs.
- Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
- Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

**Practice Setting and Course Experience**
This rotation experience is completely hands on. Residents rotate in the EMG laboratory with Drs. Killian, Kung, and Phan. Residents evaluate and assess each patient prior to the electrodiagnostic study. They first learn nerve conduction studies under the supervision of the attending physician and the EMG technician. Once the resident has been observed performing nerve conduction studies accurately, the resident is allowed to perform these studies without direct supervision. Residents also observe the EMG needle examination performed by the attending physician and learn to recognize waveforms and sounds diagnostic of particular neuromuscular disorders. Residents who have rotated on the EMG for a number of months and who have demonstrated exceptional ability are allowed to perform the EMG needle examination under direct attending supervision.

Residents will also attend required daily didactics and lectures at noon, including a biweekly Professor's rounds in which a resident examines and evaluates a live patient and the case is discussed.

**Supervision of Patient Care and Procedures**
Since this rotation is an outpatient rotation, supervision by faculty with be virtually immediate and direct. After interviewing and examining the patient, the attending physician will review the history with the resident and patient and perform a confirmatory examination. Residents will perform procedures such as electromyography or nerve conduction studies under the direct supervision of the attending faculty until the resident has accumulated sufficient experience and skill to perform the procedures independently. The faculty physician supervising the care of the patient is ultimately responsible for patient care and any procedures performed by the resident.

**Resident Responsibilities**
The resident is responsible for performing a complete history and physical examination of the patient assigned prior to the electrodiagnostic study. The resident will help input the data from the electrodiagnostic study and write a preliminary report that will be reviewed by the attending physician. This report writing gives the resident and faculty an opportunity to review the findings and generate a differential diagnosis and neuroanatomical explanation for the patient's condition.

**Responsibilities of Teaching Faculty**
The teaching faculty is responsible for providing supervision and teaching to the resident including patient 'bedside' teaching and formal lectures. The faculty will evaluate every patient seen by the resident and provide instruction and guidance regarding evaluation and management of each case. The faculty will provide real time supervision of an needle examinations that the resident performs.
The faculty are also responsible for reviewing the quality and accuracy of the medical record and must review and co-sign all notes, orders, and care-related documents signed by the resident and medical student.

**Evaluation of Resident Performance**

The supervising teaching faculty will discuss expectations with each resident at the initiation of the rotation. At each clinical encounter the attending will discuss performance with each resident, providing verbal feedback regarding strengths areas for improvement and suggesting educational goals for subsequent outpatient experiences. Supervising faculty are encouraged to notify the program director at any time during the rotation with either commendation or concern regarding the resident performance.

Formal evaluation will include an individual monthly evaluation performed by the attending faculty. Faculty members directly supervising residents will complete a computer-based evaluation form using the residency management software system (E*Value) monthly. This evaluation will be reviewed personally with each resident by the supervising faculty member at the end of a one-month rotation.

**Evaluation of Faculty/Educational Program**

Neurology faculty involved in teaching the residents will be evaluated anonymously by the residents using the electronic residency management software system. Rotation evaluations (monthly) will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.

Residents will evaluate the program on a monthly basis using the electronic residency management software system (E*Value).

**Suggested Readings and References**

The following standard texts are available on site as are many others specific to neurology:

- Neurology in Clinical Practice, 4th Edition
- Merritt's Textbook of Neurology
- Adams and Victor's Principles of Neurology
- Washington University-St. Louis Medical School Neuromuscular Web page (http://www.neuro.wustl.edu/neuromuscular/)
- Bradley's Textbook of Neurology
- Electromyography and Neuromuscular Disorders: Clinical-Electrophysiologic Correlations, Textbook with CD-ROM by David C. Preston Barbara Shapiro
3. Maxine Messenger Multiple Sclerosis Clinic

Rotation Mentors
Dr. George J. Hutton

Contact Person
Dr. George J. Hutton
ghutton@bcm.edu

Level of Training
PGY2 (required) and as elective for upper level

Rotation Type
Outpatient setting in the Maxine Messenger Multiple Sclerosis Clinic

Length of Rotation
One month

Rotation Overview and Specific Goals by Level of Training
This rotation is required of all PGY2s and is available as an elective for upper level neurology residents. All residents are expected to work toward improvement in all six core competencies as applied to patients with central demyelinating disease such as multiple sclerosis and neuromyelitis optica. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

Lower level residents are expected to learn a basic approach to the diagnosis, work-up, and management of patients with demyelinating diseases of the central nervous system. Upper levels are expected to gain advanced knowledge and greater sophistication in differential diagnosis and therapeutics. All residents are expected to learn the value of multi-disciplinary practice, clinical trials, patient education, psychosocial assessments, and effective communication skills in the management of patients with demyelinating disease.

Resident physicians primarily have outpatient responsibilities seeing new and follow-up clinic patients, and occasionally inpatients. Patients are generally new or established patients with multiple sclerosis or neuromyelitis optica, or referrals for suspected central demyelinating disease. Residents are also expected to deliver a presentation on a topic of their choice germane to this rotation. This presentation is the product of a review of the relevant scientific literature and is mentored by the clinic faculty. PGY2 residents will remain on the call schedule through this month. Residents are excused from clinic half a day per week to attend the individual's continuity clinic as well as for all mandatory educational conferences. Upon initiation of the rotation, residents receive an orientation packet through the clinic.

Overall Rotation Goals
The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide neurological care primarily in a tertiary referral Multiple Sclerosis Clinic for patients suffering from Multiple Sclerosis (MS) and other neuro-immunological disorders such as neuromyelitis optica. Provide neurological care as well for MS and related patients requiring inpatient assessment and treatment at St. Luke's General Hospital (wards, consultations, emergency department, and intensive care units) that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about neuro-immunological disease including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with neurological disorders.
• **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of neurology in a tertiary referral specialty clinic, and improve patient care practices in the tertiary referral specialty clinic setting.

• **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care for patients with multiple sclerosis and related neuro-immunological diseases. Residents learn to communicate with patients who may be cognitively and physically impaired due to MS and related conditions.

• **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

• **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within a tertiary referral specialty clinic. Understand the constraints of patient self-care in a population suffering from neuro-immunologic disease.

### Principal Teaching/Learning Activities

1. **MS Clinic**
   Residents independently evaluate new or return patients 4 to 5 days out of the week. Case presentation and discussion with the attending follows. This will often involve review of neuroimaging studies with the attending as well. One morning of the rotation will be spent with a physical medicine and rehabilitation specialist who specializes in evaluating MS patients in the MS clinic. This will enhance understanding of the role of multidisciplinary care and expose residents' first-hand to the work of physiatrists.

2. **MS Clinical Trials**
   The resident will be exposed to the various clinical trials undertaken in the MS Center. Dr. George Hutton serves as Director of Clinical Trials, and will discuss ethics and conduct of MS clinical trials. The resident will observe trial visits several times during the month.

3. **MS Conference Series**
   There is a scheduled conference every Thursday 11AM-Noon. One of the attendings, research fellows, nurses, medical students, observers or residents gives a presentation of a topic related to the central demyelinating diseases. The conference is attended by the entire professional staff of the clinic and is very interactive. The resident will be responsible for presenting once during the rotation.

4. **Multiple Sclerosis Journal Club**
   Friday mornings 11AM-Noon. Residents actively discuss selected journal articles both in clinical and basic science research.

5. **Pediatric MS Case Conference**
   First Tuesday of the month 8-9 AM at Texas Children's Hospital. This is a multidisciplinary conference organized and run by Dr. Tim Lotze. Participants include pediatric specialists in neuroradiology, neuropsychology, neuro-ophthalmology, psychology and social work. Dr. Hutton also participates.

6. **Continuity Clinics**
   Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

7. **Neurology Grand Rounds and Noon Conference**
   Monday through Friday from noon until 1 p.m. Attendance is required.

8. **Professors' Rounds**
   Biweekly; Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.
Principal Learning Objectives

Lower level residents should gain a basic familiarity with and upper levels should gain advanced knowledge of topics including but not necessarily be limited to the following:

- Diagnostic criteria for multiple sclerosis, neuromyelitis optica, and acute disseminated encephalomyelitis: residents should be apply to apply these criteria to patients seen in clinic.
- Differential diagnosis for central demyelinating disease.
- Interpret diagnostic testing including MRI of brain and spine and cerebrospinal fluid assessment. Understand the utility of evoked potentials in the diagnostic evaluation.
- Appropriate use of immunomodulatory treatments, including an appreciation of mechanism of action, dosage and frequency, and side effects of beta-interferons, glatiramer acetate, natalizumab and mitoxantrone.
- Understand the role of symptomatic treatments in the long-term treatment of patients with MS and related diseases.

Evaluation Methods

At the end of the rotation, the attending faculty are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

Recommended Resources

- Neurology in Clinical Practice
- Continuum: Multiple Sclerosis
4. Neuromuscular Neurology

Rotation Mentors

Dr. Yadollah Harati, Dr. James Killian, Dr. Cecile Phan, Dr. Doris Kung

Contact Person

Dr. Yadollah Harati
yharati@bcm.edu

Dr. James Killian
jkillian@bcm.edu

Level of Training

PGY4

Rotation Type

Outpatient setting in the Neuromuscular Clinic and ALS Association Clinic, and EMG Laboratory

Length of Rotation

One month

Rotation Overview and Specific Goals by Level of Training

The resident will become knowledgeable and gain experience in evaluation and management of the adult neuromuscular diseased patients including a large tertiary referral population of patients. Residents will also gain experience in the interpretation of electrophysiologic studies important in the evaluation of the neuromuscular patient including electromyography and nerve conduction studies. Residents will also gain familiarity with the evaluation of patients with autonomic disorders and the interpretation of autonomic function tests. Finally, residents will learn about neuromuscular pathology and the interpretation of neuromuscular pathology reports.

Overall Rotation Goals

- Competency 1: Patient Care
  Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the neuromuscular adult neurology patient. Residents are expected to:
    - Develop the necessary skills to take complete history and physical examination of the adult neuromuscular patient suffering from a variety of diseases including ALS, peripheral neuropathy, myasthenia gravis and exacerbation, acute and chronic inflammatory demyelinating polyneuropathy, inflammatory myopathies, muscular dystrophies presenting in adulthood, autonomic dysfunction of myriad causes in the acute and chronic patient.
    - To develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the referred neurology outpatient.
    - To be become increasingly familiar with diagnostic and laboratory studies for diagnosis and management including radiography, electrophysiologic studies, and laboratory blood and tissues analysis.
    - To be become knowledgeable of the indications for the diagnostic and laboratory tests to aid in the diagnosis and management of neurological disorders.
    - Perform lumbar punctures, edrophonium testing, and non-ischemic muscle exercise testing in the outpatient and inpatient settings and monitor response and possible adverse effects.
    - To interpret genetic, laboratory and procedural results and apply this information to develop the clinical acumen to diagnose and manage the adult neurology patient.
    - To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, electrophysiologic tests, specialty consultations.
    - Identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
    - Become familiar with EMG/NCV reports and interpretation of data.
    - To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases.
- EMG/NCV and Repetitive nerve stimulation
- Evoked potentials
- Pulmonary Function Tests
- Polysomnography
- Special studies of CSF, blood, and tissue
  - Identify and describe gross and microscopic specimens taken from muscle and nerve biopsy to aid in diagnosis and management of the neuromuscular patient.

**Competency 2: Medical Knowledge**

Residents must acquire and demonstrate increasing medical knowledge of major neuromuscular and neurodegenerative disorders including considerations relating to age, gender, race, and ethnicity, inheritance pattern, based on the literature and standards of practice. Residents are expected to:

  - Demonstrate knowledge of the adult presentation of acquired and inherited disorders of the CNS and PNS including genetics, pathophysiology, diagnosis, and management.
  - Acquire and demonstrate knowledge of the acute and chronic presentation, diagnosis, and management of the following non-inclusive conditions:
    - Amyotrophic Lateral Sclerosis
    - Myasthenia Gravis and myasthenic syndromes
    - Inflammatory myopathies
    - Immune-mediated polyneuropathy (CIDP, multifocal motor neuropathy)
    - Acute Inflammatory polyneuropathy (GBS)
    - Myelopathic syndromes (HTLV-1, B12, spinal stenosis/chronic cord compression)
    - Neuromuscular Respiratory Failure
    - Inherited and acquired of neuropathies of myriad etiologies
    - Inherited and acquired muscle disease of myriad etiologies
    - Other motor neuron syndromes (Primary Lateral Sclerosis, progressive muscular atrophy, Kennedy's disease, SMA, Post-polio, HTLV-1 associated spastic paraparesis)
    - Fascioscapulohumeral muscular dystrophy
    - Inherited sensory and/or motor polynuropathies
    - Periodic paralysis and myotonic disorders, including Myotonic Dystrophy
    - Limb girdle muscular dystrophy
    - Radiculopathies
    - Plexopathies
    - Entrapment Neuropathies
  - Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events.
  - Become familiar with non-pharmacologic management and monitoring of outcomes and progression.
  - Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.
  - Demonstrate knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
  - Demonstrate knowledge of non-pharmacologic management and monitoring of outcomes and progression.
  - Recognize indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.
  - Demonstrate knowledge of neurogenetic disorders and syndromes including mechanisms of disease and therapeutic and experimental intervention.
  - Demonstrate knowledge and management of neuropsychiatric disorders including malingering, somatiform disorders as they relate to neuromuscular disorders. Know diagnostic and interventions to determine organic versus psychogenic etiologies.

**Competency 3: Practice-Based Learning and Improvement**

Residents must demonstrate the skills for obtaining up-to-date information from scientific and practice literature to assist in quality patient care. Residents are expected to:

  - Use web based databases available within and outside the hospital setting.
  - Use medical libraries within and outside the hospital setting.
  - Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology.
  - Utilize practiced-based guidelines for evaluation and management of the neurology adult patient.
  - Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

**Competency 4: Interpersonal and Communication Skills**

Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:
To communicate effectively with both outpatients and inpatients using verbal, nonverbal, and written skills as appropriate regarding:

- Clinical impression and results of assessment
- Outcomes and prognosis
- Recommended treatment and management plans and associated risks and benefits
- Genetic counseling and palliative care
- Alternative treatment plans
- Education about the conditions and referral to reliable outside sources of education, advocacy, and support

To develop a physician-patient relationship based upon honest and open communication and respect and partner with patients to develop a treatment and healthcare management plan.

To become proficient at communicating effectively and working collaboratively with allied health professionals and other professionals involved in patient care.

To become proficient at educating patients, families, and professionals in the about issues related to neurological conditions.

Maintain accurate and clear medical documentation. Write legible prescriptions, orders. Dictate accurate and clear documentation of patient encounters and assessment for the medical records.

To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.

To educate patients, families, and professionals in the about issues related to neurological conditions.

To obtain, interpret, and evaluate consultations from other medical specialties.

To serve as a consultant to other medical specialists, mental health professionals, and community agencies and communicate assessment, management plan, and follow up clearly and effectively.

Review and supervise documentation and medical records of junior residents, medical students in order to maintain accurate and clear medical documentation. Edit and correct dictations and medical reports for medical records.

**Competency 5: Professionalism**

Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Resident must demonstrate an understanding of professional conduct for themselves and other professionals and remediate when appropriate. Residents are expected to:

- Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Adequately document patient care management and patient interaction.
- Obtain informed consent from patients for neurology procedures.
- Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
- Provide and ensure adequate cross coverage of patients.
- Coordinate care of other health care providers and multidisciplinary team members in care of patients on the outpatient work up unit and inpatient services.

**Competency 6: Systems-Based Practices**

Residents must become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within in a tertiary referral outpatient specialty setting. Understand the constraints of patient self-care in a population with neuromuscular disorders.

**Practice Setting and Course Experience**

This rotation experience is almost completely outpatient with infrequent coverage of patients admitted to St. Luke's General Hospital with neuromuscular emergencies. Residents assigned to this service rotate on in the Baylor Clinic Smith 18 Neuromuscular clinic and the ALS Association Clinic with Drs. Harati and Phan as well as in the EMG laboratory with Drs. Killian, Kung, and Phan. Additionally, residents observe autonomic function testing in the Autonomic Function Laboratory on Smith 18 and review muscle and nerve biopsy slides with fellows and faculty in the Neuromuscular Pathology laboratory on Smith 18.

Residents evaluate and assess each patient and present the cases to the attending. Investigative studies are followed by the resident and reported to the patient and attending for evaluation, diagnosis, and recommended treatment. Residents are also responsible for the evaluation of elective and emergent neuromuscular admissions and consultations at St Luke's General Hospital. The resident follows the patients daily, writes notes and orders, requests and interacts with consult services, and participates in treatment plans and discharge dispositions.
Residents will also attend required daily didactics and lectures at noon, including a biweekly Professor's rounds in which a resident examines and evaluates a live patient and the case is discussed.

**Supervision of Patient Care and Procedures**

Since this rotation is primarily an outpatient rotation, supervision by faculty will be virtually immediate and direct. After interviewing and examining the patient, the attending physician will review the history with the resident and patient and perform a confirmatory examination. Residents will perform procedures such as electromyography or nerve conductions studies under the direct supervision of the attending faculty until the resident has accumulated sufficient experience and skill to perform the procedures independently. The faculty physician supervising the care of the patient is ultimately responsible for patient care and any procedures performed by the resident.

**Resident Responsibilities**

The resident is responsible for performing a complete history and physical examination of the acute and chronic neurology patient. The resident will evaluate both assigned outpatient and elective and emergent inpatients and present these cases to the respective attending physician. The resident is responsible for writing daily notes, ordering tests and consultations, and implementing therapy under the direct supervision and guidance of the attending physician on both the outpatient and inpatient services.

The resident will interact with consulting services and other health allied services in the care of the patient and communicate effectively with these services in addition to the patient and family. The resident will become skilled at performing outpatient clinical procedures, including but not limited to lumbar puncture, edrophonium testing, non-ischemic exercise testing, under the direct supervision and teaching of the attending physician to the clinic.

The resident will be responsible for arranging cross coverage when not available.

**Responsibilities of Teaching Faculty**

The teaching faculty is responsible for providing supervision and teaching to the resident including patient 'bedside' teaching and formal lectures. The faculty will evaluate every patient seen by the resident and provide instruction and guidance regarding evaluation and management of each case. The resident is responsible to provide care and follow up of patients, however, the faculty is responsible for the overall management of the patient, including appropriate investigations, treatment, and management plans. The faculty must ensure that each resident remains actively involved in each patient case and has a major role and responsibility to provide longitudinal care.

The faculty are also responsible for reviewing the quality and accuracy of the medical record and must review and co-sign all notes, orders, and care-related documents signed by the resident and medical student.

The faculty must provide cross-coverage for attending the clinic if he/she is unable to attend, which must be communicated with clinic staff, residents, and program director.

**Evaluation of Resident Performance**

The supervising teaching faculty will discuss expectations with each resident at the initiation of the rotation. At each clinical encounter the attending will discuss performance with each resident, providing verbal feedback regarding strengths areas for improvement and suggesting educational goals for subsequent outpatient experiences. Supervising faculty are encouraged to notify the program director at any time during the rotation with either commendation or concern regarding the resident performance.

Formal evaluation will include an individual monthly evaluation performed by the attending faculty. Faculty members directly supervising residents will complete a computer based evaluation form using the residency management software system (E*Value) monthly. This evaluation will be reviewed personally with each resident by the supervising faculty member at the end of a one month rotation.

**Evaluation of Faculty/Educational Program**

Neurology faculty involved in teaching the residents will be evaluated anonymously by the residents using the electronic residency management software system. Rotation evaluations (monthly) will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.
Residents will evaluate the program on a monthly basis using the electronic residency management software system (E*Value).

**Suggested Readings and References**

The following standard texts are available on site as are many others specific to neurology:

- Neurology in Clinical Practice, 4th Edition
- Merritt's Textbook of Neurology
- Adams and Victor's Principles of Neurology
- Washington University-St. Louis Medical School Neuromuscular Web page (http://www.neuro.wustl.edu/neuromuscular/)
- Bradley's Textbook of Neurology
- Electromyography and Neuromuscular Disorders: Clinical-Electrophysiologic Correlations, Textbook with CD-ROM by David C. Preston Barbara Shapiro
5. Parkinson Disease Center and Movement Disorders Clinic

Rotation Mentors

Dr. Joseph Jankovic, Dr. Joohi Jimenez-Shahed, Dr. Mary Ann Thenganatt

Contact Person

Diana Gallaga: coordinating resident activities, dictation liason
destrada@bcm.edu | 713-798-7438 | 713-798-6808

Daisy Cervantes: patient scheduling
daisyc@bcm.edu

Note: Residents are expected to be available for their patient scheduled appointment times. If there are dates that are in conflict please contact the office as far in advance as possible in consideration of patient care.

Level of Training

PGY3 and PGY4

Rotation Type

Outpatient setting in the Parkinson's Disease Center and Movement Disorders Clinic

Rotation Overview and Specific Goals by Level of Training

This rotation is required of all PGY3 neurology residents and is available as an elective for other upper level neurology residents. All residents are expected to work toward improvement in all six core competencies as applied to patients with movement disorders. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

The goal of this rotation is for residents to obtain an in-depth appreciation for the variety and complexity of movement disorders; their phenomenology, characterization, differential diagnosis, work up, and treatment. Residents are also expected to gain an appreciation for the psychosocial aspects of movement disorders and address these important issues with the patients and their families. Residents will move beyond formulation of a basic management plan for straightforward patients to a deeper understanding of the management of patients with complex or advanced movement disorders. Residents will be assigned new patients on whom to perform an initial history and physical examination. When not seeing new patients independently, residents round with the attending physicians on other clinic patients. They are excused from clinic one half a day a week to attend continuity clinic as well as for all mandatory educational conferences. Upon initiation of the rotation, residents receive an orientation packet through the clinic.

Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide primarily outpatient neurological care to patients with movement disorders that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about movement disorders commonly seen in a tertiary referral specialty clinic including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with movement disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of movement disorders neurology, and improve patient care practices in the county hospital system.

- **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care. Residents learn to communicate with patients who may be cognitively impaired and suffer a lot of psychosocial distress because of their movement disorder.
• **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

• **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within in a tertiary referral outpatient specialty setting. Understand the constraints of patient self-care in a population with movement disorders.

### Principal Teaching/Learning Activities

<table>
<thead>
<tr>
<th>System-Based Practices</th>
<th>Professionalism</th>
<th>Interpersonal &amp; Communication Skills</th>
<th>Practice-Based Learning &amp; Improvement</th>
<th>Medical Knowledge</th>
<th>Patient Care</th>
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1. **PDCMDC Clinics**
   PGY3 and PGY4 residents will independently evaluate new patients 3 to 4 days out of the week. The PGY2 will round directly with the new patients and follow-up patients. Case presentation and discussion with the attending follows. Residents may request the assistance of the movement disorder fellows to document observed exam findings on video. Each Tuesday, residents learn about the role of botulinum toxin injection in the management of movement disorders.

2. **Video Rounds**
   Every Tuesday 7-8:30 a.m. Fellows and residents present brief clinical cases of new patients with remarkable video clips for discussion amongst faculty and multidisciplinary staff.

3. **Movement Disorder Journal Club**
   Second Tuesday each month 5:30-7 p.m. Residents actively discuss selected journal articles both in clinical and basic science research. Residents identify different classic movement disorders during video presentations led by fellows and faculty.

4. **Continuity Clinics**
   Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

5. **Neurology Grand Rounds and Noon Conference**
   Monday through Friday from noon until 1 p.m. Attendance is required.

6. **Professors' Rounds**
   Biweekly. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.
Principal Learning Objectives

PGY2 residents should gain a basic knowledge and upper level residents should gain advanced knowledge which may include but not necessarily be limited to the following:

- Characterizing the phenomenology of involuntary movement disorders of hypokinetic and hyperkinetic nature
  - Parkinson's disease
  - Parkinsonism Plus Syndrome and Secondary Parkinsonism
  - Tremor
  - Dystonia
  - Tardive Dyskinesia
  - Tics
  - Stereotypies
  - Myoclonus
  - Tourette's disorder
  - Huntington's disorder

- Obtain advanced knowledge of the diagnosis and management of movement disorders including:
  - Clinically supervised practice in pediatric and adult populations
  - Understanding basic anatomy and genetics of different movement disorders
  - The role of neuropharmacology, cellular biology, and neurochemistry
  - The role of neurosurgery and Botox injection in the context of movement disorders
  - Neuroimaging: CT, MRI, and PET patterns of various disease processes
  - Neuropsychiatric sequelae of movement disorders
  - The role of multidisciplinary team in the management of movement disorders
  - Advances in the neuroscience of movement disorders

Evaluation Methods

At the end of the rotation, the attending faculty are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

Recommended Resources

- Principles and Practice of Movement Disorders
- Neurology in Clinical Practice
- Continuum: Movement Disorders
6. **Neuro-Ophthalmology Rotation at Baylor Eye Clinic and Neuro-Otology Clinic at the Baylor Center for Balance Disorders**

**Rotation Mentors**

Dr. Rod Foroozan, Dr. Helen Cohen

**Contact Person**

Angela (neuro-ophthalmology)
Clinic nurse pager 713-200-0222

Dr. Helen Coher (neuro-otology)
hcohen16396239@bcm.edu

**Level of Training**

PGY3 or PGY3

**Rotation Type**

Outpatient setting in the Baylor Eye Center and Baylor Center for Balance Disorders

**Length of Rotation**

One month

**Rotation Overview and Specific Goals by Level of Training**

Residents will work with Dr. Rod Foroozan, the neuro-ophthalmologist at the Baylor Eye Center to learn the principles of neuro-ophthalmology as well as will Dr. Helen Cohen and associates in the Baylor Center for Balance Disorders to learn principles of neuro-otology, including diagnostic and therapeutic maneuvers.

**Overall Rotation Goals**

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide neurological care in an outpatient tertiary referral center for patients with neuro-ophthalmological and neuro-otological problems that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about neuro-ophthalmologic and neuro-otologic diseases including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with these types of neurological disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of neuro-ophthalmology and neuro-otology in a tertiary referral specialty clinic, and improve patient care practices in this system.

- **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients’ families, and professional associates to provide optimal care for patients with neuro-ophthalmologic and neuro-otologic conditions.

- **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.
• Competency 6: Systems-Based Practices
Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within a tertiary referral specialty clinic. Understand the constraints of patient self-care in a population suffering from neuro-ophthalmologic and neuro-otologic disease.

<table>
<thead>
<tr>
<th>Principal Teaching/Learning Activities</th>
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<tbody>
<tr>
<td><strong>Baylor Eye Center</strong></td>
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<tr>
<td>Residents will attend half day of neuron-ophthalmology clinic under supervision of Dr. Foroozan. Residents will sit in with eye resident / clinic nurse initially and learn procedures like slit examination, vision testing, pupil testing, color vision testing, IOP measurement, visual field testing and direct ophthalmoscope evaluation of fundus. Most patients are dilated and therefore direct ophthalmoscopy can be mastered quickly. After a week or so can start seeing patients independently and present to attending. Resident joins attending for final evaluations, discussions regarding management options during which time interesting findings would be pointed out and one can repeat relevant examinations under supervision. After this there is opportunity to discuss cases with attending.</td>
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<tr>
<td><strong>Center for Balance Disorders</strong></td>
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<td>Residents attend half-day neuro-otology rehabilitation clinics and well as neuro-otology diagnostic clinics and learn techniques such as the Dix-Hallpike test, the Eply maneuver, Sermont maneuver, head thrust test, as well as the indications for and evaluation of Electronystagmogram testing.</td>
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<tr>
<td><strong>Noon Conference and Grand Rounds</strong></td>
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<tr>
<td>Occurs Monday through Friday from noon until 1 pm and attendance is required.</td>
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<tr>
<td><strong>Professors' Rounds</strong></td>
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<td>Occur biweekly. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.</td>
</tr>
</tbody>
</table>

Principal Learning Objectives
Residents should gain a basic knowledge which may include but not necessarily be limited to the following:

• Basic familiarity with the common neuro-ophtalmic problems, including:
  o Optic neuritis, anterior ischemic optic neuropathy both arteritic and non arteritic, papilledema, pseudotumor cerebri, ocular myasthenia, third nerve, fourth nerve and sixth nerve palsies, internuclear ophthalmoplegia, glaucoma, pituitary tumors, lesions of optic tracts, menigitomas with ophthalmalic manifestations, thyroid eye diseases, anisocoria and ophthalmoplegiagias.
  o Familiarity with initial work up for the above.
  o Knowledge of available therapeutic options.

• Basic familiarity with the common neuro-otologic problems, including:
  o Benign positional vertigo, vestibular neuronitis, vertigo due to Cerebrovascular disease, Meniere's Disease, intramedullary and extramedullary brainstem tumors.
  o Familiarity with initial work up for the above.
  o Knowledge of available therapeutic options.
  o Proper performance of the Dix-Hallpike, Eply, and head thrust maneuvers.
Evaluation Methods

At the end of the rotation, the attending faculties are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked in E*Value. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

Recommended Resources

- Neuro-ophthalmogy-Continuum in Neurology
- Neuro-otology-Continuum in Neurology
B. Ben Taub General Hospital

1. Continuity Clinics

Rotation Mentors
Dr. Corey Goldsmith, Dr. Doris Kung

Contact Person
Dr. Corey Goldsmith
celam@bcm.edu

Level of Training
PGY2, PGY3, and PGY4

Rotation Type
Outpatient setting in the Ben Taub General Hospital

Length of Rotation
One half-day per week

Rotation Overview and Specific Goals by Level of Training

Neurology residents are required to participate in a continuity clinic weekly from the PGY2 year through the end of the PGY4 year. Residents follow their own panel of patients and are supervised directly by a designated attending physician. Residents are assigned one attending physician who will be their continuity clinic supervisor for the three years of their clinic. Although the resident is the primary provider of neurological care to his or her patient, the supervisor will get to know the patient as well and provide better continuity of supervision as residency progresses. Residents inherit a panel of continuity patients from a predecessor but are encouraged to build their panel in a way that advances their subspecialty interests. Residents are excused from clinic when they are on vacation, on approved educational or FLMA-related leave, on night float, and when they are the St. Luke's Episcopal Hospital NICU Chief as PGY3s. The minimum number of continuity dates per resident per year is 40. However, all residents exceed this number even with the exceptions outlines above. Residents are expected to provide 3 months of advanced warning if they need clinic canceled due to educational leave or a change in vacation assignment. Residents never attend continuity clinic post-call. All hours in continuity clinic count toward the 80-hour work week and must be logged in E*Value.

Overall Rotation Goals

- **Competency 1: Patient Care**
  Resident is able to provide timely, efficient, effective and compassionate patient care for the treatment of outpatient based medical problems with an emphasis in neurology subspecialty. Resident will understand how to prioritize medical problems, order appropriate diagnostic tests, prescribe medications, and utilize resources appropriately for effective patient care.
  - The intermediate level resident (PGY2) acquires a basic understanding of the care of neurology outpatients and moves to increasing independence and improved confidence as the year progresses.
  - The final year resident (PGY1 and PGY2) gains advanced competency in the outpatient care of patients with neurological disorders.

- **Competency 2: Medical Knowledge**
  Resident demonstrates knowledge of established and evolving clinical, basic sciences, epidemiology and up-to-date evidence for application of patient care. Resident will assess and evaluate patient history, physical, ancillary data critically to deliver effective patient care.
  - The intermediate level neurology resident (PGY2) is to achieve a basic knowledge and move toward more advanced knowledge as the year progresses of neurologic disease presenting in the outpatient setting including presentation, differential diagnosis, and localization within the neuroaxis.
The final year resident (PGY1 and PGY2) is to gain and consolidate advanced knowledge of neurological diseases presenting in the outpatient setting, their presentation, differential diagnosis, and localization in the neuroaxis.

- **Competency 3: Practice-Based Learning and Improvement**
  Resident should critically evaluate their own diagnostic plans, scientific evidence and continuously improve their own patient care through self-learning as well as morning didactics. Resident should use medical knowledge to teach junior neurology residents, IM residents, psychiatry residents and medical students. Resident should accept constructive criticism through formative evaluations as well as oral feedback during presentations to set their own personal learning and improvement goals.
  - The intermediate level (PGY2) resident is to achieve a basic understanding of the practice of self-assessment and implementation of evidenced based medicine into clinical practice.
  - The final year resident (PGY1 and PGY2) is to gain advanced competency in practice-based learning issues that arise care of outpatients with neurological disorders.

- **Competency 4: Interpersonal and Communication Skills**
  Residents of all levels should demonstrate interpersonal and communication skills that will allow for effective and accurate information exchange necessary for optimal patient care. This includes medical record legibility and comprehensiveness. This also includes working as part of a health team with nurses, secretaries and other ancillary staff. Resident should be able to effectively lead didactics if appropriate.

- **Competency 5: Professionalism**
  Residents of all levels should be committed to carrying out their professional responsibilities and adhering to ethical principles. They should demonstrate respect for patient privacy, autonomy through adherence to HIPAA regulations. They should demonstrate compassion, integrity and respect for others through compassionate interactions with patients. They should demonstrate sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability and sexual orientation. They should answer pages in a timely fashion and treat colleagues with respect.

- **Competency 6: Systems-Based Practices**
  Resident should be capable in different systems of care, particularly in this rotation public county hospitals and a veteran affairs hospital system. They should demonstrate the ability to critically evaluate patient care problems and utilize resources in a cost-effective manner. They should always advocate within the system for optimal care for their patient.
  - The intermediate level (PGY2) resident is to achieve a basic understanding of the effects of system-based issues on the care of neurology outpatients.
  - The upper level resident is to gain advanced competency in the management of systems issues in the care of neurology outpatients.

**Rotation Objectives**

- **Patient Care**
  - Assess, manage, and serve as primary contact for outpatients.
  - Provide compassionate, appropriate and effective patients care for the treatment of health problems and the promotion of health.
  - Understand how to appropriately prioritize patient problems and develop an appropriate diagnostic plan.
  - Prescribe medications appropriately.
  - Show an appropriate balance between attention to the details of patient care and the overall context of treating the patient's illness.
  - Obtain consultations appropriately.
  - Perform technical procedures adequately, including lumbar puncture.
  - Be able to take a neurological history and perform a neurological examination competently.
  - Become familiar with the basics of diagnosis and treatment of common neurological problems in the outpatient setting, including epilepsy, headaches, neuromuscular disorders, gait disorders, cognitive disorders, movement disorders, neoplastic disorders of the nervous system, the long term management and prevention of stroke, sleep disorders, neuro-genetic disorders, and multiple sclerosis.

- **Medical Knowledge**
  - Demonstrate knowledge of evolving biomedical, clinical, epidemiological and social/behavioral sciences as well as the application of this knowledge to patient care.
  - Assess diagnostic information critically and constructively.
  - Develop skills in neuroanatomic localization.
  - Recognize psychosocial aspects of illness.
  - Critically evaluate the medical literature and apply new knowledge to the delivery of safe and effective patient care.
Gain basic knowledge of the use and interpretation of neuroimaging studies, basic knowledge of the appropriate use of electroencephalography, basic knowledge of the use of other neurodiagnostic and laboratory studies, and basic knowledge of the interpretation of cerebrospinal fluid results.

Begin to acquire knowledge of important principles of many areas of neuroscience, including neurochemistry, neurophysiology, neuroanatomy, neuropharmacology, and molecular neuroscience.

Gain exposure to the diagnosis and management of neurologic emergencies in the ICU, including coma, hypertensive crisis, cerebral edema, malignant stroke, etc.

**Practice-Based Learning and Improvement**

- Critically evaluate the care of patients.
- Appraise and assimilate scientific evidence and continuously improve patient care delivered on the basis of ongoing self-evaluation and learning.
- Use knowledge to educate patient families, medical students, allied health personnel, peers, and other health professionals as appropriate.
- Identify strengths, deficiencies, and limits of your knowledge and expertise.
- Be receptive to constructive criticism (formative evaluation feedback) regarding the care of patients and physician performance.
- Set learning and improvement goals and identify and perform activities appropriate to meeting these goals.
- Become familiar with key resources in the neurological literature and develop the ability to search the literature for more detailed and current information using internet-based resources and reference texts.
- Attend didactic conferences on neurologic topics.

**Interpersonal and Communication Skills**

- Demonstrate interpersonal and communication skills that result in effective information exchange and collaboration with patients, families, and other health professionals. These skills include the ability to communicate effectively across a broad range of socio-economic and cultural backgrounds and with physicians, health professionals, and health related agencies.
- Learn to effectively present information about outpatients in a concise fashion.
- Maintain comprehensive, timely, articulate medical records.
- Work effectively as a member of a healthcare team and serve appropriately as a consultant to other physicians and health professionals.
- Provide medical students with formative and summative feedback on their histories, physical examinations, and daily assessment and management of inpatients.

**Professionalism**

- Be committed to carrying out professional responsibilities and adhering to ethical principles.
- Demonstrate respect for patient privacy and autonomy.
- Be accountable to patient, society, and the medical profession for your actions.
- Demonstrate compassion, integrity and respect for others.
- Demonstrate responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation.
- Demonstrate the ability to manage personal stress effectively.
- Answer pages or messages in a timely fashion.
- Improve skills in coordinating care, including patient contact via telephone and taking responsibility for test interpretation between visits.
- Understand how to maintain appropriate professional boundaries.
- Complete assigned tasks in a timely fashion.

**Systems-Based Practice**

- Understand and be capable of interacting effectively with different systems of care.
- Demonstrate the ability to provide high-quality care in a cost-effective manner.
- Incorporate consideration of cost-awareness and risk-benefit analysis in patient care decisions.
- Advocate for high quality care for all patients.
- Recognize situations where input is needed from physicians from other specialties or from other medical professionals.
- Understand the role of a Neurology specialist within the greater context of a healthcare team.
- Recognize situations where the input of more experienced neurologists is needed.
Evaluation Methods

At the end of the rotation, the attending faculty members are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked using E*Value. These evaluations are compiled and reviewed with each resident semiannually.

Residents are asked to assess the faculty mentors with whom they have worked with as well as the overall rotation via an electronic evaluation form.

Semi-annually patients will evaluate their resident providers.

Quarterly, the continuity clinic nursing staff will evaluate the resident.

Suggested Readings and References

The following standard texts are available on site as are many others specific to neurology:

- Blumenfeld, Hal. Neuroanatomy through Clinical Cases.
- Continuum: Lifelong Learning in Neurology
2. Neurology Inpatient and Consultation Service

Rotation Mentors

Dr. Joseph Kass, Dr. Corey Goldsmith, Dr. Denis Mosier, Dr. Doris Kung, Dr. J. Clay Goodman, Dr. Eroboghene Ubogu, Dr. Cecile Phan, Dr. Edward Cooper, Dr. Chethan Venkatasubba Rao

Contact Person

Dr. Joseph Kass
kass@bcm.edu | 713-240-0069

Level of Training

PGY2, PGY3, and PGY4

Rotation Type

Inpatient and consultation service in a busy, ethnically and socioeconomically diverse county hospital

Length of Rotation

One month

Rotation Overview and Specific Goals by Level of Training

This rotation provides an excellent inpatient service and consultation experience in the public hospital setting. The Ben Taub General Hospital is the flagship hospital of the Harris County Hospital District (HCHD). HCHD provides care for patients across the entire socioeconomic spectrum. Residents are exposed to the gamut of neurological problems common in urban settings, such as stroke, epilepsy, HIV-related neurological disease, and neurological complications of pregnancy, substance abuse, alcoholism, and cancer, as well as co-morbid neurological and psychiatric disease. Residents also care for multiple sclerosis patients and many uncommon immune-mediated neurological diseases such as neurosarcoidosis, neuropsychiatric SLE, and CNS vasculitis, and neuromyelitis optica. Since Ben Taub also serves recently arrived immigrants who have disorders often not seen in the United States, neurology residents learn to manage such diseases as neurocysticercosis and tuberculosis meningitis.

Ben Taub also serves a population with many acute neurological problems such as head trauma, drug overdoses, intracerebral hemorrhages, status epilepticus, Guillain-Barre Syndrome, myasthenia gravis crisis, and spinal cord compression. Ben Taub is a level I trauma center and has a world-class Neurosurgical ICU. Neurology residents, working as consultants in the Neurosurgical ICU, become familiar with head trauma and gunshot wound complications.

Residents provide primary care of patients on the inpatient and consultation service. Lower level neurology residents (PGY2 adult neurology residents, PGY3 child neurology residents) along with PGY2/3 medicine residents rotating on the neurology service are responsible for taking in house night calls. PGY3 and PGY4 neurology residents will take home back-up calls and serve as support for in-house on-call residents. Upper level residents are expected to make themselves available to the residents taking in-house call as needed, especially for acute thrombolysis cases. The attending physician rounds with the residents daily and is available for support and back-up at all times. The attending physician must be involved in real-time treatment decisions regarding acute thrombolysis of acute stroke patients either in person or by telephone.

Special Requirements: All residents rotating at Ben Taub General Hospital must be trained in the EPIC electronic medical record system and pass the hospital-administered competency examination to gain access to EPIC. Additionally, all residents rotating on this service must be NIH Stroke Scale certified.

Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide acute neurological care in inpatient setting (wards, consultations, emergency department, and intensive care units) that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.
• **Competency 2: Medical Knowledge**
  Acquire knowledge about neurological diseases commonly encountered in a socio-economically and ethnically diverse urban population established including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with neurological disorders.

• **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of neurology in a public county hospital system, and improve patient care practices in the county hospital system.

• **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients’ families, and professional associates to provide optimal care. Residents learn to communicate with patients who may be cognitively impaired and who, along with family members, may neither speak English nor possess a high level of healthcare literacy.

• **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

• **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within the constraints of the public hospital system. Understand the constraints of patient self-care in a population with low healthcare literacy and personal financial resources.

### Learning Objectives by Year of Training

**Intermediate Level Residents (Neurology PGY2s and Child Neurology PGY3s)**

1. Demonstrate basic knowledge of anatomy and pathophysiology of neurologic disorders with an emphasis on neurological emergencies, acute exacerbations of chronic neurological conditions, and common neurological diseases in the urban setting such as neurological complications of HIV/AIDS, substance abuse, alcoholism, autoimmune disease, psychiatric disease, and pregnancy.

2. Obtain appropriate neurological history and perform a comprehensive exam and communicate effectively with the team, the patient and family, and other healthcare professionals involved in patient care while respecting patient confidentiality.

3. Localize pathology in the neuroaxis and formulate an appropriate differential diagnosis grounded in neuroanatomical considerations.

4. Recognize and implement a management plan, with appropriate supervision, of neurological emergencies, acute exacerbations of chronic neurological conditions, and common neurological diseases in the urban setting such as neurological complications of HIV/AIDS, substance abuse, alcoholism, autoimmune disease, psychiatric disease, and pregnancy.

5. Effectively demonstrate knowledge of the indications for and major risks and benefits of the important pharmacological interventions for patients with neurological emergencies, including thrombolysis in acute ischemic stroke, anti-epileptic drugs for the management of both status epilepticus and chronic seizures, immunomodulatory therapy for the treatment of multiple sclerosis exacerbations, myasthenia gravis crisis, and Guillain-Barre syndrome and acute inflammatory myopathies as well as the indications for commonly used psychotropic medications.

6. Understand the indications for and major risks and benefits of diagnostic procedures and interventions for patients with neurological emergencies, acute exacerbations of chronic neurological conditions, and common neurological diseases in the urban setting such as neurological complications of HIV/AIDS, substance abuse, alcoholism, autoimmune disease, psychiatric disease, and pregnancy.

7. Understand the indications for and the risks of lumbar puncture and perform lumbar punctures safely.

Communicate and document the informed consent properly. Interpret the results of CSF fluid analysis as well
### Learning Objectives by Year of Training

<table>
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<tr>
<th>Year</th>
<th>Objectives</th>
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| PGY1 | - Preparing medical history, physical examination, and lab results for interpretation.  
- Understanding the basics of neurological disease management. |
| PGY2 | - Demonstrating knowledge of neurological disease management and recognition of common neurological disorders.  
- Performing basic consultations and referrals to surgical, surgical, and allied health colleagues. |
| PGY3 | - Demonstrating a more detailed understanding of the areas of neurological diagnosis and disease management to handle less common disease states.  
- Triage and manage consults appropriately, engaging the supervising attending physician in a timely manner.  
- Teach lower level residents and medical students.  
- Supervise distribution of patients on consultation service.  
- Respond appropriately to all acute stroke activations anywhere in the hospital while on duty, assessing the patient for acute thrombolysis as per current clinical standards, and communicate effectively with the patient, patient's family, the supervising neurology attending physician as well as Emergency Center physicians, nurses, radiologists, and radiology technicians about the treatment plan.  
- Respond appropriately to all neurological emergencies anywhere in the hospital while on duty, assessing and managing the patient as per current clinical guidelines and evidence-based practice when available.  
- Supervise lower level neurology residents and non-neurology rotators taking overnight call in the hospital.  
- Engage in self-monitoring for excessive fatigue and communicate with the attending physician if fatigue is such as to interfere with work performance. |
| PGY4 | - Demonstrating an advanced understanding of the areas of neurological diagnosis and disease management.  
- Maximizing efficiency.  
- Teaching lower level residents, non-neurology rotating residents, and medical students.  
- Working effectively as the leader of the inpatient team including students, junior residents, consulting teams, and ancillary staff.  
- Communicating effectively with the families, patients, Stroke Coordinator, Discharge Planner, Social Worker, allied health professionals, and consulting services to ensure the timely, effective, safe, and evidence-based care is provided to patients.  
- Lead the weekly Multi-Disciplinary Rounds with the Discharge Planner, 5C Unit Nurse Manager, and Social Worker to provide cost-effective care, reduce hospital stays, and ensure compliance with guidelines and hospital policies.  
- Obtaining consultations from other medical and allied health services as appropriate to ensure safe, compassionate, and cost-effective patient care. |
1. **Work Rounds**
   Residents and students are expected to pre-round on overnight consults and admissions.

2. **Attending Teaching Rounds**
   A neurology attending physician conducts teaching rounds seven days a week with the service team. The attending physician personally sees all newly admitted and consulted patients. S/he also supervises the care of all follow-up patients. Bedside teaching occurs daily during these rounds.

3. **Inpatient Service**
   Each intermediate level resident (neurology PGY2 or child neurology PGY3) will take care of admitted neurology patients under the supervision of a final year (PGY3 or PGY4) resident (Neurology Ward Chief) and an attending physician. Unit 5C unit is a specialized stroke/neurology unit and all the nursing staff is well-trained in the care of neurologic patients.

4. **Consultation Service**
   A final level (PGY3 or PGY4) resident (Neurology Consult Chief) is responsible for leading and coordinating consultation patients with an internal medicine resident or neurosurgery resident rotating on service. The Consult Chief also acts as the primary triage for any patients that should be admitted to the primary neurology service from the Emergency Center during the day. The consultation team works under the direct supervision of an attending physician.

5. **Overnight Call**
   Intermediate level neurology and child neurology residents along with PGY2/3 internal medicine residents rotating on the neurology service will take in-house call compliant with ACGME work hour restrictions. The final year (PGY1 and PGY2) neurology residents are available as backup. In house residents will admit patients from Emergency Center and see consults overnight. Moreover, the final year neurology residents are available to return to the hospital during the night to provide needed support. They are required to do so for acute thrombolysis cases when an internal medicine resident is on call or for any neurology resident who either requires or requests direct supervision. The final year residents should engage in self-assessment to monitor for fatigue and communicate effectively with the attending physician should fatigue-related issues arise. Moreover, the attending physician will concurrently monitor for signs and symptoms of fatigue and release the resident for clinical duty to ensure adequate rest.

   These sessions occur Monday through Thursday from noon until 1 pm and Friday from noon until 2 p.m. Attendance is required unless the resident is post-call or engaging in the emergent evaluation and treatment of a patient under his or her care. Likewise, if attendance would violate duty hour rules, the post-call resident is excused from attendance.

7. **Ben Taub Neuroradiology Conference**
   Takes place every Friday at 8:30 a.m. The inpatient/consult service reviews cases with the neuroradiology attending physician and the neuroradiology fellow, and residents develop facility with radiological differential diagnosis and neurovascular imaging.

8. **Ben Taub Stroke Performance Improvement and Systems Based Practice Conference**
   Occurs monthly at the start of the rotation. The Chief of Neurology and the Stroke Coordinator review the Joint Commission Requirements for the provision of quality stroke care. Documentation and communication requirements as well as the interdisciplinary nature of stroke care are emphasized. Previous cases are reviewed to teach the importance of compliance. This conference kicks off the Stroke Performance Improvement project that the inpatient team participates in annually. Residents are assigned three of the Joint Commission Stroke Core Measures to monitor in their patients, intervene on if not met, and develop performance improvement measures to where improvement is required.

9. **Continuity Clinics**
   Residents will attend one half day out of the week for individual general neurology continuity clinics. Residents will see their own panel of patients independently under the supervision of an attending physician.
Evaluation Methods

At the end of the rotation, the attending faculty members are asked to fill out a comprehensive, confidential competency-based electronic evaluation on each resident with whom they have worked via E*Value. These evaluations are compiled and reviewed with each resident semiannually. Residents are asked to assess the quality of the rotation and the supervising faculty member via E*Value. Resident evaluations of the rotation and faculty member are both confidential and anonymous. The faculty member can view these evaluations until five have been completed. The name of the resident and the month of the rotation are suppressed, and neither the faculty member nor the Program Director can see the name of the evaluator and the month of the rotation. Multisource evaluations are also a part of the evaluation system on this rotation. Residents evaluate each other via E*Value. The Stroke Coordinator also evaluates every neurology resident on the rotation. Faculty members are encouraged to give mid-course formative feedback to all learners. The Program Directors get low score alerts for immediate action. All evaluations are reviewed during the semi-annual resident evaluation sessions.

Recommended Resources

- Aminoff, MJ. Neurology and General Medicine 4th Ed.
- Blumenfeld, H. Neuroanatomy Through Clinical Cases. 2nd Ed.
- Brust JCM. Neurological Aspects of Substance Abuse 2nd Ed.
- Irani DN. Cerebrospinal Fluid in Clinical Practice
- Patten J. Neurological Differential Diagnosis 2nd Ed.
- Rabinstein AA, Wijdicks EFM. Tough Calls in Acute Neurology
- Rolak LA. Neurology Secrets. 4th edition
- Roos, KL. Principles of Neurological Infectious Diseases
3. Clinical Neuropathology

Rotation Mentors

Dr. J. Clay Goodman (BCM/BTGH), Dr. Suzanne Powell (TMH), Dr. Andriana Rivera (TMH), Dr. Adekunle Adesina (BCM/TCH), Dr. Gregory N. Fuller (MDACC), Dr. Glenn Sandberg (HCFI)

Contact Person

Dr. J. Clay Goodman
jgoodman@bcm.edu

Level of Training

PGY3 and PGY4

Rotation Type

Inpatient and consultation service in a busy, ethnically and socioeconomically diverse county hospital

Length of Rotation

One month

Rotation Overview and Specific Goals by Level of Training

It is important for residents to understand that Neuropathology involves a greater degree of self-study compared to other clinical rotations. Residents will focus on specific areas, both in their reading and by reviewing a spectrum of representative slides. These areas include cerebrovascular disease, trauma, infectious disease, demyelinating disease, metabolic and toxic disease, developmental malformations and neoplastic disease. There will also be an introduction to neuromuscular disease and to the role of intraoperative frozen section diagnosis in CNS disease.

The neurology resident will attend the following conferences:

- Monday morning journal club (9 a.m.)
- Tuesday or Thursday Neuropathology section rounds (4-5 p.m.)
- Wednesday morning multi-disciplinary Tumor Board (7-8 a.m.)
- Wednesday brain cutting conferences (1-3 p.m.)
- Select noon conferences

Neuropathology faculty will also meet individually to review cases at the multi-headed scope with the rotating resident.

The residents actively engage in pre-operative rounds including viewing of imaging procedures and discussion of the cases with the neurosurgeons, intraoperative consultation including use of cytological imprints and frozen sections, and final case grossing, microscopic examination and signout at BTGH/BCM. The cases are reviewed by the attending neuropathology faculty prior to final signout and the faculty are available for consultation at any time prior to final signout (including intra-operative consultation) should the resident deem this necessary. The emphasis is on adult and pediatric brain tumors, but non-neoplastic conditions including neurodegenerative, metabolic and infectious disorders are covered as well. There is an active diagnostic neurosurgical caseload (1-3 brain tumors/week) and autopsy neuropathology (2-5 brains/week). During the rotation, the residents are expected to attend three brain cuttings/week at TCH, TMH and the Harris County Forensic Institute encompassing adult and pediatric neuropathology.

We attempt to demonstrate the essential linkage of basic biomedical science to clinical practice through journal club and conferences.

We also actively interdigitate with formal unknown slide conferences, autopsy conferences, and we conduct a biweekly surgical neuropathology conference which is well attended by house officers and other faculty members.

We also demonstrate the unique importance of close interaction with our clinical colleagues in the course of intra-operative consultations, surgical case signout, autopsies, and the handling of nerve and muscle biopsies. Our residents and staff active engage the clinical faculty in Neurology, Neurosurgery, and Neuroradiology in a variety of case based conferences including a biweekly case based Neurosurgery conference and monthly neuromuscular disease conference.
Overall Rotation Goals

Our overall goal during the neuropathology rotation is to develop the resident's knowledge in surgical and autopsy pediatric and adult neuropathology necessary for the competent practice of neurology in an academic or community setting.

1. Gain an understanding of the spectrum of pathologic cellular reactions in the central nervous system and peripheral nervous system.
2. Begin to understand the gross and microscopic pathology of cerebrovascular disease, trauma, infectious disease, demyelinating disease, metabolic and toxic disease, developmental malformations, and neurologic neoplastic disease.
3. Begin to understand normal peripheral nerve anatomy and common reactions of peripheral nerve to disease.
4. Understand how a muscle biopsy is performed and be able to describe common morphological changes of muscle in common muscle diseases.
5. Understand how these techniques affect clinical management and how they are best used in clinical practice.

Overall Rotation Objectives

1. Be able to describe the common types of cellular reaction to injury of CNS neurons and glia.
2. Know how to describe the indications, risks, and benefits of muscle and brain biopsy to patients and families, and be able to describe the importance and benefits of autopsy to families.
3. Be able to describe common gross and microscopic pathology findings of cerebrovascular disease, trauma, infectious disease, demyelinating disease, metabolic and toxic disease, developmental malformations, and neurologic neoplastic disease.
4. Be able to describe the microscopic pathology findings in common axonal and demyelinitative neuropathies.
5. Be able to describe the general microscopic pathology findings in myopathies-including steroid, inflammatory, and mitochondrial myopathies. Know the categories of hereditary myopathy and the typical microscopic pathology findings in dystrophies.
6. Present two Clinical Neuropathological Correlation Conferences during the course of the residency- one neuromuscular case and one CNS case.

Bibliography/Study List

The following references are required reading for the neuropathology rotation:


*Completion of the chapters on muscle and peripheral nerve disease is expected in the first two weeks of the rotation.
4. Psychiatry Consultation and Liaison Service

Rotation Mentors
Dr. Renee Valdez

Contact Person
Dr. Kim-Lan Czelusta

Level of Training
PGY3 and PGY4

Rotation Type
Consultation and Liaison Psychiatry Service (Hospital-based)

Length of Rotation
One month

Rotation Overview and Specific Goals by Level of Training

This rotation is a required rotation for neurology residents. Residents generally complete this rotation during the PGY1 year (those who started as PGY1s in 2009). Those who started prior to 2009 complete this rotation in the PGY3 or PGY4 year. All residents are expected to work toward improvement in all six core competencies as applied to patients with psychiatric disorders. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

The goal of this rotation is for residents to obtain an in-depth appreciation for the variety and complexity of psychiatric disorders; their phenomenology, characterization, differential diagnosis, work up, and treatment. The Consultation-Liaison rotation offers the Neurology resident an opportunity to diagnose and treat neuropsychiatric problems of medical and surgical inpatients. The resident also will learn to formulate these problems within a biopsychosocial framework while simultaneously attending to liaison dynamics. Residents will move beyond formulation of a basic management plan for straightforward patients to a deeper understanding of the management of patients with complex and difficult to treat psychiatric disease. Residents will be assigned to a hospital-based consultation and liaison service new patients on whom to perform an initial history and physical examination. Residents will also work for 3 shifts in the hospital emergency center under the direct supervision of an upper level psychiatric resident where they will aid in evaluating patients with acute psychiatric emergencies. There will not be any overnight call. When not seeing new patients independently, residents round with the attending physicians on other consult patients. Residents are excused from clinic one half day a week to attend continuity clinic as well as for all mandatory educational conferences.

Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide consultation on inpatients with psychiatric disorders that is compassionate, appropriate, and effective for the treatment of psychiatric diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about psychiatric disorders commonly seen in a large academic VA or county hospital including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with psychiatric disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of psychiatry and improve patient care practices.

- **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care. Residents learn to communicate with patients
who are cognitively impaired, depressed, manic, suicidal, and psychotic and suffer profound psychosocial distress because of their psychiatric disorder.

- **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

- **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within the hospital setting. Understand the constraints of patient self-care in a population with psychiatric disorders.

### Learning Objectives

By the end of the rotation, the neurology resident should have achieved the following objectives:

![Skill Matrix]

### Skills Objectives

1. **Gather Data**
   - Collect information from the patient, referring physician, medical chart, ward staff, and patient's family (when indicated).
   - Perform a mental status exam with special emphasis on the bedside neuropsychiatric exam (mini-mental status exam and other selected tests).

2. **Formulate Cases**
   - Understand the biological, psychological, and social contributions to the consultation problem.
   - Recognize the difference between the expressed reason for consultation request and any underlying needs of the referring physician (liaison dynamics).
   - Design appropriate interventions based on an understanding of biological, psychological, and social factors.
   - Write a concise consultation report.

3. **Intervene**
   - Educate nonpsychiatric personnel to act as change agents: the referring physician, the ward staff, the patient's family, and outside agencies.
   - Utilize the following intervention skills appropriately: clarification, abreaction, support of defense mechanisms, confrontation of defense mechanisms, and establishment of realistic goals with the patient.
   - Recognize and utilize countertransference feelings that arise among the referring physician, ward staff, and psychiatric consultant.
   - Prescribe psychotropic drugs when indicated and understand the indications, contraindication, and side effects of each.
   - Manage common C/L problems such as delirium, dementia, depression, sanity, somatization, and competency dilemmas.
   - Make appropriate referrals for psychological testing.
   - Arrange Follow-up psychiatric treatment, when indicated.
   - Form an alliance with nonpsychiatric medical staff on various medical and surgical wards.

### Knowledge Objectives

The resident should have a good understanding of the following:

1. Objectives, responsibilities, and limitations of the psychiatric consultant in medical settings.
2. Psychological aspects of physical illness: disease onset, course, and outcome.
3. Common patterns of psychological and social adaptation to disease, including terminal illness.
4. Factors that influence responses of family and hospital staff to patients.
5. Signs and symptoms, differential diagnosis, course, and indicated medical evaluation of:
   - Mental disorders due to general medical conditions
   - Alcohol and drug dependence, intoxication, and withdrawal
   - Depression, including "masked depression"
   - Anxiety disorders
   - Somatoform disorders
   - Psychological factors affecting physical conditions
   - Factitious disorders
   - Malingering
   - Personality disorders
6. Psychological effects of physical procedures (e.g. cardiac catheterization, bronchoscopy, GI procedures).
7. Symptoms, differential diagnoses, and recommended treatment procedures for the following:
   - The agitated patient
   - The hostile patient
   - The patient with suicidal ideation or behavior
   - The noncompliant patient
   - The patient who refuses treatment
   - The demanding patient
   - The patient who requires competency determination
   - The patient who requires commitment to a psychiatry ward

**Experience Objectives**

The resident will gain additional experience in:
1. Teaching medical students.
2. Serving as a role model for students.
3. Leading a team.
4. Developing a consult/liaison practice.

**Evaluation Methods**

At the end of the rotation, the attending faculty is asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

**Recommended Resources**

C. University of Texas M.D. Anderson Cancer Center

1. Neuro-Oncology

Rotation Mentors
Dr. Monica Loghin

Contact Person
Kay Hyde
khyde@mdanderson.org | 713-745-2343

Level of Training
PGY2 and PGY3

Rotation Type
PGY2: Inpatient setting on the neuro-oncology consultation service
PGY3: Outpatient setting in the M.D. Anderson Cancer Center Primary Brain and Spinal Cord Tumor Clinic

Length of Rotation
One month

Rotation Overview and Specific Goals by Level of Training

All lower level neurology residents are required to rotate for one month on the University of Texas M.D. Anderson Cancer Center (MDACC) Neuro-oncology Consultation Service. Upper level neurology residents each rotate for one month in the Primary Brain and Spinal Cord Tumor Clinic. If the lower level resident is unavailable to perform duties on the consults service due to vacation or continuity clinic, the upper level resident will fill in for that period of time. Attending rounds time and structure will vary considerably from day to day depending on the clinic schedule and the urgency of consults called to the team. Both the lower level and upper level neurology residents will take call from home approximately once every 6th night and for one weekend per month. Residents are excused from their duties at MDACC one half-day per week to attend continuity clinic as well as all mandatory educational conferences.

Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide acute neurological care in inpatient and outpatient setting to patients suffering from cancer and related conditions (wards, consultations, emergency department, and intensive care units) that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about neurological diseases commonly encountered in patients suffering from both systems and primary nervous system cancers including the relevant clinical, basic science, psychosocial and epidemiological knowledge and analyze and apply this medical knowledge to the care of patients with cancer and neurological disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of neurology in a tertiary care cancer hospital system, and improve patient care practices in this tertiary referral cancer hospital system.

- **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care. Residents learn to communicate with patients
who are suffering from cancer, who may be cognitively impaired and who, along with family members, may neither speak English nor possess a high level of healthcare literacy.

- **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population suffering from cancer.

- **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value for the patient suffering from cancer. Understand the constraints of patient self-care in a cancer patient population.

### Principal Teaching/Learning Activities

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1. **Pre-Rounds**
   Residents on the consult service are expected to pre-round on all consult patients needing follow-up. Urgent patient issues are identified early, so they can be taken care of proactively.

2. **Attending Rounds**
   The attending on the consult service rounds with the service team seeing all those patients who are new or active consultation and primary neurology service patients.

3. **Work Rounds**
   Patient care plans of the day for patients on the consult service are prioritized and implemented. Any necessary procedures are done and laboratory tests checked. New consultations are prioritized and completed.

4. **Outpatient Clinics**
   Residents in the Primary Brain and Spinal Cord Tumor clinic will attend brain and spine tumor clinic daily. Residents will see patients independently and discuss cases with attendings.

5. **Noon Conference and Grand Rounds**
   Occurs Monday through Friday from noon until 1 pm and attendance is required.

6. **Professors’ Rounds**
   Occurs biweekly. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.

7. **Neuro-oncology Core Curriculum Lectures**
   Occur every Monday afternoon from 4 to 5 pm in FC7.3035.

8. **Tumor Board**
   Every Thursday afternoon from 4 to 5 pm in G1.3741.

### Principal Learning Objectives

Residents on the Primary Brain Tumor Clinic month as well as the Neuro-oncology consult month should gain a basic knowledge which may include but not necessarily be limited to the following:

- Basic familiarity with the common primary nervous system malignancies, including:
  - Recognition of common clinical presentations for the different common primary brain tumors and ordering appropriate diagnostic testing or consultations.
  - Common therapeutic interventions

- Basic familiarity with principles of diagnosis and management of metastatic cancer to the nervous system including:
  - Brain and spinal cord metastasis
  - Neoplastic meningitis
- Epidural cord compression
- Peripheral nervous system metastasis
- Basic familiarity with diagnosis and management of cancer related neurologic complications of both solid and liquid (blood) tumors including:
  - Paraneoplastic syndromes
  - Encephalopathy
  - CNS infections
  - Cerebrovascular disease
  - Seizures
  - Increased intracranial pressure
  - Basic palliative and end-of-life management principles
  - Recognition of neurologic complications of radiation, chemotherapy and other cancer therapeutics

**Evaluation Methods**

At the end of the rotation, the attending faculty is asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked in E*Value. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.
D. Michael E. DeBakey Veterans Affairs Medical Center

1. Continuity Clinics

Rotation Mentors
Dr. Vitor Pacheco, Dr. David Chen, Dr. Pitchaiah Mandava, Dr. Dennis Mosier, Dr. Roderic Fabian, Dr. Veneetha Cherian, Dr. Robert Kolimas

Contact Person
Dr. Vitor Pacheco
vhpachec@bcm.edu

Level of Training
PGY2, PGY3, PGY4

Rotation Type
Outpatient setting in the Michael E. DeBakey Veterans Affairs Medical Center.

Length of Rotation
One half-day per week

Rotation Overview and Specific Goals by Level of Training

Neurology residents are required to participate in a continuity clinic weekly from the PGY2 year through the end of the PGY4 year. Residents follow their own panel of patients and are supervised directly by a designated attending physician. Residents are assigned one attending physician who will be their continuity clinic supervisor for the three years of their clinic. Although the resident is the primary provider of neurological care to his or her patient, the supervisor will get to know the patient as well and provide better continuity of supervision as residency progresses. Residents inherit a panel of continuity patients from a predecessor but are encouraged to build their panel in a way that advances their subspecialty interests. Residents are excused from clinic when they are on vacation, on approved educational or FLMA-related leave, on night float, and when they are the St. Luke's Episcopal Hospital NICU Chief as PGY3s. The minimum number of continuity dates per resident per year is 40. However, all residents exceed this number even with the exceptions outlined above. Residents are expected to provide 3 months of advanced warning if they need clinic canceled due to educational leave or a change in vacation assignment. Residents never attend continuity clinic post-call. All hours in continuity clinic count toward the 80-hour work week and must be logged in E*Value.

Overall Rotation Goals by Level of Training

- Competency 1: Patient Care
  Resident is able to provide timely, efficient, effective and compassionate patient care for the treatment of outpatient-based neurological problems. The resident will understand how to prioritize medical problems, order appropriate diagnostic tests, prescribe medications, and utilize resources appropriately for effective patient care.
    - The intermediate level resident (PGY2) acquires a basic understanding of the care of neurology outpatients and moves to increasing independence and improved confidence as the year progresses.
    - The final year resident (PGY3 and PGY4) gains advanced competency in the outpatient care of patients with neurological disorders.

- Competency 2: Medical Knowledge
  Resident demonstrates knowledge of established and evolving clinical, basic sciences, epidemiology and up-to-date evidence for application of patient care. Resident will assess and evaluate patient history, physical, ancillary data critically to deliver effective patient care.
    - The intermediate level neurology resident (PGY2) is to achieve a basic knowledge and move toward more advanced knowledge as the year progresses of neurologic disease presenting in the outpatient setting including presentation, differential diagnosis, and localization within the neuroaxis.
The final year resident (PGY3 and PGY4) is to gain and consolidate advanced knowledge of neurological diseases presenting in the outpatient setting, their presentation, differential diagnosis, and localization in the neuroaxis.

**Competency 3: Practice-Based Learning and Improvement**

Residents should critically evaluate their own diagnostic plans, scientific evidence, and continuously improve their own patient care through self-learning as well as morning didactics. Resident should use medical knowledge to teach junior neurology residents, IM residents, psychiatry residents, and medical students. Resident should accept constructive criticism through formative evaluations as well as oral feedback during presentations to set their own personal learning and improvement goals.

- The intermediate level (PGY2) resident is to achieve a basic understanding of the practice of self-assessment and implementation of evidenced-based medicine into clinical practice.
- The final year resident (PGY3 and PGY4) is to gain advanced competency in practice-based learning issues that arise care of outpatients with neurological disorders.

**Competency 4: Interpersonal and Communication Skills**

Residents of all levels should demonstrate interpersonal and communication skills that will allow for effective and accurate information exchange necessary for optimal patient care. This includes medical record legibility and comprehensiveness. This also includes working as part of a health team with nurses, secretaries, and other ancillary staff. Resident should be able to effectively lead didactics if appropriate.

**Competency 5: Professionalism**

Residents of all levels should be committed to carrying out their professional responsibilities and adhering to ethical principles. They should demonstrate respect for patient privacy, autonomy through adherence to HIPAA regulations. They should demonstrate compassion, integrity, and respect for others through compassionate interactions with patients. They should demonstrate sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation. They should answer pages in a timely fashion and treat colleagues with respect.

**Competency 6: Systems-Based Practices**

Residents should be capable in different systems of care, particularly in this rotation public county hospitals and a veteran affairs hospital system. They should demonstrate the ability to critically evaluate patient care problems and utilize resources in a cost-effective manner. They should always advocate within the system for optimal care for their patient.

- The intermediate level (PGY2) resident is to achieve a basic understanding of the effects of system-based issues on the care of neurology outpatients.
- The upper level resident is to gain advanced competency in the management of systems issues in the care of neurology outpatients.

**Rotation Objectives**

- **Patient Care**
  - Assess, manage, and serve as primary contact for outpatients.
  - Provide compassionate, appropriate, and effective patient care for the treatment of health problems and the promotion of health.
  - Understand how to appropriately prioritize patient problems and develop an appropriate diagnostic plan.
  - Prescribe medications appropriately.
  - Show an appropriate balance between attention to the details of patient care and the overall context of treating the patient's illness.
  - Obtain consultations appropriately.
  - Perform technical procedures adequately, including lumbar puncture.
  - Be able to take a neurological history and perform a neurological examination competently.
  - Become familiar with the basics of diagnosis and treatment of common neurological problems in the outpatient setting, including epilepsy, headaches, neuromuscular disorders, gait disorders, cognitive disorders, movement disorders, neoplastic disorders of the nervous system, the long term management and prevention of stroke, sleep disorders, neuro-genetic disorders, and multiple sclerosis.

- **Medical Knowledge**
  - Demonstrate knowledge of evolving biomedical, clinical, epidemiological and social/behavioral sciences as well as the application of this knowledge to patient care.
  - Assess diagnostic information critically and constructively.
  - Develop skills in neuroanatomic localization.
  - Recognize psychosocial aspects of illness.
  - Critically evaluate the medical literature and apply new knowledge to the delivery of safe and effective patient care.
• Gain basic knowledge of the use and interpretation of neuroimaging studies, basic knowledge of the appropriate use of electroencephalography, basic knowledge of the use of other neurodiagnostic and laboratory studies, and basic knowledge of the interpretation of cerebrospinal fluid results.

• Begin to acquire knowledge of important principles of many areas of neuroscience, including neurochemistry, neurophysiology, neuroanatomy, neuropharmacology, and molecular neuroscience.

• Gain exposure to the diagnosis and management of neurologic emergencies in the ICU, including coma, hypertensive crisis, cerebral edema, malignant stroke, etc.

• **Practice-Based Learning and Improvement**
  - Critically evaluate the care of patients.
  - Appraise and assimilate scientific evidence and continuously improve patient care delivered on the basis of ongoing self-evaluation and learning.
  - Use knowledge to educate patient families, medical students, allied health personnel, peers, and other health professionals as appropriate.
  - Identify strengths, deficiencies, and limits of your knowledge and expertise.
  - Be receptive to constructive criticism (formative evaluation feedback) regarding the care of patients and physician performance.
  - Set learning and improvement goals and identify and perform activities appropriate to meeting these goals.
  - Become familiar with key resources in the neurological literature and develop the ability to search the literature for more detailed and current information using internet-based resources and reference texts.
  - Attend didactic conferences on neurologic topics.

• **Interpersonal and Communication Skills**
  - Demonstrate interpersonal and communication skills that result in effective information exchange and collaboration with patients, families, and other health professionals. These skills include the ability to communicate effectively across a broad range of socio-economic and cultural backgrounds and with physicians, health professionals, and health related agencies.
  - Learn to effectively present information about outpatients in a concise fashion.
  - Maintain comprehensive, timely, articulate medical records.
  - Work effectively as a member of a healthcare team and serve appropriately as a consultant to other physicians and health professionals.
  - Provide medical students with formative and summative feedback on their histories, physical examinations, and daily assessment and management of inpatients.

• **Professionalism**
  - Be committed to carrying out professional responsibilities and adhering to ethical principles.
  - Demonstrate respect for patient privacy and autonomy.
  - Be accountable to patient, society, and the medical profession for your actions.
  - Demonstrate compassion, integrity and respect for others.
  - Demonstrate responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation.
  - Demonstrate the ability to manage personal stress effectively.
  - Answer pages or messages in a timely fashion.
  - Improve skills in coordinating care, including patient contact via telephone and taking responsibility for test interpretation between visits.
  - Understand how to maintain appropriate professional boundaries.
  - Complete assigned tasks in a timely fashion.

• **Systems-Based Practice**
  - Understand and be capable of interacting effectively with different systems of care.
  - Demonstrate the ability to provide high-quality care in a cost-effective manner.
  - Incorporate consideration of cost-awareness and risk-benefit analysis in patient care decisions.
  - Advocate for high quality care for all patients.
  - Recognize situations where input is needed from physicians from other specialties or from other medical professionals.
  - Understand the role of a Neurology specialist within the greater context of a healthcare team.
  - Recognize situations where the input of more experienced neurologists is needed.
Evaluation Methods

At the end of the rotation, the attending faculty members are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked using E*Value. These evaluations are compiled and reviewed with each resident semiannually.

Residents are asked to assess the faculty mentors with whom they have worked with as well as the overall rotation via an electronic evaluation form.

Semi-annually patients will evaluate their resident providers.

Quarterly, the continuity clinic nursing staff will evaluate the resident.

Suggested Readings and References

- Blumenfeld, Hal. Neuroanatomy through Clinical Cases.
- Continuum: Lifelong Learning in Neurology
2. Neurology Inpatient and Consultation Service

Rotation Mentors

Dr. Thomas Kent, Dr. Pitch Mandava, Dr. Roderic Fabian, Dr. Robert Kolimas, Dr. Denis Mosier, Dr. David Chen, Dr. Vitor Pacheco

Contact Person

Dr. David Chen
dkchen@bcm.edu

Level of Training

PGY2, PGY3, and PGY4

Rotation Type

Inpatient and consultation service in the Michael E. DeBakey Veteran's Affairs Medical Center

Length of Rotation

One month

Rotation Overview

This rotation provides an excellent inpatient service and consultation experience with exposure to a wide range of common and uncommon neurological disease. The Michael E. DeBakey Veteran's Affairs Medical Center (MEDVAMC) is the second largest VA hospital in the country and has the largest number of residents of any VA in the country. It is a modern facility completed in 1991. The MEDVAMC is a specially designated flagship facility equipped with ultramodern resources not found in other VA hospitals. It is equipped with a state-of-the-art 3T MRI and a new 1.5T HDx MRI, two 64 slice CT scans, and a PET/CT facility. A dedicated 3T research MRI is anticipated this year. The faculty is active in both clinical and basic science research.

The MEDVAMC has one of six national Parkinson's Disease Research, Education and Clinical Centers (PADRECC). It has received distinction and funding as a national Epilepsy Centers of Excellence (ECoE), directed by Dr. Richard A. Hrachovy. The MEDVAMC has longstanding, very active Epilepsy Monitoring Unit with 4 specially equipped beds for continuous video-EEG monitoring. Furthermore, the MEDVAMC is home to another VA-funded Research Centers of Excellence: Houston Center for Quality of Care and Utilization Studies and Neurorehabilitation -- Neurons to Networks Center of Excellence. It is also home to a VA Quality Enhancement Research Initiative in Substance Use Disorders, a Mental Illness Research and Clinical Care Center.

The MEDVAMC is the only VA recognized as a comprehensive stroke center and is Joint Commission Stroke Certified. The MEDVAMC offers extensive inpatient and outpatient training opportunities for neurology residents. It is the site of much EEG, EMG, psychiatry, and neuroradiology training for our residents.

Residents provide primary care of patients on the inpatient and consultation service. Lower level neurology residents (PGY2 adult neurology residents, PGY3 child neurology residents) along with PGY2/3 medicine residents rotating on the neurology service are responsible for taking in house night calls. PGY3 and PGY4 neurology residents will take home back-up calls and serve as support for in-house on-call residents. Upper level residents are expected to make themselves available to the residents taking in-house call as needed, especially for acute thrombolysis cases. The attending physician rounds with the residents daily and is available for support and back-up at all times. The attending physician must be involved in treatment decisions regarding acute thrombolysis of acute stroke patients either in person or by telephone.

Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide acute neurological care in inpatient setting (wards, consultations, emergency department, and intensive care units) that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.
• **Competency 2: Medical Knowledge**
  Acquire knowledge about neurological diseases commonly encountered in a socio-economically and ethnically diverse urban population established including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with neurological disorders.

• **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of neurology in a public county hospital system, and improve patient care practices in the county hospital system.

• **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care. Residents learn to communicate with patients who may be cognitively impaired and who, along with family members, may neither speak English nor possess a high level of healthcare literacy.

• **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

• **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within the constraints of the public hospital system. Understand the constraints of patient self-care in a population with low healthcare literacy and personal financial resources.

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### Learning Objectives by Year of Training

#### Lower Level (Neurology PGY2, Internal Medicine PGY2/3, or Child Neurology PGY3)

1. Demonstrate basic knowledge of anatomy and pathophysiology of neurologic disorders with an emphasis on neurological emergencies, acute exacerbations of chronic neurological conditions, and common neurological diseases in the urban setting such as neurological complications of HIV/AIDS, substance abuse, alcoholism, autoimmune disease, psychiatric disease, and pregnancy.

2. Obtain appropriate neurological history and perform a comprehensive exam and communicate effectively with the team, the patient and family, and other healthcare professionals involved in patient care while respecting patient confidentiality.

3. Localize pathology in the neuroaxis and formulate an appropriate differential diagnosis grounded in neuroanatomical considerations.

4. Recognize and implement a management plan, with appropriate supervision, of neurological emergencies, acute exacerbations of chronic neurological conditions, and common neurological diseases in the urban setting such as neurological complications of HIV/AIDS, substance abuse, alcoholism, autoimmune disease, psychiatric disease, and pregnancy.

5. Effectively demonstrate knowledge of the indications for and major risks and benefits of the important pharmacological interventions for patients with neurological emergencies, including thrombolysis in acute ischemic stroke, anti-epileptic drugs for the management of both status epilepticus and chronic seizures, immunomodulatory therapy for the treatment of multiple sclerosis exacerbations, myasthenia gravis crisis, and Guillain-Barre syndrome and acute inflammatory myopathies as well as the indications for commonly used psychotropic medications.

6. Understand the indications for and major risks and benefits of diagnostic procedures and interventions for patients with neurological emergencies, acute exacerbations of chronic neurological conditions, and common neurological diseases in the urban setting such as neurological complications of HIV/AIDS, substance abuse, alcoholism, autoimmune disease, psychiatric disease, and pregnancy.

7. Understand the indications for and the risks of lumbar puncture and perform lumbar punctures safely. Communicate and document the informed consent properly. Interpret the results of CSF fluid analysis as well.
as blood and tissues analysis accurate to allow for proper diagnosis and management of patients with neurological disease.

8. Learn how to use appropriate consultation and referral to surgical, surgical, and allied health colleagues for optimal management. □□□□□■

**PGY3: All of the above as for lower level. Additionally:**

1. Demonstrate a more detailed understanding of the areas of neurological diagnosis and disease management to include less common disease states. ■■■■■■
2. Triage and manage consults appropriately. ■■■■■■
3. Teach lower level residents and medical students. ■■■■■□
4. Supervise distribution of patients on consultation service. ■■■■■□
5. Supervise face to face sign out on a daily basis between consultation team and inpatient team. ■■■■■□

**PGY4: All of the above as for the lower level and PGY3. Additionally:**

1. Demonstrate an advanced understanding of the areas of neurological diagnosis and disease management. ■■■■■□
2. Maximize efficiency. ■■■■■□
3. Teach 1st and 2nd year residents and medical students. ■■■■■□
4. Work effectively as the leader of the inpatient team including students, junior residents, consulting teams and ancillary staff. ■■■■■□

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**Principal Teaching/Learning**

1. **Work Rounds**
   Residents and students are expected to pre-round on overnight consults and admissions. ■ ■ ■ ■ ■
2. **Attending Teaching Rounds**
   The attending on service rounds with the service team seeing all new patients and follow-up patients if needed. Bedside teaching occurs daily during these rounds. ■■■■■■
3. **Inpatient Service**
   Each lower level resident will take care of admitted Neurology patients under the supervision of an upper level (PGY3 or PGY4) Inpatient Neurology Chief and an attending physician. Unit 5C unit is a specialized stroke/neurology unit and all the nursing staff is well-trained in the care of neurologic patients. ■■■■■■
4. **Consultation Service**
   PGY3 resident (Neurology Consult Chief) is responsible for leading and coordinating consultation patients with an internal medicine resident or neurosurgery resident rotating on service. The Consult Chief also acts as the primary triage for any patients that should be admitted to the primary neurology service from the Emergency Center during the day. ■■■■■■
5. **Overnight Call**
   Lower level neurology and child neurology residents along with PGY2/3 internal medicine residents rotating
on the neurology service will take in-house call as per ACGME work hour restrictions. The PGY3 and PGY4 neurology residents will take home calls as backup. In house residents will admit patients from EC and see consults overnight. Moreover, the upper level neurology residents are available to return to the hospital during the night to provide needed support. They are required to do so for acute thrombolysis cases when an internal medicine resident is on call or for any neurology resident who requires direct supervision.

   Occurs Monday through Friday from noon until 1 pm and attendance is required unless the resident is post-call. Likewise, if attendance would violate duty hour rules, the post-call resident is excused from attendance.

7. **Ben Taub Neuroradiology Conference**
   Takes place every Friday at 8:30 a.m. The inpatient/consult service reviews cases with the neuroradiology attending physician and the neuroradiology fellow, and residents develop facility with radiological differential diagnosis and neurovascular imaging.

8. **Ben Taub Stroke Performance Improvement and Systems Based Practice Conference**
   Occurs monthly at the start of the rotation. The Chief of Neurology and the Stroke Coordinator review the Joint Commission Requirements for the provision of quality stroke care. Documentation and communication requirements as well as the interdisciplinary nature of stroke care are emphasized. Previous cases are reviewed to teach the importance of compliance. This conference kicks off the Stroke Performance Improvement project that the inpatient team participates in annually. Residents are assigned three of the Joint Commission Stroke Core Measures to monitor in their patients, intervene on if not met, and develop performance improvement measures to where improvement is required.

9. **Professors' Rounds**
   Occurs biweekly. A lower level resident is assigned to do a history and physical exam on a patient unknown to him/her while being observed by a faculty member and all residents and students. Thereafter, the Professor asks the residents and all in attendance to localize the lesion, develop an appropriate differential diagnosis, and then discuss either diagnostic, management, or basic science issues related to the patient's disease process.

10. **Neuroradiology, Neuropathology or M & M Conferences (depending on the week)**
    Occurs every Friday from 1-2 p.m.

11. **Continuity Clinics**
    Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

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**Evaluation Methods**

At the end of the rotation, the attending faculty members are asked to fill out a comprehensive competency-based electronic evaluation on each resident with whom they have worked via E*Value. These evaluations are compiled and reviewed with each resident biannually. Residents are asked to assess the faculty mentors with whom they have worked with as well as the overall rotation via an electronic evaluation form. Junior residents evaluate senior residents. Senior residents evaluate junior residents. Faculty members are encouraged to give mid-course constructive feedback to all learners. Mult-source evaluations are conducted wherein nurses and social workers are asked to evaluate the resident.

**Recommended Resources**

- Blumenfeld, Hal. Neuroanatomy through Clinical Cases.
- Rolak LA. Neurology Secrets. 4th edition
3. Neuromuscular Neurology and EMG

Rotation Mentors
Dr. Denis Mosier, Dr. Robert Kolimas, Dr. Nicolas Namour

Contact Person
Dr. Robert Kolimas
rkolimas@bcm.edu

Level of Training
PGY3

Rotation Type
Outpatient setting in the Michael E. DeBakey Veteran's Affairs Medical Center Neuromuscular Clinic and EMG Laboratory

Length of Rotation
One month

Rotation Overview
The resident will become knowledgeable and gain experience in evaluation and management of the adult neuromuscular diseased patients including a large academic VA population of patients. Residents will also gain experience in the interpretation of electrodiagnostic studies important in the evaluation of the neuromuscular patient including electromyography and nerve conduction studies. Residents will also gain familiarity with the evaluation of patients with autonomic disorders and the interpretation of autonomic function tests. Finally, residents will learn about neuromuscular pathology and the interpretation of neuromuscular pathology reports.

Rotation Objectives

- **Patient Care**
  Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the neuromuscular adult neurology patient. Residents are expected to:
    - Develop the necessary skills to take complete history and physical examination of the adult neuromuscular patient suffering from a variety of diseases including ALS, peripheral neuropathy, myasthenia gravis and exacerbation, acute and chronic inflammatory demyelinating polynuropathy, inflammatory myopathies, muscular dystrophies presenting in adulthood, autonomic dysfunction of myriad causes in the acute and chronic patient.
    - To develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the referred neurology outpatient.
    - To become increasingly familiar with diagnostic and laboratory studies for diagnosis and management including radiography, electrodiagnostic studies, and laboratory blood and tissues analysis.
    - To become knowledgeable of the indications for the diagnostic and laboratory tests to aid in the diagnosis and management of neurological disorders.
    - Perform lumbar punctures, edrophonium testing, and non-ischemic muscle exercise testing in the outpatient and inpatient settings and monitor response and possible adverse effects.
    - To interpret genetic, laboratory and procedural results and apply this information to develop the clinical acumen to diagnose and manage the adult neurology patient.
    - To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, electrodiagnostic tests, specialty consultations.
    - Identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
    - Become familiar with EMG/NCV reports and interpretation of data.
    - To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases:
      - EMG/NCV and Repetitive nerve stimulation
      - Evoked potentials
- Pulmonary Function Tests
- Polysomnography
- Special studies of CSF, blood, and tissue
  - Identify and describe gross and microscopic specimens taken from muscle and nerve biopsy to aid in diagnosis and management of the neuromuscular patient.

**Medical Knowledge**
Residents must acquire and demonstrate increasing medical knowledge of major neuromuscular and neurodegenerative disorders including considerations relating to age, gender, race, and ethnicity, inheritance pattern, based on the literature and standards of practice. Residents are expected to:
- Demonstrate knowledge of the adult presentation of acquired and inherited disorders of the CNS and PNS including genetics, pathophysiology, diagnosis, and management.
- Acquire and demonstrate knowledge of the acute and chronic presentation, diagnosis, and management of the following non-inclusive conditions:
  - Amyotrophic Lateral Sclerosis
  - Myasthenia Gravis and myasthenic syndromes
  - Inflammatory myopathies
  - Immune-mediated polyneuropathy (CIDP, multifocal motor neuropathy)
  - Acute Inflammatory polyneuropathy (GBS)
  - Myelopathic syndromes (HTLV-1, B12, spinal stenosis/chronic cord compression)
  - Neuromuscular Respiratory Failure
  - Inherited and acquired of neuropathies of myriad etiologies
  - Inherited and acquired muscle disease of myriad etiologies
  - Other motor neuron syndromes (Primary Lateral Sclerosis, progressive muscular atrophy, Kennedy's disease, SMA, Post-polio, HTLV-1 associated spastic paraparesis)
  - Fascioscapulohumeral muscular dystrophy
  - Inherited sensory and/or motor polyneuropathies
  - Ataxia syndromes (Friedrich's Ataxia, spinocerebellar ataxia syndromes)
  - Periodic paralysis and myotonic disorders, including Myotonic Dystrophy
  - Limb girdle muscular dystrophy
- Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events.
- Become familiar with non-pharmacologic management and monitoring of outcomes and progression.
- Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.
- Demonstrate knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
- Demonstrate knowledge of non-pharmacologic management and monitoring of outcomes and progression.
- Recognize indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.
- Demonstrate knowledge of neurogenetic disorders and syndromes including mechanisms of disease and therapeutic and experimental intervention.
- Demonstrate knowledge and management of neuropsychiatric disorders including malingering, somatiform disorders as they relate to neuromuscular disorders. Know diagnostic and interventions to determine organic versus psychogenic etiologies.

**Practice-Based Learning and Improvement**
Residents must demonstrate the skills for obtaining up-to-date information from scientific and practice literature to assist in quality patient care. Residents are expected to:
- Use web based databases available within and outside the hospital setting.
- Use medical libraries within and outside the hospital setting.
- Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology.
- Utilize practiced-based guidelines for evaluation and management of the neurology adult patient.
- Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

**Interpersonal and Communication Skills**
Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:
- To communicate effectively with both outpatients and inpatients using verbal, nonverbal, and written skills as appropriate regarding:
  - Clinical impression and results of assessment
  - Outcomes and prognosis
  - Recommended treatment and management plans and associated risks and benefits
- Genetic counseling and palliative care
- Alternative treatment plans
- Education about the conditions and referral to reliable outside sources of education, advocacy, and support
  - To develop a physician-patient relationship based upon honest and open communication and respect and partner with patients to develop a treatment and healthcare management plan.
  - To become proficient at communicating effectively and working collaboratively with allied health professionals and other professionals involved in patient care.
  - To become proficient at educating patients, families, and professionals in the about issues related to neurological conditions.
  - Maintain accurate and clear medical documentation. Write legible prescriptions, orders. Dictate accurate and clear documentation of patient encounters and assessment for the medical records.
  - To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.
  - To educate patients, families, and professionals in the about issues related to neurological conditions.
  - To obtain, interpret, and evaluate consultations from other medical specialties.
  - To serve as a consultant to other medical specialists, mental health professionals, and community agencies and communicate assessment, management plan, and follow up clearly and effectively.
  - Review and supervise documentation and medical records of junior residents, medical students in order to maintain accurate and clear medical documentation. Edit and correct dictations and medical reports for medical records.

- **Professionalism**
  Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Resident must demonstrate an understanding of professional conduct for themselves and other professionals and remediate when appropriate. Residents are expected to:
  - Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
  - Adequately document patient care management and patient interaction.
  - Obtain informed consent from patients for neurology procedures.
  - Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
  - Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
  - Provide and ensure adequate cross coverage of patients.
  - Coordinate care of other health care providers and multidisciplinary team members in care of patients on the outpatient work up unit and inpatient services.

- **Systems-Based Practice**
  Residents must demonstrate knowledge of the systems involved in treating the inpatient and outpatient, use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:
  - Access and utilized practice guidelines and parameters.
  - Access community and allied health professional resources, including but not limited to social work services, disease specific advocacy organizations, indigent care or charity programs, drug assistance programs.
  - Participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
  - Coordinate and participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
  - Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
  - Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

**Practice Setting and Course Experience**

This rotation experience is almost completely outpatient and will take place in the Neuromuscular Clinics of Drs. Mosier and Kolimas at the Michael E. DeBakey Veterans Affairs Medical Center as well as in the EMG laboratory at the VA. Residents evaluate and assess each patient and present the cases to the attending. Investigative studies are followed by the resident and reported to the patient and attending for evaluation, diagnosis, and recommended treatment. Residents will also attend required daily didactics and lectures at noon, including a biweekly Professor's rounds in which a resident examines and evaluates a live patient and the case is discussed.
Supervision of Patient Care and Procedures

Since this rotation is primarily an outpatient rotation, supervision by faculty will be virtually immediate and direct. After interviewing and examining the patient, the attending physician will review the history with the resident and patient and perform a confirmatory examination. Residents will perform procedures such as electromyography or nerve conduction studies under the direct supervision of the attending faculty until the resident has accumulated sufficient experience and skill to perform the procedures independently. The faculty physician supervising the care of the patient is ultimately responsible for patient care and any procedures performed by the resident.

Resident Responsibilities

The resident is responsible for performing a complete history and physical examination of the acute and chronic neurology patient. The resident will evaluate both assigned outpatient and elective and emergent inpatients and present these cases to the respective attending physician. The resident is responsible for writing daily notes, ordering tests and consultations, and implementing therapy under the direct supervision and guidance of the attending physician on both the outpatient and inpatient services.

The resident will interact with consulting services and other health allied services in the care of the patient and communicate effectively with these services in addition to the patient and family. The resident will become skilled at performing outpatient clinical procedures, including but not limited to lumbar puncture, edrophonium testing, non-ischemic exercise testing, under the direct supervision and teaching of the attending physician to the clinic.

The resident will be responsible for arranging cross coverage when not available.

Responsibilities of Teaching Faculty

The teaching faculty is responsible for providing supervision and teaching to the resident including patient 'bedside' teaching and formal lectures. The faculty will evaluate every patient seen by the resident and provide instruction and guidance regarding evaluation and management of each case. The resident is responsible to provide care and follow up of patients, however, the faculty is responsible for the overall management of the patient, including appropriate investigations, treatment, and management plans. The faculty must ensure that each resident remains actively involved in each patient case and has a major role and responsibility to provide longitudinal care.

The faculty are also responsible for reviewing the quality and accuracy of the medical record and must review and co-sign all notes, orders, and care-related documents signed by the resident and medical student.

The faculty must provide cross-coverage for attending the clinic if he/she is unable to attend, which must be communicated with clinic staff, residents, and program director.

Evaluation of resident performance

The supervising teaching faculty will discuss expectations with the each resident at the initiation of the rotation. At each clinical encounter the attending will discuss performance with each resident, providing verbal feedback regarding strengths areas for improvement and suggesting educational goals for subsequent outpatient experiences. Supervising faculty are encouraged to notify the program director at any time during the rotation with either commendation or concern regarding the resident performance.

Formal evaluation will include an individual monthly evaluation performed by the attending faculty. Faculty members directly supervising residents will complete a computer based evaluation form using the residency management software system (E*Value) monthly. This evaluation will be reviewed personally with each resident by the supervising faculty member at the end of a one month rotation.

Evaluation of Faculty/Educational Program

Neurology faculty involved in teaching the residents will be evaluated anonymously by the residents using the electronic residency management software system. Rotation evaluations (monthly) will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.

Residents will evaluate the program on a monthly basis using the electronic residency management software system (E*Value).
Suggested Readings and References

- Merritt's Textbook of Neurology
- Adams and Victor's Principles of Neurology
- Washington University-St. Louis Medical School Neuromuscular Web page (http://www.neuro.wustl.edu/neuromuscular/)
- Bradley's Textbook of Neurology
4. Neuroradiology

Rotation Mentors
Dr. Harish Chintapalli, Dr. Raymond Weir

Contact Person
Dr. Harish Chintapalli
chintapa@bcm.edu

Level of Training
PGY3 and PGY4

Rotation Type
Hospital-based

Length of Rotation
One month

Rotation Overview
The goal of this rotation is to provide neurology residents an opportunity to hone their skills in diagnostic and interventional neuroradiology. Residents will have the opportunity to review MRIs, CTs, and angiograms with neuroradiologists. Ample time is provided for independent reading and projects.

Rotation Goals and Objectives

- Patient Care
  - Definition
    - What I do
  - Goal
    - Enable program graduates to provide patient care that is appropriate, compassionate, and effective for the treatment of children with suspected neurological problems.
  - Mechanisms for evaluating patient care:
    - Residents are assessed with regard to patient care in multiple ways. This includes routine evaluation of imaging studies during daily rounds with attending faculty. Assessment of patient care includes evaluations by supervising physicians and ancillary health care providers. There is also an annual In-service exam (RITE).
  - Patient care skills that should be demonstrated when seeing an imaging study of a child with a suspected neurological problem:
    - Identify and describe abnormalities of common neurological disorders on radiographic tests that include plain films of skull, spine, chest, myelograms, angiograms, CT, MRI, SPECT, PET, MEG as these pertain to head and spine.
    - Localize the lesion causing any abnormality in the neurological examination by using a working knowledge of the anatomy, connectivity, physiology and understanding pathophysiologic correlations.
    - Formulate an appropriate differential diagnosis.
    - Determine whether the child's symptoms result from a disorder of the central or are secondary to another systemic process.
    - Formulate an appropriate investigative plan from the information obtained.
    - Formulate effective referral questions to appropriate professionals when needed.
    - Evaluate the application of other neurodiagnostic studies that include but are not limited to:
      - EEG
      - Cerebral and spinal angiography
      - CT
MRI and MRA
Cerebrospinal fluid analyses gained via lumbar puncture

- Evaluate imaging of patients with the following conditions:
  - Disorders of brain and spinal cord development
  - Disorders unique to infants (neonatal neurology)
  - Infections involving the nervous system
  - Cerebrovascular disorders
  - Cerebral palsy
  - Syndromes associated with mental retardation
  - Chromosomal disorders affecting the nervous system
  - Metabolic and neurodegenerative diseases
  - Nutritional and toxin associated disorders of the nervous system
  - Neurocutaneous syndromes
  - Neoplasms of the nervous system
  - Neuroendocrine disorders
  - Seizures, epilepsy, and epilepsy syndromes
  - Nonepileptic paroxysmal disorders
  - Sleep disorders
  - Movement disorders
  - Headache
  - Neuromuscular diseases
  - Disorders of the autonomic nervous system
  - Disorders of learning and behavior
  - Spinal cord disorders
  - Disorders of vision
  - Neurological complications of systemic disease
  - Brain injury, brain death, coma, and the persistent vegetative state

- Demonstrate interpretation of common neurodiagnostic imaging studies for medical students/PGY1 residents at least twice during PGY4 year.

Medical Knowledge

- Definition
  - What I know

- Goal
  - Enable program graduates to have the cognitive knowledge necessary to adequately care for patients; be able to acquire, critique, interpret, and apply this knowledge to clinical care; and understand the scope of established and evolving biomedical, clinical, epidemiological, and social-behavioral knowledge needed to treat children with suspected neurological problems. (This knowledge is gained through patient rounds, journal clubs, conferences, and Professor Rounds.)

- Mechanisms for evaluating medical knowledge:
  - Medical knowledge is assessed by supervising physicians on daily rounds/in clinics/during Journal Club, 360 degree surveys (faculty, patients, and ancillary medical staff), the annual Residency In-service Training Exam

- Knowledge and information that should be mastered during child neurology training:
  - Demonstrate knowledge about established and evolving information in the field of Child Neurology:
    - Anatomical knowledge of the nervous system
    - Epidemiological knowledge based on clinical trials
    - Knowledge about biomedical science
    - Social-behavioral knowledge including knowledge regarding how to give information regarding diagnoses/management of specific illnesses in a manner that is understood/accepted according to the hearer's learning ability/culture

  - Discuss the evaluation process, epidemiology, suspected etiology, phenomenology, expected course/prognosis, and recommended management for:
    - Disorders of brain and spinal cord development
    - Disorders unique to infants (neonatal neurology)
    - Infections involving the nervous system
    - Cerebrovascular disorders
- Cerebral palsy
- Syndromes associated with mental retardation
- Chromosomal disorders affecting the nervous system
- Metabolic and neurodegenerative diseases
- Nutritional and toxin-associated disorders of the nervous system
- Neocutaneous syndrome
- Neoplasms of the nervous system
- Neuroendocrine disorders
- Seizures, epilepsy, and epilepsy syndromes
- Nonepileptic paroxysmal disorders
- Sleep disorders
- Movement disorders
- Headache
- Neuromuscular diseases
- Disorders of the autonomic nervous system
- Disorders of learning and behavior
- Spinal cord disorders
- Disorders of vision
- Neurological complications of systemic disease
- Brain injury, brain death, coma, and the persistent vegetative state

Demonstrate a working knowledge of the anatomy, connectivity, and physiology of:

- The motor system (motor unit and corticospinal tract) by:
  - Differentiating between disorders causing weakness, incoordination, and involuntary movements
  - Differentiating between upper motor neuron and lower motor neuron dysfunction by using the distribution of weakness, muscle bulk, muscle tone, muscle strength, fasciculations, sensory changes, and reflex changes
  - Listing the components of the motor unit
  - Comparing and contrasting the common LMN clinical syndromes involving motor neuron, peripheral nerve, neuromuscular junction, and muscle by symptoms of weakness, muscle bulk, muscle tone, muscle strength, fasciculations, sensory changes, reflex changes, and muscle enzymes
  - Differentiating between the common UMN syndromes of hemiparesis, paraparesis, and quadriparesis by distribution and define and discuss the pathophysiology of spasticity, superficial and deep reflexes, tone, apraxia
  - Differentiating between UMN and LMN facial weakness (Bell palsy)
  - Brachial plexopathy

- Basal ganglia by defining and differentiating involuntary movements:
  - Tremor (resting, postural, action)
  - Spasticity vs rigidity
  - Hyperkinetic movement disorders
  - Chorea, athetosis, hemiballismus
  - Dystonia
  - Myoclonus
  - Tics
  - Hypokinetic movement disorders

- Cerebellum by:
  - Discussing the clinical findings and pathophysiology for midline vs. hemispheric cerebellar disorders
  - Defining ataxia, dysmetria, dysdiadochokinesia, titubation, rebound
  - Defining wide-based gait and discussing anatomical localization regarding such a gait

- Sensory pathways by:
  - Differentiating between central and peripheral sensory disorders by distribution, modalities affected, associated findings, and the presence or absence of pain
Describe the following sensory disorders and discuss localization: cortical sensory loss, hemihypesthesia, thalamic pain, sensory level, Brown-Sequard Syndrome, dissociated sensory loss

Describe these peripheral sensorimotor disorders and discuss localization: radiculopathy, mononeuropathy, stocking-glove distribution of sensory loss, anesthesia, hypesthesia, paresthesia, dysesthesia, brachial plexopathy

- Cranial nerves by localizing the nuclei of all 12 and describing the appropriate evaluation of each
- Hypothalmus and pituitary by localizing their anatomical place in the brain and describing their function and signs of their dysfunction
- Limbic System by localizing its place in the brain and describing its function and signs of dysfunction
- Cerebral Cortex by localizing is place in the brain and describing its function and signs of dysfunction
- Visual system by:
  - Localizing the lesion causing: homonymous hemianopsia (congruent, Non-congruent), bitemporal field defect, superior and inferior quadrantanopsia, central scotoma, enlarged blind spot, afferent papillary defect
  - Differentiating between papilledema and optic neuritis
  - Describing innervation and action of each of the extrocular muscles
  - Describing the anatomy of Parinauc's (dorsal midbrain) syndrome
  - Distinguishing between supranuclear gaze palsy and nuclear/intranuclear palsy
  - Describing nystagmus (jerk, pendular)
  - Evaluating ptosis including Horner's syndrome
- Auditory system by describing all mechanisms involved in hearing and tracing a sound impulse through the auditory system
- Cerebrospinal fluid pathways by showing the pathways on a model of the brain
- Neurophysiology of all the preceding named systems (including understanding CNS neurotransmission; neuromuscular transmission; muscle contractile processes; neuronal excitation, inhibition, and release; cortical activation and inhibition; seizure production) by describing the mechanisms for each to occur.

- Demonstrate a working understanding of:
  - Paroxysmal disorders by
    - Explaining the how to tell the difference between seizures and syncope; jitteriness and seizures; simple seizures and complex febrile seizures
    - Define seizures; define epilepsy
    - Explain the international classification of seizures
    - List common causes of seizures in neonates; infants; older children
    - Describe routine evaluation and treatment indications in new onset seizures
    - Explain the standard dosing and side-effects of anticonvulsants
    - Define status epilepticus and outline the initial evaluation and management of status epilepticus plus list medications and doses to treat status epilepticus.
    - Regarding sleep disorders, define parasomnias, narcolepsy, cataplexy, and sleep apnea
  - Coma and altered consciousness by describing major disease categories that cause lethargy and coma (e.g., metabolic, infectious, traumatic, vascular, etc.)
  - Increased intracranial pressure by
    - Describing differences between communicating and noncommunicating hydrocephalus and give etiologic examples of each
    - Discussing the side effects of ventriculoperitoneal and ventriculooatrial shunts
    - Describing the most common brain tumors in children
    - Discussing the presentation of supratentorial and infratentorial brain tumors
    - Listing the most common organisms causing bacterial meningitis in neonates and children
    - Listing factors commonly predisposing to pyogenic brain abscess in children
    - Discussing pseudotumor cerebri
    - Discussing metabolic and toxic causes of increased ICP
    - Discussing treatment of acute and chronic increased ICP
• Ataxia and other gait disorders by discussing differential diagnosis, evaluation, and management of acute and subacute ataxia in children

• Movement disorders by
  o Discussing differential diagnosis of chorea
  o Listing medications that can cause movement disorders
  o Defining Tourette Syndrome, comorbid associations, and treatment

• Headache by
  o Describing the headache features (onset, location, character, duration, precipitants, associated symptoms, and family history) of migraine, increased intracranial pressure, and tension
  o Naming the International Classification of Headache criteria
  o Listing indications and medications for headache treatment

• Mental retardation by
  o Discussing normal motor and cognitive development
  o Discussing consequences of tobacco, alcohol, and other commonly abused drugs (marijuana, cocaine, and heroin)
  o Discussing evaluation and treatment
  o Discussing common manifestations of neurofibromatosis and tuberous sclerosis

• Mental and motor regression by explaining the etiology, epidemiology, signs/symptoms, prognosis, management of
  o The various lysosomal storage disorders
  o The various peroxisomal disorders
  o The various mitochondrial disorders
  o The various amino acidopathies
  o The various organic acidopathies
  o The various disorders of carbohydrate metabolism
  o The various chromosomal disorders
  o The various dysmorphic syndromes

• Weakness (including peripheral, central, and weakness caused by cranial nerve dysfunction) by explaining the etiology, epidemiology, signs/symptoms, prognosis, management of
  o These neuromuscular disorders: spinal muscular atrophies; duchenne muscular dystrophy; myasthenia gravis; acute inflammatory demyelinating polyneuropathy; peripheral neuropathy (hereditary and nonhereditary)
  o These central causes of weakness in children: stroke; spinal dysraphism; cerebral palsy and discuss the significance of sacral dimple, hairy patch, port wine stain
  o The disorders of cranial nerve function and discuss causes of facial weakness along with describing the evaluation and treatment of Bell palsy

• Disorders of sensation (including somatosensory, discriminative, position, vibration, smell, hearing and taste; peripheral and central causes) by explaining the etiology, epidemiology, signs/symptoms, prognosis, management of each disorder of sensation and by discussing the evaluation of a child with hearing loss and the evaluation of vertigo

• Visual disorders by
  o Discussing congenital nystagmus and spasmus nutans
  o Listing causes for congenital cataracts
  o Describing several causes of acquired ophthalmoplegia
  o Discussing the meaning of optic atrophy
  o Discussing the causes of strabismus

• Abnormalities of head growth by
  o Discussing causes and evaluation of macrocephaly and microcephaly
  o Discussing craniosynostosis

• Disorders unique to newborn infants by explaining their etiology, epidemiology, signs/symptoms, prognosis, management

• Learning disorders and disorders of higher cognitive function by
  o Listing common causes of learning disabilities
  o Discussing the approach to a child with delayed speech; impaired attention; poor academic performance

• Speech and language disorders by
Describing the various disorders (expressive, mixed expressive/receptive, problems with articulation/syntax/grammar/abstractions, etc)

Listing known causes

Behavioral disorders by discussing approach to evaluation, differential diagnosis, and treatment

Describe techniques, indications, contradictions, risks, and interpretation of electrophysiological examination

- EEG
- EMG and NCS
- Dual, auditory, brainstem, and somatosensory evoked potentials
- Cerebral and spinal angiography
- CT
- MRI and MRA
- Lumbar puncture and Cerebrospinal Fluid Analyses
- Nerve and muscle biopsy

Describe methods, application, interpretation of various diagnostic tests

- Myelograms
- Angiograms
- Brain/spine CT
- Brain/spine MRI
- SPECT
- PET
- MEG
- Polysonomography
- Audiometry
- Perimetry
- Psychometry
- Vascular imaging
- Imaging with ultrasound
- Genetic, Metabolic, Mitochondrial, and DNA studies

Describe methods and interpretation of neurological examination of the following:

- Awake patient
- Comatose patient
- Uncooperative patient
- Cognitively impaired patient

Describe method for:

- Determining brain death
- Performing neurological examination compatible with the NIH stroke scale

Informally teach at least 10 medical students/PGY1 residents per year of PGY4 and PGY5 regarding patients seen by the neurology resident and other trainee.

- Practice-Based Learning and Improvement
  - Definition
  - How I get better
  - Goal
  - Enable program graduates to have the knowledge, skills, and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve the program graduates' patient care practice.
  - Mechanisms for evaluating practice-based learning and improvement
    - During daily rounds, residents are expected to demonstrate that they have read about each patient's illness using multiple resources. Rounds also provide excellent daily opportunities for attending critiques of resident bedside practice. In addition, attendings oversee the resident clinics, and each patient check-out is designed to further patient-based learning and improvement.
  - Practice-based learning and improvement information that should be mastered by the end of residency training
    - Recognize limitations in own knowledge base and clinical skills, and understand and address the need for lifelong learning
Demonstrate appropriate skills for obtaining and evaluating up-to-date information from scientific and practice literature and other sources to assist in the quality care of patients. This shall include, but not be limited to:

- Use of medical libraries
- Use of information technology, including Internet-based searches and literature databases (e.g., Medline)
- Use of drug information databases
- Active participation, as appropriate, in educational courses, conferences and other organized educational activities both at the local and national levels

Evaluate caseload and practice experience in a systematic manner. This may include:

- Case-based learning
- Use of best practices through practice guidelines or clinical pathways
- Review of patient records
- Obtaining evaluations from patients (e.g., outcomes and patient satisfaction)
- Employment of principles of quality improvement in practice
- Obtaining appropriate supervision and consultation
- Maintaining a system for examining errors in practice and initiating improvements

Demonstrate an ability to critically evaluate relevant medical literature. This ability may include:

- Using knowledge of common methodologies employed in psychiatric, neurologic, neurodevelopmental research
- Researching and summarizing a particular problem that derives from own caseloads

Demonstrate the ability to review and critically assess scientific literature to determine how quality of care can be improved in relation to one's practice (e.g., reliable and valid assessment techniques, treatment approaches with established effectiveness, practice parameter adherence).

Demonstrate the ability to assess the generalizability or applicability of research findings to one's patients in relation to their sociodemographic and clinical characteristics.

Demonstrate the ability to develop and pursue effective remediation strategies that are based on critical review of the scientific literature.

Facilitate learning of others, as an effective way to improve ones practice is to share patient experience with trainees who will feedback what they have researched regarding effective management.

**Interpersonal and Communication Skills**

- **Definition**
  - How I interact with others
- **Goal**
  - Enable program graduates to have interpersonal and communication skills that result in effective information exchange and partnering with their patients, patients' families, and professional associates.
- **Mechanisms for evaluating interpersonal and communication skills**
  - During clinics/rounds/faculty assesses the ability of residents to communicate with their patients/their families/other providers. 360 surveys allow faculty, ancillary health care providers and patients to rate resident communication skills.
- **Interpersonal and communication skills that should be mastered by the end of residency training**
  - Present patients in an efficient, effective, appropriate manner so that all listening will have a clear understanding of the patients' problems and possible associated historical and/or physical findings
  - Early state referral questions to avoid confusion
  - Listen and react in a way that demonstrates respect, empathy, and understanding for the speaker and encourages openness, honesty, partnership in a therapeutic alliance, and compliance
  - Understand and address own feelings and behavior so that it does not interfere with appropriate communication/treatment
  - Understand and address the impact of others feelings and behaviors so that it does not interfere with appropriate communication/treatment
  - Interact/communicate with patients, patients' families, colleagues, faculty, and health care professionals in the following manner:
    - Using clear, understandable, appropriate oral and written language aimed at the listener's level of understanding to avoid confusion
    - Using appropriate nonverbal skills
    - Using appropriate listening skills
    - Instilling feelings of trust, honesty, openness, rapport, comfort
• Developing a therapeutic alliance between professionals and patients/patients' families

• **Professionalism**
  o **Definition**
    ▪ How I act
  o **Goal**
    ▪ Enable program graduates to demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.
  o **Mechanisms for evaluating professionalism**
    ▪ Residents are rated on their professionalism by attendings during clinics/rounds and by faculty, patients, and nursing staff who complete 360 surveys.
  o **Professionalism and information that should be mastered by the end of residency**
    ▪ Demonstrate personal accountability to the well-being of patients by doing the following:
      • Following up on lab/study results
      • Using clear, appropriate documentation, which could be followed by others caring for patient
      • Seeking timely answers to patient care questions
      • Responding to communication from patients and health care professionals in a timely manner
      • Arranging coverage, if unavailable (for example, when out of town or on vacation)
      • Establishing and communicating to patients/their families and health care colleagues back up arrangements including where to seek emergent and urgent care when necessary
      • Coordinating care with other members of the medical and/or multidisciplinary team
    ▪ Provide for continuity of care, including appropriate consultation, transfer, or referral if necessary
      • Be willing to improve through self-evaluation and reflection on feedback from other members of the health care team in regard to knowledge, skills, and attitudes
      • 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
      • Adhere to ethical and legal principles and hospital rules and regulations
      • Recognize personal limitations and be willing to state lack of knowledge in regards to patient care and identify resources to fill knowledge gaps to maximize care
      • Demonstrate respect for patients and their families, and colleagues as persons, including demonstrate for their ages, cultures, disabilities, ethnicities, genres, socioeconomic backgrounds, religious beliefs, political leanings, and sexual orientations
      • Demonstrate sensitivity toward the values, perspectives, and special needs connected with the differing racial, cultural, religious, or educational status of patients and their families
      • Demonstrate an attitude of respect for the value of diversity
      • Maintain patient and family confidentiality
      • Demonstrate understanding of, and sensitivity to end of life care and issues regarding provision of care
      • Review own professional conduct and remediate when appropriate

• **Systems-Based Practice**
  o **Definition**
    ▪ How I work within the system
  o **Goal**
    ▪ Enable the program graduate to be able to practice quality health care and advocate for patients within the context of the health care system
  o **Mechanisms For Evaluating System-Based Practice**
    ▪ Through the attending-supervised continuity clinics, educational conferences, daily rounds, and the observation of well-established hospital protocols, our residents learn to utilize the ancillary services that are available to help patients. The ability to work at several different types of institutions provides the basis for an understanding of medical practice through different venues. The county facility (Ben Taub General Hospital), which provides most of the indigent care for the uninsured of Houston, exposes the residents to a different way of managing patients than they see at Texas Children's Hospital and Texas Institute for Rehabilitation and Research. Evaluation of residents' abilities regarding system-based practice is done by attending physician supervisors.
  o **System Based Practice Abilities That Should Be Mastered By The End of Residency**
    ▪ Collaborate effectively and efficiently with other professionals and health care providers in other services
    ▪ Obtain appropriate assistance within the healthcare system for coordination and management of ongoing care
    ▪ Always think about best benefit for the patient in the health care system
Advocate for the best benefit for the patient in the health care system
Identify decision-makers in the health-care system with whom to work to insure best benefit for individual patients/patient groups.

Evaluation Methods
Faculty will evaluate using E-Value.

Suggested Readings and References

- Yousem DM and Grossman RI. The Requisites: Neuroradiology 3rd Ed.
- Loevner L.A. Brain Imaging: Case Review Series. 2nd Ed.
5. Psychiatry Consultation and Liaison Service

Rotation Mentors
Dr. Edward Poa

Contact Person
Dr. Kim-Lan Czelusta

Level of Training
PGY1 and PGY4 (through 2011-2012)

Rotation Type
Consultation and Liaison Psychiatry Service

Length of Rotation
One month

Rotation Overview and Specific Goals
This rotation is a required rotation for neurology residents. Residents generally complete this rotation during the PGY1 year (those who started as PGY1s in 2009). Those who started prior to 2009 complete this rotation in the PGY3 or PGY4 year. All residents are expected to work toward improvement in all six core competencies as applied to patients with psychiatric disorders. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

The goal of this rotation is for residents to obtain an in-depth appreciation for the variety and complexity of psychiatric disorders; their phenomenology, characterization, differential diagnosis, work up, and treatment. The Consultation-Liaison rotation offers the Neurology resident an opportunity to diagnose and treat neuropsychiatric problems of medical and surgical inpatients. The resident also will learn to formulate these problems within a biopsychosocial framework while simultaneously attending to liaison dynamics. Residents will move beyond formulation of a basic management plan for straightforward patients to a deeper understanding of the management of patients with complex and difficult to treat psychiatric disease. Residents will be assigned to a hospital-based consultation and liaison service new patients on whom to perform an initial history and physical examination. Residents will also work for 3 shifts in the hospital emergency center under the direct supervision of an upper level psychiatric resident where they will aid in evaluating patients with acute psychiatric emergencies. There will not be any overnight call. When not seeing new patients independently, residents round with the attending physicians on other consult patients. Residents are excused from clinic one half day a week to attend continuity clinic as well as for all mandatory educational conferences.

Overall Rotation Goals
The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide consultation on inpatients with psychiatric disorders that is compassionate, appropriate, and effective for the treatment of psychiatric diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about psychiatric disorders commonly seen in a large academic VA or county hospital including the relevant clinical, basic science, psychosocial and epidemiological knowledge analyze and apply this medical knowledge to the care of patients with psychiatric disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of psychiatry and improve patient care practices.

- **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients' families, and professional associates to provide optimal care. Residents learn to communicate with patients
who are cognitively impaired, depressed, manic, suicidal, and psychotic and suffer profound psychosocial distress because of their psychiatric disorder.

- **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

- **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and provide care that is of optimal value within the hospital setting. Understand the constraints of patient self-care in a population with psychiatric disorders.

### Learning Objectives

By the end of the rotation, the neurology resident should have achieved the following objectives:

*System-Based Practices*
- Professionalism
- Interpersonal & Communication Skills
- Practice-Based Learning & Improvement
- Medical Knowledge
- Patient Care

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<thead>
<tr>
<th>Skills Objectives</th>
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<tbody>
<tr>
<td>1. <strong>Gather Data</strong></td>
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<td>- Collect information from the patient, referring physician, medical chart, ward staff, and patient's family (when indicated).</td>
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<td>- Perform a mental status exam with special emphasis on the bedside neuropsychiatric exam (mini-mental status exam and other selected tests).</td>
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| 2. **Formulate Cases** |
| - Understand the biological, psychological, and social contributions to the consultation problem. |
| - Recognize the difference between the expressed reason for consultation request and any underlying needs of the referring physician (liaison dynamics). |
| - Design appropriate interventions based on an understanding of biological, psychological, and social factors. |
| - Write a concise consultation report. |

| 3. **Intervene** |
| - Educate nonpsychiatric personnel to act as change agents: the referring physician, the ward staff, the patient's family, and outside agencies. |
| - Utilize the following intervention skills appropriately: clarification, abreaction, support of defense mechanisms, confrontation of defense mechanisms, and establishment of realistic goals with the patient. |
| - Recognize and utilize countertransference feelings that arise among the referring physician, ward staff, and psychiatric consultant. |
| - Prescribe psychotropic drugs when indicated and understand the indications, contraindication, and side effects of each. |
| - Manage common C/L problems such as delirium, dementia, depression, sanity, somatization, and competency dilemmas. |
| - Make appropriate referrals for psychological testing. |
| - Arrange Follow-up psychiatric treatment, when indicated. |
| - Form an alliance with nonpsychiatric medical staff on various medical and surgical wards. |
Learning Objectives (cont.)

Knowledge Objectives

The resident should have a good understanding of the following:

1. Objectives, responsibilities, and limitations of the psychiatric consultant in medical settings.
2. Psychological aspects of physical illness: disease onset, course, and outcome.
3. Common patterns of psychological and social adaptation to disease, including terminal illness.
4. Factors that influence responses of family and hospital staff to patients.
5. Signs and symptoms, differential diagnosis, course, and indicated medical evaluation of:
   - Mental disorders due to general medical conditions
   - Alcohol and drug dependence, intoxication, and withdrawal
   - Depression, including "masked depression"
   - Anxiety disorders
   - Somatoform disorders
   - Psychological factors affecting physical conditions
   - Factitious disorders
   - Malingering
   - Personality disorders
6. Psychological effects of physical procedures (e.g. cardiac catheterization, bronchoscopy, GI procedures.
7. Symptoms, differential diagnoses, and recommended treatment procedures for the following:
   - The agitated patient
   - The hostile patient
   - The patient with suicidal ideation or behavior
   - The noncompliant patient
   - The patient who refuses treatment
   - The demanding patient
   - The patient who requires competency determination
   - The patient who requires commitment to a psychiatry ward

Experience Objectives

The resident will gain additional experience in:

1. Teaching medical students.
2. Serving as a role model for students.
3. Leading a team.
4. Developing a consult/liaison practice.

Evaluation Methods

At the end of the rotation, the attending faculty is asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.
Recommended Resources

6. Sleep Medicine

Rotation Mentors
Dr. Philip Alapat, Dr. Max Hirshkowitz

Contact Person
Dr. Philip Alapat

Level of Training
PGY3 and PGY4

Rotation Type
Outpatient rotation in Sleep Clinic and Sleep Laboratory

Length of Rotation
One month

Rotation Overview and Specific Goals by Level of Training
This rotation is an elective for PGY3 and PGY4 neurology residents. This rotation is primarily based at the Michael E. DeBakey VA Medical Center. All residents are expected to work toward improvement in all six core competencies as applied to patients with sleep disorders. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

The goal of this rotation is for residents to obtain an in-depth appreciation for the variety and complexity of sleep disorders and the basics of polysomnography interpretation. Residents are also expected to gain an appreciation for the psychosocial and general medical aspects of sleep disorders and address these important issues with the patients and their families. Residents will move beyond formulation of a basic management plan for straightforward patients to a deeper understanding of the management of patients with complex sleep disorders. Residents will also participate in the review of sleep studies and the basics of sleep study interpretation.

Overall Rotation Goals
The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Provide care to patients with sleep disorders that is compassionate, appropriate, and effective for the treatment of neurological diseases and the promotion of health.

- **Competency 2: Medical Knowledge**
  Acquire knowledge about sleep disorders commonly seen in a specialty clinic including the relevant clinical, basic science, psychosocial and epidemiological knowledge and analyze and apply this medical knowledge to the care of patients with sleep disorders.

- **Competency 3: Practice-Based Learning and Improvement**
  Investigate and evaluate patient care practices, appraise and assimilate scientific evidence relevant to the practice of sleep medicine and improve patient care practices in a sleep center.

- **Competency 4: Interpersonal and Communication Skills**
  Develop interpersonal and communication skills necessary to exchange information effectively and work harmoniously with patients, patients’ families, and professional associates to provide optimal care. Residents learn to communicate with patients who have complex psychosocial issues and medical co-morbidities.

- **Competency 5: Professionalism**
  Carry out professional responsibilities, adhere to ethical principles, and maintain sensitivity to a multicultural and socioeconomically diverse patient population.

- **Competency 6: Systems-Based Practices**
  Become cognizant of the larger societal context in which they provide patient care, utilize system resources effectively, and
provide care that is of optimal value within in a sleep specialty setting. Understand the constraints of patient self-care in a population with sleep disorders.

Principal Teaching/Learning Activities

1. **Sleep Clinics and Sleep Study Reading Sessions**
   Scheduled by the Center's staff.

2. **Self-Directed Learning**
   Engage in self-directed learning to learn the basics of sleep medicine as detailed in the learning objectives below.

3. **Continuity Clinics**
   Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

4. **Neurology Grand Rounds and Noon Conference**
   Monday through Friday from noon until 1 p.m. Attendance is required.

5. **Professors’ Rounds**
   Biweekly. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.

Principal Learning Objectives

Residents should obtain knowledge about the following aspects of sleep medicine:

- **Basic neurologic mechanisms**
  - The anatomy and function of the cortex and cortical areas involved with sensory and motor activity as well as those cortical areas involved in sleep and wakefulness.
  - The anatomy and function of the following structures and how they relate to sleep:
    - Thalamus, hypothalamus, suprachiasmatic nuclei, brainstem, brainstem nuclei, reticular activating system, locus coeruleus, and the ascending and descending motor inhibitory pathways

- **Chronobiologic mechanisms**
  - The characteristics of the human sleep-wake cycle across the life span.
  - The various biologic rhythms and their determinants.
  - The various circadian rhythm disorders and their treatments
    - Delayed and advanced sleep phase, shift works, non-24 hour cycle, free running rhythms, and jet lag.

- **Cardiovascular physiology during sleep**
  - The changes in the cardiovascular system that occur during normal sleep and in the presence of sleep-disordered breathing.
  - The influences of positive airway pressure on the cardiovascular system.
  - The effect of sleep state on normal heart and circulatory functions.

- **Pulmonary physiology during sleep**
  - Describe the pathophysiology of and treatments for various sleep-disordered breathing in:
    - Obstructive sleep apnea (OSA), central sleep apnea (CSA), central alveolar hypoventilation syndrome, obesity-hypoventilation syndrome (OHS), chronic obstructive pulmonary disease (COPD), and nocturnal asthma

- **Endocrine sleep physiology**
  - Circadian variations of endocrine hormones, including, but not limited to
• Growth hormone, cortisol, thyroid stimulating hormone, lutenizing hormone, follicle stimulating hormone, insulin, melatonin and testosterone
  o The influences of various hormones on the sleep-wake cycle

• Normal sleep, human development and aging
  o Interpret electroencephalogram (EEG), electrooculogram (EOG), and electromyogram (EMG) characteristics of sleep-wake states in the infant, child, adolescent, healthy adult, and the elderly
  o The characteristics of the sleep-wake cycle
  o The various theoretical functions of REM and NREM sleep
  o Sleep-associated behavior characteristics
  o The determinants of sleepiness
  o The principles of sleep hygiene

• Ambulatory monitoring of sleep
  o The indications and contraindications for:
    ▪ Portable monitoring
    ▪ Home continuous positive airway pressure (CPAP) titrations and auto-CPAP titrations

• Pharmacology of sleep
  o Discuss the pharmacology of various medications as they relate to the sleep-wake cycle including:
    ▪ Hypnotics
    ▪ Benzodiazepines
    ▪ Barbiturates/Sodium oxybate
    ▪ Anti-depressants
    ▪ Stimulants

• Obtaining a sleep history
  o Conduct, record and interpret a comprehensive clinical medical and sleep history

• Circadian rhythm disorders
  o Identify, diagnose, and develop a management plan for chronologic abnormalities associated with disorders of the timing of the sleep-wake pattern, including, but not limited to:
    ▪ Congenital short and long sleepers
    ▪ Time zone changes/Jet lag
    ▪ Shift worker sleep disorder
    ▪ Delayed and advanced sleep phase
    ▪ Non-24 hour sleep-wake syndrome
    ▪ Irregular sleep-wake pattern

• Disorders of excessive somnolence
  o Identify, diagnose, and develop a management plan for sleepiness associated with:
    ▪ Behavior and psychophysioologic disorders (e.g., inadequate sleep hygiene)
    ▪ Psychiatric disorders (e.g., mood disorders and alcoholism)
    ▪ Environmental factors (e.g., environmental sleep disorder)
    ▪ Drug dependency (e.g., hypnotic-dependent sleep disorder)
    ▪ Sleep-induced respiratory impairment (e.g., OSA)
    ▪ Movement disorders (e.g., periodic limb movements of sleep)
    ▪ Disorders of the timing of the sleep-wake pattern (e.g., advanced sleep phase syndrome)
    ▪ Other disorders of the central nervous system (CNS) (e.g., idiopathic CNS hypersomnia)

• Insomnia
  o Identify, diagnose, and develop a management plan for sleepiness associated with:
    ▪ Behavior and psychophysioologic disorders (e.g., limit-setting sleep disorder)
    ▪ Psychiatric disorders (e.g., anxiety disorders)
    ▪ Environmental factors (e.g., food allergy insomnia)
    ▪ Drug dependency (e.g., stimulant-dependent sleep disorder)
    ▪ Movement disorders (e.g., restless legs syndrome)
    ▪ Disorders of the timing of the sleep-wake pattern (e.g., delayed sleep phase syndrome)
    ▪ Other disorders of the central nervous system (e.g., Parkinsonism)
    ▪ Parasomnias (e.g., nightmares)
    ▪ No objective sleep disturbance (e.g., sleep state misperception)

• Parasomnias
  o Identify, diagnose, and develop a management plan for parasomnias associated with:
    ▪ Movement disorders (e.g., sleep terrors)
Psychiatric disorders (e.g., panic disorder)
- CNS abnormalities (e.g., sleep-related epilepsy)

- Healthy sleep practices in the child and adult
  - Identify and diagnose and develop a management plan for inappropriate sleep habits
  - Identify and describe the characteristics of the normal sleep-wake cycle and the effects of inappropriate sleep habits
  - Demonstrate the ability to:
    - Appropriately recommend medications that affect the sleep-wake cycle
    - Identify drug interactions and side effects of various medications

- Polysomnography interpretation
  - Learn basic concepts related to the following:
    - Scoring, analyzing and interpreting nocturnal polysomnography, MSLT, and PAP/BiPAP recordings
    - Analyzing EEG and EKG and identify abnormalities
    - Identifying artifacts during polysomnography

**Evaluation Methods**

At the end of the rotation, the attending faculty is asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked via E*Value. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

**Recommended Resources**

7. Mentored Independent Study and Scholarship

Rotation Mentors
Dr. Joseph Kass; Research mentors need to be approved by Dr. Kass and must be a faculty at MEDVAMC.

Contact Person
Dr. Joseph Kass
kass@bcm.edu

Level of Training
PGY3 and PGY4

Rotation Type
Mentorship and scholarship in the Michael E. DeBakey Veterans Affairs Medical Center

Length of Rotation
One month

Rotation Overview and Specific Goals by Level of Training
This rotation provides in-depth training and academic experience in research and scholarship under the mentorship of a MEDVAMC faculty member.

Overall Rotation Goals
The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Resident will understand the role of research in improving and optimizing patient care for patients. Residents will express interest in a clinical, basic sciences or epidemiologic project in the field of neurology and work closely with a mentor to find an attainable research project.

- **Competency 2: Medical Knowledge**
  Resident will improve his or her medical knowledge of the condition s/he is investigating in clinical neurology.

- **Competency 3: Practice-Based Learning and Improvement**
  Resident should critically evaluate their ability to design and interpret current literature. Resident should seek out other sources of education regarding research design, statistics and writing a research paper.

- **Competency 4: Interpersonal and Communication Skills**
  Resident should demonstrate interpersonal and communication skills that will allow for effective and accurate information exchange necessary for optimal research experience. This includes working with attendings and all members of health care team involved in their research project.

- **Competency 5: Professionalism**
  Residents should be committed to carrying out their professional responsibilities and adhering to ethical principles. They should demonstrate respect for patient privacy, autonomy through adherence to HIPAA regulations. They should demonstrate sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability and sexual orientation.

- **Competency 6: Systems-Based Practices**
  Resident should be capable in different systems of care, particularly in this rotation, public county hospitals and a veteran affairs hospital system. Resident should demonstrate the ability to critically evaluate patient care problems and pose research questions in a cost-effective manner.
Principal Teaching/Learning Activities

1. **Evidence Based Medicine Module during Neurology Core Lecture Series**
   Participate in monthly stroke journal club and movement disorders journal club conferences to enhance understanding of research.

2. **Continuity Clinics**
   Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

3. **Grand Rounds and Noon Conference**
   Monday through Friday from noon until 1 p.m. Attendance is required.

4. **Professors' Rounds**
   Occurs semi-monthly. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.

Rotation Goals

1. To understand the fundamentals of conducting research studies.

2. Gain extensive experience with writing an IRB grant and the limitations of funding within a research project.

3. To understand further statistics interpretation.

4. To be able to interpret research articles critically and to understand statistical biases and design error to avoid in their own research.

5. Strengthen your knowledge of neurology through asking critical questions designed to fill areas of study needed in neurology and impact patient care in the future.

6. Develop a plan to enhance one's own medical knowledge through self-learning, personal reading, literature evaluation of patients and teaching in didactic sessions. Communicate effectively to other colleagues via didactic sessions.

Evaluation Methods

At the end of the rotation, the attending faculty members are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors with whom they have worked with as well as the overall rotation via an electronic evaluation form.
Recommended Resources

- Rolak LA. Neurology Secrets, 4th edition
E. St. Luke's Episcopal Hospital

1. Neurocritical Care

Rotation Mentors
Dr. Jose I. Suarez, Dr. Eric M. Bershad, Dr. Chethan Venkatasubba Rao, Dr. Stelios M. Smirnakis

Contact Person
Dr. Jose I. Suarez
jisuares@bcm.edu

Level of Training
PGY1 - PGY4

Rotation Type
In-patient setting in the St. Luke's Episcopal Hospital

- Neurocritical Care Unit (7S4 and 7S5 ICU)
- Neuroscience Unit (22T)
- General In-Patient Wards
- Other ICUs and Neuroprogressive ICUs

Length of Rotation
One month

Goals
The resident will become knowledgeable and gain experience in evaluation and management of adult neurocritical care, acute ischemic stroke patients, and general inpatient neurology. These will include patients with intracranial hemorrhages, subarachnoid hemorrhage, cerebral edema and elevated intracranial pressure, status epilepticus, myasthenia gravis crisis, severe Guillain-Barre, sepsis and septic shock, respiratory failure, encephalopathy, coma, and brain death. In addition, residents will participate in the holistic management of acute ischemic stroke patients from emergency room evaluation of thrombolytic therapy candidates to discharge to rehabilitation facilities. There will also be a large number of inpatient general neurology consults which encompasses patients admitted to the internal medicine, general surgery, cardiothoracic surgery (Texas Heart Institute), and all the major surgical subspecialties. In sum, this rotation will provide trainees with unique one-on-one faculty interaction throughout the month duration. Residents will become familiar with a diverse spectrum of both neurologic conditions and application of systems-based practice.

Rotation Overview and Specific Goals by Level of Training

- PGY1-PGY2
  - Competency 1: Patient Care
    Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the inpatient adult neurology patient presenting with a variety of neurocritical care conditions, in addition to general neurology. Residents are expected to:
    - Perform lumbar punctures in the inpatient settings and monitor response and possible adverse effects.
    - Develop the necessary skills to take complete history and physical examination of the adult neurocritical care patient.
    - Develop the necessary skills to take a complete history and physical examination of the adult acute ischemic stroke patient.
    - Develop the necessary skills to take a complete history and physical examination of the adult general acute and chronic in-patient neurology patient.
To develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the neurocritical care, acute ischemic stroke, and general in-patient neurology patient.

- To become increasingly familiar with diagnostic and laboratory studies for diagnosis and management including radiography, electrodiagnostic studies, and laboratory blood and tissues analysis.

- To become knowledgeable of the indications for the diagnostic and laboratory tests to aid in the diagnosis and management of acute neurological disorders.

- To become acquainted with the indications and general management issues of patients requiring mechanical ventilation and vasopressor support.

- To acquire the necessary knowledge to formulate appropriate management and monitoring of patients with complex acute neurological problems such as status epilepticus, cerebral edema and elevated intracranial pressure, intracranial hemorrhages, among others.

- To become proficient in the application of the Glasgow Coma Scale, NIH Stroke Scale, ICH score, and the World Federation of Neurological Surgeons scale.

**Competency 2: Medical Knowledge**

Residents must acquire and demonstrate increasing medical knowledge of major neurocritical care and general acute neurological disorders including factors that impact upon patient outcome such as age, gender, race, ethnicity, severity of systemic disease scoring systems, pre-morbid functional status, severity of neurological illness scoring systems, and response to treatments. This knowledge will be based upon the valid peer-reviewed literature and standards of practice. Residents are expected to:

- Demonstrate knowledge of the adult presentation of acute ischemic stroke including epidemiology, risk factors, genetics, pathophysiology, diagnosis, and management with emphasis on primary treatment and secondary prevention.

- Acquire and demonstrate knowledge of the epidemiology, presentation, diagnosis, and management of the following non-inclusive adult neurocritical care conditions:
  - Subarachnoid hemorrhage
  - Intracranial hemorrhage
  - Cerebral edema
  - Elevated intracranial pressure
  - Status epilepticus
  - Acute hydrocephalus
  - Encephalopathy
  - Coma
  - Brain death
  - Myasthenia Gravis Crisis
  - Severe Guillain Barre
  - Encephalitis and Meningitis
  - Prolonged mechanical ventilations and "failure to wean"
  - Post-operative ICU management
  - Anoxic brain injury including prognostication and management with induced hypothermia

- Demonstrate knowledge of the presentation, diagnosis, and management of the following non-inclusive general in-patient neurological conditions:
  - Headaches
  - Encephalopathy
  - Coma
  - Ischemic Stroke
  - Neuromuscular disorders
  - Neurodegenerative diseases
  - Nutritional deficiencies
  - Post-neuroicu care
  - Neuro-oncological issues (both primary and metastatic)
  - Epilepsy
  - Syncope
  - Neuropsychiatric disorders
  - Demyelinating disorders
  - Movement disorders

- Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events.
Become familiar with non-pharmacologic management and monitoring of outcomes and progression.
Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

- **Competency 3: Practice-Based Learning and Improvement**
  Residents must demonstrate the skills for obtaining up-to-date information from valid and peer-reviewed scientific and practice literature to assist in quality patient care. Residents are expected to:
  - Use web based databases and scientific libraries available within and outside the hospital setting. Such databases must include peer-reviewed articles.
  - Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology. In addition to their regularly scheduled lectures in the general neurology residency curriculum, residents are expected to attend the weekly neurovascular conference and twice-weekly neurocritical care conferences.

- **Competency 4: Interpersonal and Communication Skills**
  Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient's family and patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:
  - To communicate effectively with inpatients and their families regarding but not limited to the following:
    - Clinical impression and results of assessment
    - Outcomes and prognosis
    - Recommended treatment and management plans and associated risks and benefits
    - End-of-life decisions and palliative care
    - Alternative treatment plans
    - Education about the conditions and referral to reliable outside sources of education, advocacy, and support
  - To develop a physician-patient relationship based upon honest, clear, and open communication and respect.
  - To become and effective communicator and a team player in the increasingly complex multidisciplinary environment of the neurocritical care unit.
  - To become proficient at educating patients, families, and professionals in the issues related to their neurological conditions.
  - Maintain accurate and clear medical documentation. Enter all orders in the electronic order-entry system available in the hospital. Complete accurately the electronic patient encounter forms in the neurocritical care unit and for all acute ischemic stroke patients. Dictate accurate and clear documentation of patient encounters and discharge summaries for the medical records.

- **Competency 5: Professionalism**
  Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Residents are expected to:
  - Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
  - Adequately document patient care management and patient interaction
  - Obtain informed consent from patients for all general neurology and neurocritical care procedures.
  - Arrive promptly every morning and complete all medical records in a timely manner.

- **Competency 6: Systems-Based Practices**
  Residents must demonstrate knowledge of the systems involved in treating the neurocritical care, acute ischemic stroke, and general inpatient neurology patient, use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:
  - Access and utilize practice guidelines and parameters recommended by the major organizations such as the American Heart Association, American Stroke Association, Society of Critical Care Medicine, Neurocritical Care Society, American Academy of Neurology, and Americal Neurological Association.
  - Access inpatient and allied health professional resources, including but not limited to social work services, case management, indigent care or charity programs, drug assistance programs, palliative care, Get-With-The-Guidelines Programs and Joint Commission Core Measures Programs.
  - Participate with healthcare teams to provide comprehensive and prompt care for the patient such as physical medicine and rehabilitation, physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.

- **PGY3**
  - **Competency 1: Patient Care**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year:
To be the first responder to acute stroke code activation in the emergency department and general hospital wards.
To learn to triage patients needing neurocritical care vs. general neurology ward care.
Perform arterial and central venous line insertions in neurocritical care patients.
To interpret weaning ventilatory parameters and identify patients' readiness to be extubated.
To interpret laboratory and procedural results and apply this information to develop the clinical acumen to diagnose and manage the adult neurology patient.
To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, and specialty consultations.
To identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
To become familiar with EEG and continuous EEG reports and interpretation of data.
To learn the basic principles of transcranial Doppler ultrasound to be able to interpret the data and apply to specific neurological conditions.
To identify and describe abnormalities on neuroradiographic tests including MRI, Cerebral Angiography, and SPECT.
To identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
Evaluation and management of post lumbar puncture headache, including placement of epidural patch.

Competency 2: Medical Knowledge
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Acquire and demonstrate knowledge of the following issues and conditions:
  - Prognostication and outcome of coma of diverse etiologies
  - Indications, adverse effects, and institution of induced hypothermia
  - Complications of mechanical ventilation
  - Indications, complications, and management of thrombolytic therapy
  - Indications, adverse effects, and institution of plasma exchange and intravenous immunoglobulin for various neurological disorders
  - Management and differential diagnoses of space occupying lesions by location
  - Surgical indications for cerebral edema, intracranial and subarachnoid hemorrhages, and intracranial and intraspinal neoplasms
  - Management of cerebral herniations and spinal cord compression
  - Management of the organ donor (begin to understand this issue)
  - Management and differential diagnoses of encephalopathy
  - Treatment of severe headaches including status migrainous
- Demonstrate knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
- Demonstrate knowledge of non-pharmacologic management and monitoring of outcomes and progression.
- Recognize indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

Competency 3: Practice-Based Learning and Improvement
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Utilized practiced-based guidelines for evaluation and management of the neurocritical care, acute stroke, and general neurology adult inpatient.
- Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

Competency 4: Interpersonal and Communication Skills
Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:

- To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.
- To educate patients, families, and professionals in the about issues related to neurological conditions.
- To obtain, interpret, and evaluate consultations from other medical specialties.
- To serve as a consultant to other medical specialists, and communicate assessment, management plan, and follow up clearly and effectively.
- Review and supervise documentation and medical records of junior residents, medical students in order to maintain accurate and clear medical documentation. Educate junior residents and medical students on the appropriate use of electronic medical records for both order entry and general documentation.
o **Competency 5: Professionalism**
   The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:
   - Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
   - Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
   - Provide and ensure adequate cross coverage of patients.
   - Coordinate care of other health care providers and multidisciplinary team members in care of patients on the neurocritical care unit and general neurology inpatient wards.

o **Competency 6: Systems-Based Practices**
   The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:
   - Coordinate and participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
   - Participate in family discussions of patient treatments including palliative care.
   - Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
   - Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

• **PGY4**
  o **Competency 1: Patient Care**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:
    - To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of patients: EEG and epilepsy monitoring, pulmonary function tests, CSF studies, EMG/NCV and Repetitive nerve stimulation.
    - Identify and describe abnormalities on neuroradiographic tests, including: transcranial Doppler ultrasound, DWI and PWI MRI imaging, portable head CT scanning, cerebral angiography, continuous video-EEG monitoring.
    - Evaluation and management of post lumbar puncture headache, including placement of epidural patch.

  o **Competency 2: Medical Knowledge**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:
    - Demonstrate knowledge of neurocritical care conditions including their underlying pathophysiology and therapeutic and experimental intervention.
    - Demonstrate knowledge and management of stroke syndromes.
    - Demonstrate knowledge of conditions leading to coma. Know diagnostic and interventions to determine organic versus psychogenic etiology.

  o **Competency 3: Practice-Based Learning and Improvement**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. The PGY4 residents are expected to participate in local, and national continuing medical education conferences and course to advance knowledge and up to date clinical practices. Such conferences include the annual meetings of the American Academy of Neurology, Society of Critical Care Medicine, and International Stroke Conference among others.

  o **Competency 4: Interpersonal and Communication Skills**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:
    - Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. The PGY4 residents are expected at this level to lead the team in communication with consulting services, allied health professional, family and patients; in addition to coordinate patient care conferences with consulting services, social services, and support staff to communicate treatment and management plans. The Resident will also communicate goals of team to junior residents and students as outline by attending physician and effectively supervise team performance and communicate performance evaluation under direction and guidance of attending physician.
Competency 5: Professionalism
The resident will incorporate and demonstrate competency in all objectives listed in the PGY2 and PGY3 years of training.

Competency 6: Systems-Based Practices
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 and PGY3 year. Residents are expected to:

- Coordinate care plans within a multidisciplinary critical care and general inpatient team and participate in ongoing monitoring of patient outcomes through follow up care.

Practice Setting and Patient Population

The resident assigned to this rotation will evaluate patients on the 20-bed neurocritical care unit located on the 7th floor (7S4 and 7S5 ICUs) or on the 48-bed general neurology ward located on the 22nd floor of the St. Luke's Hospital Tower. In addition, SLEH has a state-of-the-art telemedicine/stroke service to serve outlying hospitals. The neurocritical care unit is staffed by Drs. Suarez, Smirnakis, and Bershad and is equipped with the latest technology in the field including portable CT scanner, continuous video-EEG monitoring, intracranial pressure and metabolism monitoring (EVD, Camino and Licox catheters). Patients are admitted to the neuroicu via the emergency department, transfers from inpatient units from other hospitals, or from other emergency departments using the telemedicine network. The patient population evaluated on the neurocritical care unit is made up of a large number of emergency neurology and neurosurgery cases. The acute stroke code team is staffed by the same physicians and evaluates all acute stroke patients in the hospital and via the telemedicine/stroke network 24/7. These are all patients that are considered candidates for thrombolysis.

The inpatient/consult services are staffed by Dr. Das from Monday – Friday and Drs. Suarez, Smirnakis, and Bershad Saturday – Sunday and are made up of a larger variety of patient cases. The inpatient and consult services evaluate general neurology cases including altered mental status, seizures, neuropsychiatric disorders, encephalitis, syncope, and demyelinating disorders, and movement disorders.

Rotation Experience

Residents assigned to this service rotate either in the neurocritical care unit or the inpatient/consultation services. Patients admitted to the neurocritical care unit or those called for consultations are assigned to residents. The neurocritical care team is made up of an attending (s), a PGY2 junior resident, a PGY3 or PGY4 upper level resident, and/or a Neurosurgery resident, one neurocritical care fellow, and 1-2 medical students from Baylor College of Medicine and/or University of Texas Medical Branch. The inpatient/consultation services are made up of an attending, a PGY1 and a PGY2 junior residents, and 1-2 medical students from Baylor College of Medicine and/or University of Texas Medical Branch. A pharmacist, nursing staff and one advance practice nurse join the neurocritical care team for daily rounds.

Residents evaluate and assess each patient and present the cases to the attending. Investigative studies are followed by the resident and reported to the patient and attending for evaluation, diagnosis, and recommended treatment. Residents are also responsible for the evaluation of elective and emergent admissions and consultations on the inpatient services. The resident follows the patients daily, writes notes and orders, requests and interacts with consult services, and participates in treatment plans and discharge dispositions. Residents participate in attending-led rounds in the neurocritical care unit and in the in patient/consultation service.

Teaching rounds in the neurocritical care unit occur between 9 a.m. to noon each day and follow up of tests, ICU consultation, new admissions and performance of procedures occur in the afternoon. Teaching rounds in the inpatient/consultation services occur between 9 a.m. to noon each day and follow up of tests, new consultations, new admissions, and performance of procedures occur in the afternoon. All cases are presented to the attending physicians whom direct and supervise the resident on patient care.

Residents will also attend required didactics and lectures at noon, including a weekly Professor's rounds in which a resident examines and evaluates a live patient and the case is discussed. In addition, residents will attend weekly neurovascular conferences every Tuesday and neurocritical care lectures every Tuesday and Wednesday.

A summary of all the expected activities are summarized below:
Principal Teaching/Learning Activities

1. **Work Rounds**
   Residents and students are expected to pre-round on overnight consults and admissions.

2. **Attending Teaching Rounds**
   The attending on service rounds with the service team seeing all new patients and follow-up patients if needed. Bedside teaching occurs during these rounds.

3. **Neurocritical Care Unit and Inpatient/Consultation Service**
   Each resident will take care of admitted Neurology patients. PGY1-PGY2 neurology residents are primary care providers for inpatients service under the close supervision of PGY3-PGY4 neurology residents and neurocritical care fellows.

4. **Consultation service**
   PGY3-PGY4 residents on the service are responsible for leading and coordinating consultation patients with the PGY1-PGY2 residents. PGY3-PGY4 residents also act as the primary triage for any patients that should be admitted to the service.

5. **Call**
   PGY1-PGY2 neurology residents along with neurosurgery interns will take in-house calls and PGY3 and PGY4 neurology residents will take home calls as backup. In house residents will admit patients from ER and see consults overnight.

6. **Noon Conference and Grand Rounds**
   Occurs Monday through Friday from noon until 1 p.m. and attendance is required unless the resident is post-call and feels too fatigued to attend. Likewise, if attendance would violate duty hour rules, the post-call resident is excused from attendance.

7. **St. Luke's Episcopal Hospital Didactic Lectures**
   Occur every Tuesdays from 2-3 p.m. and every Wednesdays from 2:30-3:30 p.m. These conferences are led by faculty and neurocritical care fellows addressing primarily stroke and neurocritical care. All rotating residents are required to attend these conferences, along with the outpatient team. In addition, attending physicians will give daily lectures once the attending rounds are complete (time and patient load permitting).

8. **St Luke's Neurovascular Conference**
   Takes place every Tuesday at 7 a.m. This a multidisciplinary conference attended by the following services: neurology, neurosurgery, neuroradiology, vascular surgery. A wide variety of cerebrovascular cases are discussed and residents are expected to be active participants presenting patients' clinical histories and discussing radiological findings and their differential diagnoses.

9. **Professors' Rounds**
   Occurs every Wednesday at 1:15 p.m. A lower level resident is assigned to do a history and physical exam on a patient unknown to him/her while being observed by a faculty member and all residents and students. Thereafter, the Professor asks the residents and all in attendance to localize the lesion, develop an appropriate differential diagnosis, and then discuss either diagnostic, management, or basic science issues related to the patient's disease process.

10. **Neuroradiology, Neuropathology or M&M Conferences (depending on the week)**
    Occurs every Friday from 1-2 p.m.

11. **Continuity Clinics**
    Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

**Supervision of Patient Care and Procedures**

Residents are assigned an average of 5-8 patients a day and are expected to provide full assessment, evaluation, and management of the patients including history and examination, review of medical records, review and interpretation of diagnostic tests and
consultations, and implement pharmacologic and non-pharmacologic therapy. The resident will review every new and follow up patient with the attending. The attending will provide supervision and guidance to the resident in the management of all patients evaluated in this rotation at SLEH.

Residents will perform a procedure under the direct supervision of the attending faculty until the resident has accumulated sufficient experience and skill to perform the procedures independently. The faculty physician supervising the care of the patient is ultimately responsible for patient care and any procedures performed by the resident.

Resident Responsibilities by PGY Level

- **PGY1 and PGY2**
  - The PGY1-PGY2 junior resident is responsible for performing a complete history and physical examination of the patients assigned to them. They will present these cases to the respective attending physician. The resident is responsible for writing daily notes, ordering tests and consultations, and implementing therapy under the direct supervision and guidance of the attending physician on both the neurocritical care and inpatient/consultation services. The resident is responsible for writing an appropriate hospital-course-summary note that will accompany the patient chart upon transfer between services.
  - The PGY1 resident is assigned to the Stroke/General Neurology part of the service, whereas a PGY2 is assigned to either the Stroke/General Neurology or the Neurocritical Care arm of the service.
  - The resident will interact with consulting services and other health allied services in the care of the patient and communicate effectively with these services in addition to the patient and family. The resident will perform lumbar punctures under the supervision of the attending and the senior residents.
  - The resident will maintain an accurate patient list available on the NRP (Group) shared folder. On-call residents will verbally sign-in/out at the beginning/end of their call to the rest of the team.

- **PGY3 and PGY4**
  - In addition to the responsibilities of the PGY2, the PGY3 adult neurology resident will have increasing responsibility as the senior resident on the team. The resident will provide in-servicing to all the junior residents and medical students at the beginning of the rotation. The resident will lead the team of other residents and students, including assigning admitted patients and consultations to junior residents and students, providing back up for junior residents on patient cases, and ensure that consults and orders are implemented. The senior resident will communicate with the attending physician regarding patient census, patient care, and final disposition. The senior resident will ensure that an appropriate hospital-course-summary note written by the junior resident accompanies the patient chart upon transfer between services.
  - The senior resident will interact with consulting services and communicate with participating health care providers. The resident will also supervise and teach the junior resident, non-neurology residents, and students on patient evaluations, procedures, and diagnoses.
  - The resident will ensure an accurate patient list available on the NRP (Group) shared folder and will supervise on-call residents during verbal sign-in/out at the beginning/end of their call to the rest of the team.
  - The resident will become skilled at performing neurocritical care and inpatient clinical procedures, including but not limited to lumbar puncture, central line and arterial line insertions, administration of thrombolytic therapy and induced hypothermia, under the direct supervision and teaching of the fellow or attending physician.
  - The resident will be responsible for arranging cross coverage when not available.

Responsibilities of Teaching Faculty

The attending is responsible for the following:

- Supervision and teaching to the resident including patient 'bedside' teaching and lectures.
- Examination of every patient seen by the resident.
- Instruction and guidance regarding evaluation and management of each patient seen by the resident.
- Responsibility for the overall management of the patient, including appropriate investigations, treatment, and management plans.
- Assurance that each resident remains actively involved in each patient case and has a major role and responsibility to provide longitudinal care.
- Review the quality and accuracy of the medical record including review and co-signature of all notes, orders, and care-related documents signed by the resident and medical student.
- Appropriate discussions and excellent communication pertaining transfer of patient care between the neurocritical care and the inpatient/consultation services.
• Guarantee cross-coverage for attending the services if he/she is unable to attend, which must be communicated with residents, and division head.

Evaluation Methods

• Evaluation of resident performance
  o The supervising attending faculty will discuss expectations with each resident at the beginning of the rotation. Everyday during teaching rounds and after every clinical encounter the attending physician will provide direct feedback to the resident regarding presentations, performance, and educational goals. Attending physicians are encouraged to assign resident topics for review pertaining their patient's pathologies. In addition, attending physicians are encouraged to notify the residency program director at any time during the rotation with either commendation or concern regarding the resident performance.
  o Formal evaluation will include an individual monthly evaluation performed by the attending faculty using E-value. Attending physicians are encouraged to review this evaluation personally with each resident by the supervising faculty member at the end of a one month rotation. Competency in six core areas will be assessed. For those residents returning to the service areas with improvement or deterioration will be pointed out and possible remedial actions suggested.

• Evaluation of faculty/educational program
  o Residents will evaluate attending physicians anonymously using E-value. These monthly evaluations will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.

Suggested Readings and References

The following materials are suggested to the residents for these rotations:

• Critical Care Neurology and Neurosurgery (Jose I. Suarez, Ed.)
• Basic Principles of Critical Care (P. Marino, Ed.)
• CD with updated literature provided by SLEH and compiled by the attending physicians and the advance practice nurse
• Neurology in Clinical Practice e-dition, 4th Edition (Bradley, Daroff, Fenichel, Jankovic, Eds.)
• Merritt's Textbook of Neurology
• Adams and Victor's Principles of Neurology
2. Neurology Night Float

Rotation Mentors

Dr. Jose I. Suarez, Dr. Eric M Bershad, Dr. Stelios M. Smirnakis, Dr. Ritupana Das, Dr. Chethan Venkatasubba Rao, Dr. Alexandros Georgiadis, Dr. Eroboghene Ubogu

Contact Person

Dr. Jose I. Suarez
jisuarez@bcm.edu

Level of Training

PGY2 - PGY4

Rotation Type

In-patient setting in the St. Luke's Episcopal Hospital

- Neurocritical Care Unit (7S4 and 7S5 ICU)
- Neuroscience Unit (22T)
- General In-Patient Wards
- Other ICUs and Neuroprogressive ICUs

Length of Rotation

One to two 5-day blocks

Goals

The resident will become knowledgeable and gain experience in evaluation and management of adult neurocritical care, acute ischemic stroke patients, and general inpatient neurology while covering the neurology service at SLEH at night. These will include patients with intracranial hemorrhages, subarachnoid hemorrhage, cerebral edema and elevated intracranial pressure, status epilepticus, myasthenia gravis crisis, severe Guillain-Barre, sepsis and septic shock, respiratory failure, encephalopathy, coma, and brain death. In addition, residents will participate in the holistic management of acute ischemic stroke patients from emergency room evaluation of thrombolytic therapy candidates to discharge to rehabilitation facilities. There will also be a large number of inpatient general neurology consults which encompasses patients admitted to the internal medicine, general surgery, cardiothoracic surgery (Texas Heart Institute), and all the major surgical subspecialties. In sum, this rotation will provide trainees with unique one-on-one faculty interaction throughout the month duration. Residents will become familiar with a diverse spectrum of both neurologic conditions and application of systems-based practice.

Rotation Overview and Specific Goals by Level of Training

- PGY2
  - Competency 1: Patient Care
    Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the inpatient adult neurology patient presenting with a variety of neurocritical care conditions, in addition to general neurology. Residents are expected to:
    - Perform lumbar punctures in the inpatient settings and monitor response and possible adverse effects.
    - Develop the necessary skills to take a complete history and physical examination of the adult neurocritical care patient.
    - Develop the necessary skills to take a complete history and physical examination of the adult acute ischemic stroke patient.
    - Develop the necessary skills to take a complete history and physical examination of the adult general acute and chronic in-patient neurology patient.
    - To develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the neurocritical care, acute ischemic stroke, and general in-patient neurology patient.
To become increasingly familiar with diagnostic and laboratory studies for diagnosis and management including radiography, electrodiagnostic studies, and laboratory blood and tissues analysis.

To become knowledgeable of the indications for the diagnostic and laboratory tests to aid in the diagnosis and management of acute neurological disorders.

To become acquainted with the indications and general management issues of patients requiring mechanical ventilation and vasopressor support.

To acquire the necessary knowledge to formulate appropriate management and monitoring of patients with complex acute neurological problems such as status epilepticus, cerebral edema and elevated intracranial pressure, intracranial hemorrhages, among others.

To become proficient in the application of the Glasgow Coma Scale, NIH Stroke Scale, ICH score, and the World Federation of Neurological Surgeons scale.

- **Competency 2: Medical Knowledge**

  Residents must acquire and demonstrate increasing medical knowledge of major neurocritical care and general acute neurological disorders including factors that impact upon patient outcome such as age, gender, race, ethnicity, severity of systemic disease scoring systems, pre-morbid functional status, severity of neurological illness scoring systems, and response to treatments. This knowledge will be based upon the valid peer-reviewed literature and standards of practice. Residents are expected to:

  - Demonstrate knowledge of the adult presentation of acute ischemic stroke including epidemiology, risk factors, genetics, pathophysiology, diagnosis, and management with emphasis on primary treatment and secondary prevention.
  
  - Acquire and demonstrate knowledge of the epidemiology, presentation, diagnosis, and management of the following non-inclusive adult neurocritical care conditions:
    - Subarachnoid hemorrhage
    - Intracranial hemorrhage
    - Cerebral edema
    - Elevated intracranial pressure
    - Status epilepticus
    - Acute hydrocephalus
    - Encephalopathy
    - Coma
    - Brain death
    - Myasthenia Gravis Crisis
    - Severe Guillain Barre
    - Encephalitis and Meningitis
    - Prolonged mechanical ventilations and "failure to wean"
    - Post-operative ICU management
    - Anoxic brain injury including prognostication and management with induced hypothermia
  
  - Demonstrate knowledge of the presentation, diagnosis, and management of the following non-inclusive general in-patient neurological conditions:
    - Headaches
    - Encephalopathy
    - Coma
    - Ischemic Stroke
    - Neuromuscular disorders
    - Neurodegenerative diseases
    - Nutritional deficiencies
    - Post-neuro ICU care
    - Neuro-oncological issues (both primary and metastatic)
    - Epilepsy
    - Syncope
    - Neuropsychiatric disorders
    - Demyelinating disorders
    - Movement disorders
  
  - Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events.
  
  - Become familiar with non-pharmacologic management and monitoring of outcomes and progression.
Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

- **Competency 3: Practice-Based Learning and Improvement**
  Residents must demonstrate the skills for obtaining up-to-date information from valid and peer-reviewed scientific and practice literature to assist in quality patient care. Residents are expected to:
  - Use web based databases and scientific libraries available within and outside the hospital setting. Such databases must include peer-reviewed articles.
  - Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology. In addition to their regularly scheduled lectures in the general neurology residency curriculum, residents are expected to attend the weekly neurovascular conference and twice-weekly neurocritical care conferences.

- **Competency 4: Interpersonal and Communication Skills**
  Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient's family and patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:
  - To communicate effectively with inpatients and their families regarding but not limited to the following:
    - Clinical impression and results of assessment
    - Outcomes and prognosis
    - Recommended treatment and management plans and associated risks and benefits
    - End-of-life decisions and palliative care
    - Alternative treatment plans
    - Education about the conditions and referral to reliable outside sources of education, advocacy, and support
  - To develop a physician-patient relationship based upon honest, clear, and open communication and respect.
  - To become an effective communicator and a team player in the increasingly complex multidisciplinary environment of the neurocritical care unit.
  - To become proficient at educating patients, families, and professionals in the issues related to their neurological conditions.
  - Maintain accurate and clear medical documentation. Enter all orders in the electronic order-entry system available in the hospital. Complete accurately the electronic patient encounter forms in the neurocritical care unit and for all acute ischemic stroke patients. Dictate accurate and clear documentation of patient encounters and discharge summaries for the medical records.

- **Competency 5: Professionalism**
  Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Residents are expected to:
  - Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
  - Adequately document patient care management and patient interaction.
  - Obtain informed consent from patients for all general neurology and neurocritical care procedures.
  - Arrive promptly every morning and complete all medical records in a timely manner.

- **Competency 6: Systems-Based Practices**
  Residents must demonstrate knowledge of the systems involved in treating the neurocritical care, acute ischemic stroke, and general inpatient neurology patient, use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:
  - Access and utilize practice guidelines and parameters recommended by the major organizations such as the American Heart Association, American Stroke Association, Society of Critical Care Medicine, Neurocritical Care Society, American Academy of Neurology, and Americal Neurological Association.
  - Access inpatient and allied health professional resources, including but not limited to social work services, case management, indigent care or charity programs, drug assistance programs, palliative care, Get-With-The-Guidelines Programs and Joint Commission Core Measures Programs.
  - Participate with healthcare teams to provide comprehensive and prompt care for the patient such as physical medicine and rehabilitation, physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.

- **PGY3**
  - **Competency 1: Patient Care**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year:
To be the first responder to acute stroke code activation in the emergency department and general hospital wards.
To learn to triage patients needing neurocritical care vs. general neurology ward care.
Perform arterial and central venous line insertions in neurocritical care patients.
To interpret weaning ventilatory parameters and identify patients' readiness to be extubated.
To interpret laboratory and procedural results and apply this information to develop the clinical acumen to diagnose and manage the adult neurology patient.
To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, and specialty consultations.
To identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
To become familiar with EEG and continuous EEG reports and interpretation of data.
To learn the basic principles of transcranial Doppler ultrasound to be able to interpret the data and apply to specific neurological conditions.
To identify and describe abnormalities on neuroradiographic tests including MRI, Cerebral Angiography, and SPECT.
Evaluation and management of post lumbar puncture headache, including placement of epidural patch.

Competency 2: Medical Knowledge
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year.
Residents are expected to:
- Acquire and demonstrate knowledge of the following issues and conditions:
  - Prognostication and outcome of coma of diverse etiologies
  - Indications, adverse effects, and institution of induced hypothermia
  - Complications of mechanical ventilation
  - Indications, complications, and management of thrombolytic therapy
  - Indications, adverse effects, and institution of plasma exchange and intravenous immunoglobulin for various neurological disorders
  - Management and differential diagnoses of space occupying lesions by location
  - Surgical indications for cerebral edema, intracranial and subarachnoid hemorrhages, and intracranial and intraspinal neoplasms
  - Management of cerebral herniations and spinal cord compression
  - Management of the organ donor (begin to understand this issue)
  - Management and differential diagnoses of encephalopathy
  - Treatment of severe headaches including status migraneus

- Demonstrate knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
- Demonstrate knowledge of non-pharmacologic management and monitoring of outcomes and progression.
- Recognize indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

Competency 3: Practice-Based Learning and Improvement
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year.
Residents are expected to:
- Utilized practiced-based guidelines for evaluation and management of the neurocritical care, acute stroke, and general neurology adult inpatient.
- Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

Competency 4: Interpersonal and Communication Skills
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year.
Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs.
Residents are expected to:
- To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.
- To educate patients, families, and professionals in the about issues related to neurological conditions.
- To obtain, interpret, and evaluate consultations from other medical specialties.
- To serve as a consultant to other medical specialists, and communicate assessment, management plan, and follow up clearly and effectively.
- Review and supervise documentation and medical records of junior residents, medical students in order to maintain accurate and clear medical documentation. Educate junior residents and medical students on the appropriate use of electronic medical records for both order entry and general documentation.
Competency 5: Professionalism
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
- Provide and ensure adequate cross coverage of patients.
- Coordinate care of other health care providers and multidisciplinary team members in care of patients on the neurocritical care unit and general neurology inpatient wards.

Competency 6: Systems-Based Practices
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Coordinate and participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
- Participate in family discussions of patient treatments including palliative care.
- Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
- Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

PGY4

Competency 1: Patient Care
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year:

- To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of patients: EEG and epilepsy monitoring, pulmonary function tests, CSF studies, EMG/NCV and Repetitive nerve stimulation.
- Identify and describe abnormalities on neuroradiographic tests, including: transcranial Doppler ultrasound, DWI and PWI MRI imaging, portable head CT scanning, cerebral angiography, continuous video-EEG monitoring.
- Evaluation and management of post lumbar puncture headache, including placement of epidural patch.

Competency 2: Medical Knowledge
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:

- Demonstrate knowledge of neurocritical care conditions including their underlying pathophysiology and therapeutic and experimental intervention.
- Demonstrate knowledge and management of stroke syndromes.
- Demonstrate knowledge of conditions leading to coma. Know diagnostic and interventions to determine organic versus psychogenic etiology.

Competency 3: Practice-Based Learning and Improvement
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year.

The PGY4 residents are expected to participate in local, and national continuing medical education conferences and course to advance knowledge and up to date clinical practices. Such conferences include the annual meetings of the Americal Academy of Neurology, Society of Critical Care Medicine, and International Stroke Conference among others.

Competency 4: Interpersonal and Communication Skills
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year.

- Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. The PGY4 residents are expected at this level to lead the team in communication with consulting services, allied health professional, family and patients; in addition to coordinate patient care conferences with consulting services, social services, and support staff to communicate treatment and management plans. The Resident will also communicate goals of team to junior residents and students as outline by attending physician and effectively supervise team performance and communicate performance evaluation under direction and guidance of attending physician.

Competency 5: Professionalism
The resident will incorporate and demonstrate competency in all objectives listed in the PGY2 and PGY3 years of training.
Competency 6: Systems-Based Practices

The resident will integrate the following competency objectives in addition to those acquired in the PGY2 and PGY3 year. Residents are expected to:

- Residents are expected to coordinate care plans within a multidisciplinary critical care and general inpatient team and participate in ongoing monitoring of patient outcomes through follow up care.

Practice Setting and Patient Population

The resident assigned to this rotation will evaluate patients on the 20-bed neurocritical care unit located on the 7th floor (7S4 and 7S5 ICUs) or on the 48-bed general neurology ward located on the 22nd floor of the St Luke's Hospital Tower. In addition, SLEH has a state-of-the-art telemedicine/stroke service to serve outlying hospitals. The neurocritical care unit is staffed by Drs. Suarez, Smirnakis, and Bershad and is equipped with the latest technology in the field including portable CT scanner, continuous video-EEG monitoring, intracranial pressure and metabolism monitoring (EVD, Camino and Licox catheters). Patients are admitted to the neuroicu via the emergency department, transfers from inpatient units from other hospitals, or from other emergency departments using the telemedicine network. The patient population evaluated on the neurocritical care unit is made up of a large number of emergency neurology and neurosurgery cases. The acute stroke code team is staffed by the same physicians and evaluates all acute stroke patients in the hospital and via the telemedicine/stroke network 24/7. These are all patients that are considered candidates for thrombolysis.

The inpatient/consult services are staffed by Dr. Das from Monday – Friday, and Drs. Suarez, Smirnakis, and Bershad Saturday – Sunday and are made up of a larger variety of patient cases. The inpatient and consult services evaluate general neurology cases including altered mental status, seizures, neuropsychiatric disorders, encephalitis, syncope, and demyelinating disorders, and movement disorders.

Rotation Experience

Residents assigned to this service will admit and cross-cover patients admitted to the neurology services at SLEH. Residents are expected to contact the supervising attending physician after each new patient evaluation and to update the supervising attending about changes in patient status. This over-the-phone supervision will ensure that an appropriate differential diagnosis and management plan is implemented on each patient.

A summary of all the expected activities are summarized below:

<table>
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<tr>
<th>Principal Teaching/Learning Activities</th>
<th>System-Based Practices</th>
<th>Professionalism</th>
<th>Interpersonal &amp; Communication Skills</th>
<th>Practice-Based Learning &amp; Improvement</th>
<th>Medical Knowledge</th>
<th>Patient Care</th>
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<tr>
<td>Night Float Shift Hours</td>
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<td>1. Residents report for night float at 6 p.m. Sunday through Thursday. The shift concludes at 6 a.m. the following morning. There is one hour for transition of care and in-person sign out to the accepting service.</td>
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<td>Noon Conference and Grand Rounds</td>
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<td>2. Residents on night float are excused from conference attendance. However, they are emailed copies of all lectures and are asked to read this information and are held responsible for learning the information.</td>
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<td>Continuity Clinics</td>
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<td>3. Residents on night float are excused from continuity clinic.</td>
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</table>
Supervision of Patient Care and Procedures

Residents are required to call the supervising faculty after each admission or consultation and for any change in patient status. Additionally, the faculty can be called at any time with questions about patient management.

Resident Responsibilities by PGY Level

- **PGY2**
  - The PGY2 junior resident is responsible for performing a complete history and physical examination of the patients assigned to them. They will present these cases to the respective attending physician over the telephone. The resident will maintain an accurate patient list available on the NRP (Group) shared folder. On-call residents will verbally sign-in/out at the beginning/end of their call to the rest of the team. The PGY2 will conduct in-person and written check-out with the accepting team.

- **PGY3 and PGY4**
  - In addition to the responsibilities of the PGY2, the PGY3 and PGY4 adult neurology resident will have increasing responsibility and will be expected to think more independently and critically than the PGY2 resident. The resident will ensure an accurate patient list available on the NRP (Group) shared folder and will supervise on-call residents during verbal sign-in/out at the beginning/end of their call to the rest of the team. The PGY3 and PGY4 resident will conduct in-person and written check-out with the accepting team; cross coverage when not available.

Responsibilities of Teaching Faculty

The attending is responsible for the following:

- Supervision and teaching to the resident including patient 'bedside' teaching and lectures.
- Examination of every patient seen by the resident.
- Instruction and guidance regarding evaluation and management of each patient seen by the resident.
- Responsibility for the overall management of the patient, including appropriate investigations, treatment, and management plans.
- Assurance that each resident remains actively involved in each patient case and has a major role and responsibility to provide longitudinal care.
- Review the quality and accuracy of the medical record including review and co-signature of all notes, orders, and care-related documents signed by the resident and medical student.
- Appropriate discussions and excellent communication pertaining transfer of patient care between the neurocritical care and the inpatient/consultation services.
- Guarantee cross-coverage for attending the services if he/she is unable to attend, which must be communicated with residents, and division head.

Evaluation Methods

- Evaluation of resident performance
  - The supervising attending faculty will discuss expectations with each resident at the beginning of the rotation. Everyday during teaching rounds and after every clinical encounter the attending physician will provide direct feedback to the resident regarding presentations, performance, and educational goals. Attending physicians are encouraged to assign resident topics for review pertaining their patient's pathologies. In addition, attending physicians are encouraged to notify the residency program director at any time during the rotation with either commendation or concern regarding the resident performance.
  - Formal evaluation will include an individual monthly evaluation performed by the attending faculty using E-value. Attending physicians are encouraged to review this evaluation personally with each resident by the supervising faculty member at the end of a one month rotation. Competency in six core areas will be assessed. For those residents returning to the service areas with improvement or deterioration will be pointed out and possible remedial actions suggested.

- Evaluation of faculty/educational program
  - Residents will evaluate attending physicians anonymously using E-value. These monthly evaluations will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.
Suggested Readings and References

The following materials are suggested to the residents for these rotations:

- Critical Care Neurology and Neurosurgery (Jose I. Suarez, Ed.)
- Basic Principles of Critical Care (P. Marino, Ed.)
- CD with updated literature provided by SLEH and compiled by the attending physicians and the advance practice nurse.
- Neurology in Clinical Practice, 4th Edition (Bradley, Daroff, Fenichel, Jankovic, Eds.)
- Merritt's Textbook of Neurology
- Adams and Victor's Principles of Neurology
3. Stroke/General Neurology In-Patient and Consultations Rotation

Rotation Mentors
Dr. Eric M Bershad, Dr. Ritupana Das, Dr. Alexandros Georgiadis, Dr. Stelios M. Smirnakis, Dr. Jose I. Suarez, Dr. Eroboghene Ubogu, Dr. Chethan Venkatasubba Rao

Contact Person
Dr. Eric M Bershad
bershad@bcm.edu

Level of Training
Adult Neurology PGY1 and PGY2
Child Neurology PGY3

Rotation Type
100% in-patient setting in the St. Luke's Episcopal Hospital
- Neuroscience Unit (22T)
- General In-Patient Wards

Length of Rotation
One month

Goals
The resident will become knowledgeable and gain experience in evaluation and management of acute ischemic stroke patients, adult inpatient neurology, and the care of patients transferred from the neurocritical care unit. Thus the rotation comprises a wide scope of neurology patients inclusive of patients with intracranial hemorrhages, subarachnoid hemorrhage, cerebral edema, epilepsy, myasthenia gravis, and Guillain-Barre. In addition, residents will participate in the holistic management of acute ischemic stroke patients from emergency room evaluation to discharge to rehabilitation facilities. Consultations will focus on neurologic complications of medical systemic disease. This will encompass patients admitted to internal medicine, obstetrics, general surgery, cardiothoracic surgery (Texas Heart Institute), and all the major surgical subspecialties. In sum, this rotation will provide trainees with unique one-on-one faculty interaction throughout the month duration. Residents will become familiar with a diverse spectrum of both neurologic conditions and application of systems-based practice.

Rotation Overview and Specific Goals by Level of Training
- PGY1 and PGY2
  - Competency 1: Patient Care
    Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the inpatient adult neurology patient presenting with a variety of conditions. Residents are expected to:
    - Develop the necessary skills to take complete history and physical examination of the adult inpatient.
    - Develop the necessary skills to take a complete history and physical examination of the adult acute ischemic stroke patient.
    - Develop the necessary skills to take a complete history and physical examination of the adult general acute and chronic in-patient neurology patient.
    - To develop a broader differential diagnosis based upon initial and/or follow up assessments neurology patient.
    - To become increasingly familiar with diagnostic and laboratory studies for diagnosis and management including radiography, electrodiagnostic studies, and laboratory blood and tissues analysis.
    - To become knowledgeable of the indications for the diagnostic and laboratory tests to aid in the diagnosis and management of acute neurological disorders.
    - To perform lumbar punctures in the inpatient settings and monitor response and possible adverse effects.
To become proficient in the application of the NIH Stroke Scale, and ICH score.

Competency 2: Medical Knowledge
Residents must acquire and demonstrate increasing medical knowledge of the general acute neurological disorders including factors that impact upon patient outcome such as age, gender, race, ethnicity, severity of systemic disease scoring systems, pre-morbid functional status, severity of neurological illness scoring systems, and response to treatments. This knowledge will be based upon the valid peer-reviewed literature and standards of practice. Residents are expected to:

- Demonstrate knowledge of the adult presentation of acute ischemic stroke including:
  - Epidemiology
  - Risk factors
  - Genetics
  - Pathophysiology
  - Diagnosis and Localization
  - Management: with emphasis on primary treatment and secondary prevention; knowledge of medical and surgical algorithms.
  - Medical complications of the neurology patient.
- Demonstrate knowledge of the presentation, diagnosis, and management of the following non-inclusive general in-patient neurological conditions and neuro-intensive care patients:
  - Headaches
  - Encephalopathy
  - Coma
  - Traumatic brain injury
  - Ischemic Stroke
  - Hemorrhagic Stroke
  - Neuromuscular disorders
  - Neurodegenerative diseases
  - Nutritional deficiencies
  - Encephalitis and Meningitis
  - Neuro-oncological issues (both primary and metastatic)
  - Epilepsy
  - Syncope
  - Neuropsychiatric disorders
  - Neurodegenerative disorders
  - Demyelinating disorders
  - Movement disorders
- Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events.
- Become familiar with non-pharmacologic management and monitoring of outcomes and progression.
- Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

Competency 3: Practice-Based Learning and Improvement
Residents must demonstrate the skills for obtaining up-to-date information from valid and peer-reviewed scientific and practice literature to assist in quality patient care. Residents are expected to:

- Use web based databases and scientific libraries available within and outside the hospital setting. Such databases must include peer-reviewed articles.
- Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology. In addition to their regularly scheduled lectures in the general neurology residency curriculum.

Competency 4: Interpersonal and Communication Skills
Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient's family and patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:

- To communicate effectively with inpatients and their families regarding but not limited to the following:
  - Clinical impression and results of assessment
  - Outcomes and prognosis
  - Recommended treatment and management plans and associated risks and benefits
  - End-of-life decisions and palliative care
  - Alternative treatment plans
• Education about the conditions and referral to reliable outside sources of education, advocacy, and support
  ▪ To develop a physician-patient relationship based upon honest, clear, and open communication and respect.
  ▪ To become and effective communicator and a team player in the increasingly complex multidisciplinary environment of the acute stroke care unit, not limited to case managers, pharmacists, nurses; speech, occupational and physical therapists, as well rehabilitation services.
  ▪ To become proficient at educating patients, families, and professionals in the issues related to their neurological conditions.
  ▪ Maintain accurate and clear medical documentation. Enter all orders in the electronic order-entry system available in the hospital. Complete accurately the patient encounter forms in for all acute ischemic stroke patients as well as daily progress notes. Dictate accurate and clear documentation of patient encounters and discharge summaries for the medical records.

  o Competency 5: Professionalism
  Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Residents are expected to:
    ▪ Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
    ▪ Adequately document patient care management and patient interaction.
    ▪ Obtain informed consent from patients for all general neurology and consult neurology procedures.
    ▪ Arrive promptly every morning and complete all medical records in a timely manner.

  o Competency 6: Systems-Based Practices
  Residents must demonstrate knowledge of the systems involved in treating the acute ischemic stroke, general inpatient neurology patient, post-neuroicu patients and use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:
    ▪ Access and utilize practice guidelines and parameters recommended by the major organizations such as the American Heart Association, American Stroke Association, Society of Critical Care Medicine, Neurocritical Care Society, American Academy of Neurology, and American Neurological Association.
    ▪ Access inpatient and allied health professional resources, including but not limited to social work services, case management, indigent care or charity programs, drug assistance programs, palliative care, Get-With-The-Guidelines Programs and Joint Commission Core Measures Programs.
    ▪ Participate with healthcare teams to provide comprehensive and prompt care for the patient such as physical medicine and rehabilitation, physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.

  • PGY3
    o Competency 1: Patient Care
      The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year:
        ▪ To be the first responder to acute stroke code activation in the emergency department and general hospital wards.
        ▪ To learn to triage patients needing neurocritical care vs. general neurology ward care.
        ▪ To interpret laboratory and procedural results and apply this information to develop the clinical acumen to diagnose and manage the adult neurology patient.
        ▪ To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, and specialty consultations.
        ▪ To identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
        ▪ To become familiar with EEG and continuous EEG reports and interpretation of data.
        ▪ To learn the basic principles of transcranial Doppler ultrasound to be able to interpret the data and apply to specific neurological conditions.
        ▪ To identify and describe abnormalities on neuroradiographic tests including CT, MRI, and Cerebral Angiography.

    o Competency 2: Medical Knowledge
      The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:
        ▪ Acquire and demonstrate knowledge of the following issues and conditions:
          • Prognostication and outcome of coma of diverse etiologies
          • Indications, complications, and management of thrombolytic therapy
          • Indications, adverse effects, and institution of plasma exchange and intravenous immunoglobulin for various neurological disorders
Management and differential diagnoses of space occupying lesions by location
- Surgical indications for intracranial and intraspinal neoplasms
- Management of cerebral herniations and spinal cord compression
- Management and differential diagnoses of encephalopathy
- Treatment of severe headaches including status migrainosus.

- Demonstrate knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
- Demonstrate knowledge of non-pharmacologic management and monitoring of outcomes and progression.
- Recognize indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

- **Competency 3: Practice-Based Learning and Improvement**
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year.
Residents are expected to:
- Utilize practiced-based guidelines for evaluation and management of the acute stroke, and general neurology adult inpatient.
- Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

- **Competency 4: Interpersonal and Communication Skills**
Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:
- To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.
- To educate patients, families, and professionals in the about issues related to neurological conditions.
- To obtain, interpret, and evaluate consultations from other medical specialties.
- To serve as a consultant to other medical specialists, and communicate assessment, management plan, and follow up clearly and effectively.
- Review and supervise documentation and medical records of junior residents, medical students in order to maintain accurate and clear medical documentation. Educate junior residents and medical students on the appropriate use of electronic medical records for both order entry and general documentation.

- **Competency 5: Professionalism**
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year.
Residents are expected to:
- Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
- Provide and ensure adequate cross coverage of patients.
- Coordinate care of other health care providers and multidisciplinary team members in care of patients on the neurocritical care unit and general neurology inpatient wards.

- **Competency 6: Systems-Based Practices**
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year.
Residents are expected to:
- Coordinate and participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
- Participate in family discussions of patient treatments including palliative care.
- Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
- Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

- **PGY4**

- **Competency 1: Patient Care**
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year:
- To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of patients: EEG and epilepsy monitoring, pulmonary function tests, CSF studies, EMG/NCV and Repetitive nerve stimulation.
- Identify and describe abnormalities on neuroradiographic tests, including: transcranial Doppler ultrasound, DWI and PWI MRI imaging, portable head CT scanning, cerebral angiography, continuous video-EEG monitoring.
- Evaluation and management of post lumbar puncture headache, including placement of epidural patch.
Competency 2: Medical Knowledge
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year.
Residents are expected to:
- Demonstrate knowledge of general neurology inpatient and acute stroke care conditions including their underlying pathophysiology and therapeutic and experimental intervention.
- Demonstrate knowledge and management of stroke syndromes.
- Demonstrate knowledge of conditions leading to coma. Know diagnostic and interventions to determine organic versus psychogenic etiology.

Competency 3: Practice-Based Learning and Improvement
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year.
- The PGY4 residents are expected to participate in local, and national continuing medical education conferences and course to advance knowledge and up to date clinical practices. Such conferences include the annual meetings of the American Academy of Neurology, Society of Critical Care Medicine, and International Stroke Conference among others.

Competency 4: Interpersonal and Communication Skills
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year.
- Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. The PGY4 residents are expected at this level to lead the team in communication with consulting services, allied health professionals, family and patients; in addition to coordinate patient care conferences with consulting services, social services, and support staff to communicate treatment and management plans. The Resident will also communicate goals of team to junior residents and students as outline by attending physician and effectively supervise team performance and communicate performance evaluation under direction and guidance of attending physician.

Competency 5: Professionalism
The resident will incorporate and demonstrate competency in all objectives listed in the PGY2 and PGY3 years of training.

Competency 6: Systems-Based Practices
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 and PGY3 year.
- Residents are expected to coordinate care plans within a multidisciplinary critical care and general inpatient team and participate in ongoing monitoring of patient outcomes through follow up care.

Practice Setting and Patient Population
The resident assigned to this rotation will primarily evaluate patients on the 42-bed dedicated neurology ward located on the 22nd floor of the St Luke's Hospital Tower as well as consult on the many medical and surgical floors. SLEH is certified as a Joint Commission Primary Stroke Center. SLEH has a state-of-the-art telemedicine/stroke service to serve outlying hospitals. The neurocritical care unit is a 20-bed unit located in 7S4 and 7S5 ICUs which is staffed by Drs. Suarez, Smirnakis, Bershad, Rao, and Georgiadis. Patients are admitted via the emergency department, transfers from inpatient units from other hospitals, or from other emergency departments using the telemedicine network. The patient population evaluated on the neurocritical care unit is made up of a large number of emergency neurology and neurosurgery cases. The acute stroke code team is staffed by the same physicians and evaluates all acute stroke patients in the hospital and via the telemedicine/stroke network 24/7. These are all patients that are considered candidates for thrombolysis. There are readily available services including neuroimaging via MRI/MR perfusion, portable CT scanner, neurophysiology with routine as well as continuous EEG monitoring, as well as neuro-interventional radiology services.

Rotation Experience
The neurocritical care team is made up of an attending (s), a PGY2 junior resident, a PGY3 or PGY4 upper level resident, and/or a Neurosurgery resident, one neurocritical care fellow, and 1-2 medical students from Baylor College of Medicine and/or University of Texas Medical Branch. A pharmacist, nursing staff and one advance practice nurse join the neurocritical care team for daily rounds. The inpatient/consultation services are made up of an attending, a PGY1 and a PGY2 junior resident.

Residents evaluate and assess each patient and present the cases to the attending. Investigative studies are followed by the resident and reported to the patient and attending for evaluation, diagnosis, and recommended treatment. Residents are also responsible for the evaluation of elective and emergent admissions and consultations on the inpatient services. The resident follows the patients daily, writes notes and orders, requests and interacts with consult services, and participates in treatment plans and discharge dispositions. Residents participate in attending-led rounds in the neurocritical care unit and in the in patient/consultation service.
Teaching rounds in the inpatient/consultation services occur between 9 a.m. to noon each day and follow up of tests, new consultations, new admissions, and performance of procedures occur in the afternoon. All cases are presented to the attending physicians whom direct and supervise the resident on patient care.

Residents will also attend required daily didactics and lectures at noon, including a weekly Professor's rounds in which a resident examines and evaluates a live patient and the case is discussed.

A summary of all the expected activities are summarized below:

### Principal Teaching/Learning Activities

<table>
<thead>
<tr>
<th>Principal Teaching/Learning Activities</th>
<th>System-Based Practices</th>
<th>Professionalism</th>
<th>Interpersonal &amp; Communication Skills</th>
<th>Practice-Based Learning &amp; Improvement</th>
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<tbody>
<tr>
<td>1. Work Rounds</td>
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<td>Residents and students are expected to pre-round on overnight consults and admissions.</td>
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<td>2. Attending Teaching Rounds</td>
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<td>The attending on service rounds with the service team seeing all new patients and follow-up patients if needed. Bedside teaching occurs during these rounds.</td>
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<td>3. Inpatient/Consultation Service</td>
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<td>Each resident will take care of admitted Neurology patients and consult patients. PGY1-PGY2 neurology residents are primary care providers for inpatients service under the close supervision of the attending.</td>
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<td>4. Consultation Service</td>
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<td>PGY3-PGY4 residents on the service are responsible for leading and coordinating consultation patients with the PGY1-PGY2 residents. PGY3-PGY4 residents also act as the primary triage for any patients that should be admitted to the service.</td>
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<td>5. Call</td>
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<td>PGY2 neurology residents will take in-house calls as well as float shifts. PGY3s and PGY4s will also participate in the night float. The float system will be implemented Sunday through Thursday with shifts 6 p.m. to 6 a.m. In-house residents will admit patients from the ER to the inpatient ward or the neuro-icu and see consults overnight. Communication between the overnight resident and the rotating residents is expected to occur regularly in the 6 a.m. and 6 p.m. In house residents will admit patients from ER and see consults overnight.</td>
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<td>6. Noon Conference and Grand Rounds</td>
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<td>Occurs Monday through Friday from noon until 1 pm and attendance is required unless the resident is post-call and feels too fatigued to attend. Likewise, if attendance would violate duty hour rules, the post-call resident is excused from attendance.</td>
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<td>7. Transfer between Services</td>
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<td>Residents are expected to complete a written transfer summary as well as to verbally communicate daily with other junior residents and/or the PGY3 regarding patients transferred between the ICU, ward, and consult services.</td>
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<td>8. Professors' Rounds</td>
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<td>Occurs every Wednesday at 1:15 p.m. A junior resident is assigned to do a history and physical exam on a patient unknown to him/her while being observed by a faculty member and all residents and students. Thereafter, the Professor asks the residents and all in attendance to localize the lesion, develop an appropriate differential diagnosis, and then discuss either diagnostic, management, or basic science issues related to the patient's disease process.</td>
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<td>9. Neuroradiology, Neuropathology or M&amp;M Conferences (depending on the week)</td>
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<td>Occurs every Friday from 1-2 p.m.</td>
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<td>10. Continuity Clinics</td>
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<td>Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.</td>
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Supervision of Patient Care and Procedures

Residents are assigned an average of 5-9 patients a day and are expected to provide full assessment, evaluation, and management of the patients including history and examination, review of medical records, review and interpretation of diagnostic tests and consultations, and implement pharmacologic and non-pharmacologic therapy. The resident will review every new and follow up patient with the attending. The attending will provide supervision and guidance to the resident in the management of all patients evaluated in this rotation at SLEH.

Residents will perform a procedure under the direct supervision of the attending faculty until the resident has accumulated sufficient experience and skill to perform the procedures independently. The faculty physician supervising the care of the patient is ultimately responsible for patient care and any procedures performed by the resident.

Resident Responsibilities by PGY Level

- **PGY1 and PGY2**
  - The PGY1 and PGY2 junior resident is responsible for performing a complete history and physical examination of the patients assigned to them. They will present these cases to the respective attending physician. The resident is responsible for writing daily notes, ordering tests and consultations, and implementing therapy under the direct supervision and guidance of the attending physician on the inpatient/consultation service. The resident is responsible for writing an appropriate hospital-course-summary note that will accompany the patient chart upon transfer between services.
  - The resident will interact with consulting services and other health allied services in the care of the patient and communicate effectively with these services in addition to the patient and family. The resident will perform lumbar punctures under the supervision of the attending and the senior residents.
  - The resident will maintain an accurate patient list available on the NRP (Group) shared folder. On-call residents will verbally sign-in/out at the beginning/end of their call to the rest of the team.

- **PGY3 and PGY4**
  - In addition to the responsibilities of the PGY2, the PGY3 adult neurology resident will have increasing responsibility as the senior resident on the team. The resident will provide in-servicing to all the junior residents and medical students at the beginning of the rotation. The resident will lead the team of other residents and students, including assigning admitted patients and consultations to junior residents and students, providing back up for junior residents on patient cases, and ensure that consults and orders are implemented. The senior resident will communicate with the attending physician regarding patient census, patient care, and final disposition. The senior resident will ensure that an appropriate hospital-course-summary note written by the junior resident accompanies the patient chart upon transfer between services.
  - The senior resident will interact with consulting services and communicate with participating health care providers. The resident will also supervise and teach the junior resident, non-neurology residents, and students on patient evaluations, procedures, and diagnoses.
  - The resident will ensure an accurate patient list available on the NRP (Group) shared folder and will supervise on-call residents during verbal sign-in/out at the beginning/end of their call to the rest of the team.
  - The resident will become skilled at performing neurocritical care and inpatient clinical procedures, including but not limited to lumbar puncture, central line and arterial line insertions, administration of thrombolytic therapy and induced hypothermia, under the direct supervision and teaching of the fellow or attending physician.
  - The resident will be responsible for arranging cross coverage when not available.

Responsibilities of Teaching Faculty

The attending is responsible for the following:

- Supervision and teaching to the resident including patient ‘bedside’ teaching and lectures.
- Examination of every patient seen by the resident.
- Instruction and guidance regarding evaluation and management of each patient seen by the resident.
- Responsibility for the overall management of the patient, including appropriate investigations, treatment, and management plans.
- Assurance that each resident remains actively involved in each patient case and has a major role and responsibility to provide longitudinal care.
- Review the quality and accuracy of the medical record including review and co-signature of all notes, orders, and care-related documents signed by the resident and medical student.
• Appropriate discussions and excellent communication pertaining transfer of patient care between the neurocritical care and the inpatient/consultation services.
• Guarantee cross-coverage for attending the services if he/she is unable to attend, which must be communicated with residents, and division head.

Evaluation Methods

• Evaluation of resident performance
  o The supervising attending faculty will discuss expectations with each resident at the beginning of the rotation. Everyday during teaching rounds and after every clinical encounter the attending physician will provide direct feedback to the resident regarding presentations, performance, and educational goals. Attending physicians are encouraged to assign resident topics for review pertaining their patient's pathologies. In addition, attending physicians are encouraged to notify the residency program director at any time during the rotation with either commendation or concern regarding the resident performance.
  o Formal evaluation will include an individual monthly evaluation performed by the attending faculty using E-value. Attending physicians are encouraged to review this evaluation personally with each resident by the supervising faculty member at the end of a one month rotation. Competency in six core areas will be assessed. For those residents returning to the service areas with improvement or deterioration will be pointed out and possible remedial actions suggested.
• Evaluation of faculty/educational program
  o Residents will evaluate attending physicians anonymously using E-value. These monthly evaluations will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.

Suggested Readings and References

The following materials are suggested to the residents for these rotations:

• Neurology in Clinical Practice, 4th Edition (Bradley, Daroff, Fenichel, Jankovic, Eds.)
• Merritt's Textbook of Neurology
• Adams and Victor's Principles of Neurology
• Osborn Diagnostic Imaging: Brain 2nd Edition
F. Texas Children's Hospital

1. Child Neurology Consult Service

Rotation Mentors
Dr. Tim Lotze

Contact Person
Dr. Tim Lotze

Level of Training
PGY3 and PGY4

Rotation Type
Inpatient Consultation Service

Length of Rotation
One month

Rotation Overview
This junior resident (adult neurology, pediatrics, or other rotating resident) serves as the main consultant to the emergency department (ED), intensive care units, and general hospital floors (excepting the 10th and 11th floor, which are assigned to the Primary Neurology Service). S/he evaluates consultations under the direction of the senior supervising Child Neurology Resident. As the junior resident is the initial neurologist interfacing with the patient, family, and referring physician, s/he is expected to provide courteous, friendly, and willing service at all times. The evaluation of patients should address the broad spectrum of patient needs conveyed by the individuals caring for these patients. S/he is expected to attend weekly conferences to include Wednesday morning Section Rounds and Thursday morning Neuroradiology Conference.

Overall Rotation Goals
The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Resident is able to provide compassionate, appropriate and effective patient care for the treatment of health problems and promotion of health. Resident understands how to appropriately prioritize patient problems and develop an appropriate diagnostic plan, prescribes medications appropriately, shows an appropriate balance between attention to the details of patient care and the overall context of treating the patient's illness. Resident obtains consultations appropriately, and is able to perform technical procedures adequately, when appropriate.

- **Competency 2: Medical Knowledge**
  Resident demonstrates knowledge of established and evolving biomedical, clinical, epidemiological, and social/behavioral sciences as well as the application of this knowledge to patient care. Resident is able to assess diagnostic information critically and constructively, and recognizes the psychosocial aspects of illness. Resident is able to critically evaluate the medical literature and apply new knowledge to the delivery of safe and effective patient care.

- **Competency 3: Practice-Based Learning and Improvement**
  Resident is able to critically evaluate the care of their patients, appraise and assimilate scientific evidence, and continuously improve patient care delivered on the basis of ongoing self-evaluation and learning. The resident uses knowledge to educate patient families, medical students, allied health personnel, peers, and other health professionals as appropriate. Resident is capable of self-identifying strengths, deficiencies, and the limits of their knowledge and expertise. The Resident is receptive to constructive criticism (formative evaluation feedback) regarding the care of patients and physician performance. Resident is able to set learning and improvement goals, and identify and perform activities appropriate to meeting those goals.
• **Competency 4: Interpersonal and Communication Skills**
The Resident demonstrates interpersonal and communication skills that result in effective information exchange and collaboration with patients, families and other health professionals. These skills include the ability to communicate across a broad range of socio-economic and cultural backgrounds and ability to communicate with physicians, health professionals, and health related agencies effectively. Resident is able to maintain comprehensive, timely and readable medical records. Resident can work effectively as a member or leader of a healthcare team and serve appropriately as a consultant to other physicians and health professionals. Resident is able to clearly lead daily work rounds, when appropriate.

• **Competency 5: Professionalism**
Committed to carrying out professional responsibilities and adhering to ethical principles. Resident demonstrates respect for patient privacy and autonomy and is accountable to patient, society and the medical profession for actions. Resident demonstrates compassion, integrity and respect for others as well as responsiveness to patient needs that supersede self-interest. The Resident demonstrates sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation. Resident demonstrates the ability to manage personal stress effectively. Answer pages or messages in a timely fashion. Resident understands how to maintain appropriate professional boundaries, and demonstrates integrity, honesty and compassion. Resident completes assigned tasks in a timely fashion.

• **Competency 6: Systems-Based Practices**
Resident understands and is capable to interact effectively with different systems of care. Demonstrates the ability to provide high-quality care in a cost-effective manner. Resident incorporates consideration of cost-awareness and risk-benefit analysis in patient care decisions. Resident advocates for high quality care for all patients.

### Rotation Goals

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1. Evaluate initial consultations in an appropriate time frame.  
2. Maintain courteous, professional interactions with the referring services.  
3. Formulate a clinical impression and plan and communicate this information to the Supervising Child Neurology Resident and Consult Attending.

### Rotation Objectives

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1. Provide an initial consultation note at the time of the initial evaluation in the chart with a full formulation, differential diagnosis, and plan, making evidence-based recommendations when possible.  
2. Discuss cases using effective communication with the Supervising Child Neurology Resident on-call and the Consult Attending in real time.  
3. Engage in timely communication with the referring service or ED.  
4. Allow for effective patient care by assuring the sign-out to on-call and covering residents is complete both in written and verbal form.
Recommended Resources

- Genereviews website: http://www.genereviews.org/
- Simulconsult differential diagnosis software: http://www.simulconsult.com/
2. Child Neurology Outpatient Clinic

Rotation Mentors
Dr. Bob Zeller

Contact Person
Dr. Bob Zeller
robertz@bcm.edu

Level of Training
Adult Neurology Residents

Rotation Type
Out-patient setting in the Texas Children's Hospital Child Neurology Outpatient Clinic

Length of Rotation
One month

Overall Rotation Goals
The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Resident is able to provide compassionate, appropriate and effective patient care for the treatment of health problems and promotion of health. Resident understands how to appropriately prioritize patient problems and develop an appropriate diagnostic plan, prescribes medications appropriately, shows an appropriate balance between attention to the details of patient care and the overall context of treating the patient's illness. Resident obtains consultations appropriately, and is able to perform technical procedures adequately, when appropriate.

- **Competency 2: Medical Knowledge**
  Resident demonstrates knowledge of established and evolving biomedical, clinical, epidemiological, and social/behavioral sciences as well as the application of this knowledge to patient care. Resident is able to assess diagnostic information critically and constructively, and recognizes the psychosocial aspects of illness. Resident is able to critically evaluate the medical literature and apply new knowledge to the delivery of safe and effective patient care.

- **Competency 3: Practice-Based Learning and Improvement**
  Resident is able to critically evaluate the care of their patients, appraise and assimilate scientific evidence, and continuously improve patient care delivered on the basis of ongoing self-evaluation and learning. The resident uses knowledge to educate patient families, medical students, allied health personnel, peers, and other health professionals as appropriate. Resident is capable of self-identifying strengths, deficiencies, and the limits of their knowledge and expertise. The Resident is receptive to constructive criticism (formative evaluation feedback) regarding the care of patients and physician performance. Resident is able to set learning and improvement goals, and identify and perform activities appropriate to meeting those goals.

- **Competency 4: Interpersonal and Communication Skills**
  The Resident demonstrates interpersonal and communication skills that result in effective information exchange and collaboration with patients, families and other health professionals. These skills include the ability to communicate across a broad range of socio-economic and cultural backgrounds and ability to communicate with physicians, health professionals, and health related agencies effectively. Resident is able to maintain comprehensive, timely and readable medical records. Resident can work effectively as a member or leader of a healthcare team and serve appropriately as a consultant to other physicians and health professionals. Resident is able to clearly lead daily work rounds, when appropriate.

- **Competency 5: Professionalism**
  Committed to carrying out professional responsibilities and adhering to ethical principles. Resident demonstrates respect for patient privacy and autonomy and is accountable to patient, society and the medical profession for actions. Resident demonstrates compassion, integrity and respect for others as well as responsiveness to patient needs that supersede self-interest. The Resident demonstrates sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation. Resident demonstrates the ability to manage personal stress...
effectively. Answer pages or messages in a timely fashion. Resident understands how to maintain appropriate professional boundaries, and demonstrates integrity, honesty and compassion. Resident completes assigned tasks in a timely fashion.

- **Competency 6: Systems-Based Practices**
  Resident understands and is capable to interact effectively with different systems of care. Demonstrates the ability to provide high-quality care in a cost-effective manner. Resident incorporates consideration of cost-awareness and risk-benefit analysis in patient care decisions. Resident advocates for high quality care for all patients.

Rotation Goals

1. The residents will learn about normal and abnormal neurologic development, and appreciate the way that the neurologic examination changes with age in the neonate and child.
2. The residents will gain confidence in the assessment of neonates and young children, and be able to elicit and recognize normal and abnormal neurologic findings.
3. The residents will be exposed to common problems encountered in outpatient Child Neurology, and will learn an approach to assessment of more complex or rare problems.

Principal Teaching/Learning Activities

1. **Attend Child Neurology Outpatient Clinics**
   The resident will perform a full assessment, write the clinic note, and present directly to the attending. The schedule for clinic attendance will be determined by Dr. Bob Zeller and Clinic Manager, Jeff Reinhart.

2. **Attend and Participate in the Routine Weekly Child Neurology Teaching and Patient Care Conferences**
   Including Tuesday AM Epilepsy conference, Wednesday AM Tumor Board and Child Neurology Section Rounds, and Thursday AM Neuroradiology conference.

Recommended Resources

3. Child Neurology Neurocritical Care Service

Rotation Mentors

Dr. Timothy Lotze

Contact Person

Dr. Timothy Lotze
tlotze@bcm.edu

Level of Training

PGY3 and PGY4

Rotation Type

Inpatient Consultation Service

Length of Rotation

One month

Rotation Overview

This adult neurology resident serves as the main consultant to the intensive care units, to include the Pediatric ICU, Neonatal ICU, and Cardiovascular ICU. S/he evaluates consultations under the direction of the senior supervising Child Neurology Resident. As the junior resident is the initial neurologist interfacing with the patient, family, and referring physician, s/he is expected to provide courteous, friendly, and willing service at all times. The evaluation of patients should address the broad spectrum of patient needs conveyed by the individuals caring for these patients. S/he is expected to attend weekly conferences to include Wednesday morning Section Rounds and Thursday morning Neuroradiology Conference. The resident will have exposure to specific neurocritical care issues in pediatrics to include management of status epilepticus, brain injury, and neuromuscular crisis such as Guillain-Barre Syndrome and myasthenia gravis.

Overall Rotation Goals

The goals of the rotation are to train residents to accomplish the following competently:

- **Competency 1: Patient Care**
  Resident is able to provide compassionate, appropriate and effective patient care for the treatment of health problems and promotion of health. Resident understands how to appropriately prioritize patient problems and develop an appropriate diagnostic plan, prescribes medications appropriately, shows an appropriate balance between attention to the details of patient care and the overall context of treating the patient's illness. Resident obtains consultations appropriately, and is able to perform technical procedures adequately, when appropriate.

- **Competency 2: Medical Knowledge**
  Resident demonstrates knowledge of established and evolving biomedical, clinical, epidemiological, and social/behavioral sciences as well as the application of this knowledge to patient care. Resident is able to assess diagnostic information critically and constructively, and recognizes the psychosocial aspects of illness. Resident is able to critically evaluate the medical literature and apply new knowledge to the delivery of safe and effective patient care.

- **Competency 3: Practice-Based Learning and Improvement**
  Resident is able to critically evaluate the care of their patients, appraise and assimilate scientific evidence, and continuously improve patient care delivered on the basis of ongoing self-evaluation and learning. The resident uses knowledge to educate patient families, medical students, allied health personnel, peers, and other health professionals as appropriate. Resident is capable of self-identifying strengths, deficiencies, and the limits of their knowledge and expertise. The Resident is receptive to constructive criticism (formative evaluation feedback) regarding the care of patients and physician performance. Resident is able to set learning and improvement goals, and identify and perform activities appropriate to meeting those goals.

- **Competency 4: Interpersonal and Communication Skills**
  The Resident demonstrates interpersonal and communication skills that result in effective information exchange and collaboration with patients, families and other health professionals. These skills include the ability to communicate across a
broad range of socio-economic and cultural backgrounds and ability to communicate with physicians, health professionals, and health related agencies effectively. Resident is able to maintain comprehensive, timely and readable medical records. Resident can work effectively as a member or leader of a healthcare team and serve appropriately as a consultant to other physicians and health professionals. Resident is able to clearly lead daily work rounds, when appropriate.

- **Competency 5: Professionalism**
  Committed to carrying out professional responsibilities and adhering to ethical principles. Resident demonstrates respect for patient privacy and autonomy and is accountable to patient, society and the medical profession for actions. Resident demonstrates compassion, integrity and respect for others as well as responsiveness to patient needs that supersede self-interest. The Resident demonstrates sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation. Resident demonstrates the ability to manage personal stress effectively. Answer pages or messages in a timely fashion. Resident understands how to maintain appropriate professional boundaries, and demonstrates integrity, honesty and compassion. Resident completes assigned tasks in a timely fashion.

- **Competency 6: Systems-Based Practices**
  Resident understands and is capable to interact effectively with different systems of care. Demonstrates the ability to provide high-quality care in a cost-effective manner. Resident incorporates consideration of cost-awareness and risk-benefit analysis in patient care decisions. Resident advocates for high quality care for all patients.

### Rotation Goals

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<tr>
<th>System-Based Practices</th>
<th>Professionalism</th>
<th>Interpersonal &amp; Communication Skills</th>
<th>Practice-Based Learning &amp; Improvement</th>
<th>Medical Knowledge</th>
<th>Patient Care</th>
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**Rotation Goals**

1. Evaluate initial consultations in an appropriate time frame.  
2. Maintain courteous, professional interactions with the referring services.  
3. Formulate a clinical impression and plan and communicate this information to the Supervising Child Neurology Resident and Consult Attending.

### Rotation Objectives

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<th>System-Based Practices</th>
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**Rotation Objectives**

1. Provide an initial consultation note at the time of the initial evaluation in the chart with a full formulation, differential diagnosis, and plan, making evidence-based recommendations when possible.  
2. Discuss cases using effective communication with the Supervising Child Neurology Resident on-call and the Consult Attending in real time.  
3. Engage in timely communication with the affiliated intensive care service.  
4. Allow for effective patient care by assuring the sign-out to on-call and covering residents is complete both in written and verbal form.
Recommended Resources

- Genereviews website: http://www.genereviews.org/
- Simulconsult differential diagnosis software: http://www.simulconsult.com/
G. Texas Children's Pavillon for Women

1. Obstetric and Gynecological Neurology

Rotation Mentors

Dr. Eli M. Mizrahi, Dr. Jose I. Suarez, Dr. Eric M. Bershad, Dr. Stelios M Smirnakis, Dr. Ritupana Das, Dr. Alexandros Georgiadis, Dr. Chethan P. Venkatasubba Rao, Dr. Melissa M. Yu, Dr. Haitham M. Hussein, Dr. Mary Ann Thenganatt

Contact Person

Dr. Eli M. Mizrahi
emizrahi@bcm.edu

Level of Training

PGY1 - PGY4

Rotation Type

100% inpatient

Length of Rotation

Monthly rotations

Goals

The resident will become knowledgeable and gain experience in evaluation and management of neurological complications of puerperium as well as neurological complications of gynecological malignancies as well as general and uro-gynecological procedures. These will include women with chronic neurological conditions as well as women who develop acute neurological conditions during the puerperium or as a result of a malignancy or gynecological procedure. The neurology resident, under the supervision of the neurology attending physician, will manage these obstetric and gynecological neurology patients in their role as neurology consultants. This rotation will provide trainees with unique one-on-one faculty interaction throughout the month duration. Residents will become familiar with a diverse spectrum of both neurologic conditions and application of systems-based practice.

Rotation Overview and Specific Goals by Level of Training

- PGY1-PGY2
  - Competency 1: Patient Care
    Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective evaluation and management of the inpatient obstetric and gynecology patient presenting with a variety of neurological conditions. Residents are expected to:
    - Perform lumbar punctures in the inpatient settings and monitor response and possible adverse effects;
    - Develop the necessary skills to take complete history and physical examination of the obstetric and gynecology patient presenting with a neurological complaint;
    - To develop a formulation and differential diagnosis based upon initial and/or follow up assessments of the obstetric and gynecology neurology patient;
    - To become increasingly familiar with diagnostic and laboratory studies for diagnosis and management including radiography, electrodiagnostic studies, and laboratory blood and tissue analysis;
    - To become knowledgeable of the indications for the diagnostic and laboratory tests to aid in the diagnosis and management of acute neurological disorders in women in the puerperium;
    - To acquire the necessary knowledge to formulate appropriate management and monitoring of obstetric patients with complex acute neurological problems such as status epilepticus, cerebral edema, elevated intracranial pressure, intracranial hemorrhages and ischemic stroke, and venous sinus thrombosis, among others.
  - Competency 2: Medical Knowledge
    residents must acquire and demonstrate increasing medical knowledge of major neurocritical care and general acute
neurological disorders in the obstetric patient or gynecology patient including factors that impact upon patient outcome such as age, gender, race, ethnicity, severity of systemic disease scoring systems, pre-morbid functional status, severity of neurological illness scoring systems, and response to treatments. This knowledge will be based upon the valid peer-reviewed literature and standards of practice. Residents are expected to:

- Demonstrate knowledge of the adult presentation of acute cerebrovascular disease in obstetric and gynecology patients including epidemiology, risk factors, genetics, pathophysiology, diagnosis, and management with emphasis on primary treatment and secondary prevention.
- Acquire and demonstrate knowledge of the epidemiology, presentation, diagnosis, and management of the following non-inclusive adult neurocritical care conditions in obstetric patients:
  - Subarachnoid hemorrhage
  - Intracranial hemorrhage
  - Cerebral edema
  - Elevated intracranial pressure
  - Status epilepticus
  - Acute hydrocephalus
  - Encephalopathy
  - Coma
  - Brain death
  - Myasthenia Gravis Crisis
  - Guillain Barre Syndrome
  - Encephalitis and Meningitis
  - Prolonged mechanical ventilations and "failure to wean"
  - Post-operative ICU management
  - Anoxic brain injury including prognostication and management with induced hypothermia
- Demonstrate knowledge of the presentation, diagnosis, and management of the following non-inclusive general in-patient neurological conditions in obstetric patients:
  - Headaches
  - Encephalopathy
  - Coma
  - Ischemic Stroke
  - Neuromuscular disorders
  - Neurodegenerative diseases
  - Nutritional deficiencies
  - Post-neuroicu care
  - Neuro-oncological issues (both primary and metastatic)
  - Epilepsy
  - Syncope
  - Neuropsychiatric disorders
  - Demyelinating disorders
  - Movement disorders

- Become familiar with pharmacologic interventions and monitoring of treatment effect and adverse events with an emphasis on effects on the developing fetus and the pregnancy itself.
- Become familiar with non-pharmacologic management and monitoring of outcomes and progression.
- Become familiar with indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

- **Competency 3: Practice-Based Learning and Improvement**
  Residents must demonstrate the skills for obtaining up-to-date information from valid and peer-reviewed scientific and practice literature to assist in quality patient care. Residents are expected to:
  - Use web based databases and scientific libraries available within and outside the hospital setting. Such databases must include peer-reviewed articles.
  - Maintain attendance of didactics, and conferences that provide continual education for the practice of neurology. In addition to their regularly scheduled lectures in the general neurology residency curriculum, residents are expected to attend the weekly neurovascular conference and twice-weekly neurocritical care conferences.

- **Competency 4: Interpersonal and Communication Skills**
  Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient's family and
patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:

- To communicate effectively with inpatients and their families regarding but not limited to the following:
  - Clinical impression and results of assessment
  - Outcomes and prognosis
  - Recommended treatment and management plans and associated risks and benefits
  - End-of-life decisions and palliative care
  - Alternative treatment plans
  - Education about the conditions and referral to reliable outside sources of education, advocacy, and support
- To develop a physician-patient relationship based upon honest, clear, and open communication and respect.
- To become an effective communicator and a team player in the increasingly complex multidisciplinary environment of the neurocritical care unit.
- To become proficient at educating patients, families, and professionals in the issues related to their neurological conditions.
- Maintain accurate and clear medical documentation. Enter all orders in the electronic order-entry system available in the hospital. Dictate accurate and clear documentation of patient encounters.

- **Competency 5: Professionalism**
  Residents must demonstrate responsibility for their patient's care, exemplify ethical behavior in clinical practice, confidentiality in provision of care, and respect for patients and colleagues including but not limited to responding to communication from patients and health professionals. Residents are expected to:
  - Respond to communication effectively and honestly with patients and other consulting health professionals involved in patient care.
  - Adequately document patient care management and patient interaction.
  - Obtain informed consent from patients for all general neurology and neurocritical care procedures.
  - Arrive promptly every morning and complete all medical records in a timely manner.

- **Competency 6: Systems-Based Practices**
  Residents must demonstrate knowledge of the systems involved in treating the obstetric and gynecology neurology patient, use of the systems as part of a comprehensive system of care, and how to assist patients to access appropriate care. Residents are expected to:
  - Access and utilize practice guidelines and parameters recommended by the major organizations such as the American Heart Association, American Stroke Association, Society of Critical Care Medicine, Neurocritical Care Society, American Academy of Neurology, and American Neurological Association.
  - Access inpatient and allied health professional resources, including but not limited to social work services, case management, indigent care or charity programs, drug assistance programs, palliative care, Get-With-The-Guidelines Programs and Joint Commission Core Measures Programs.
  - Participate with healthcare teams to provide comprehensive and prompt care for the patient such as physical medicine and rehabilitation, physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.

- **PGY3**
  - **Competency 1: Patient Care**
    The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year:
    - To be the first responder to acute stroke code activation in the emergency department and general hospital wards.
    - To learn to triage patients needing neurocritical care vs. general neurology ward care.
    - To interpret laboratory and procedural results and apply this information to develop the clinical acumen to diagnose and manage the adult neurology patient.
    - To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of cases, including neuroimaging, and specialty consultations.
    - To identify and describe abnormalities on radiographic tests (plain films, neuroimaging).
    - To become familiar with EEG and continuous EEG reports and interpretation of data.
    - To learn the basic principles of transcranial Doppler ultrasound to be able to interpret the data and apply to specific neurological conditions.
    - To identify and describe abnormalities on neuroradiographic tests including MRI, Cerebral Angiography, and SPECT.
    - Evaluation and management of post lumbar puncture headache, including placement of epidural patch.
Competency 2: Medical Knowledge
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Acquire and demonstrate knowledge of the following issues and conditions:
  - Prognostication and outcome of coma of diverse etiologies
  - Indications, adverse effects, and institution of induced hypothermia
  - Complications of mechanical ventilation
  - Indications, complications, and management of thrombolytic therapy
  - Indications, adverse effects, and institution of plasma exchange and intravenous immunoglobulin for various neurological disorders
  - Management and differential diagnoses of space occupying lesions by location
  - Surgical indications for cerebral edema, intracranial and subarachnoid hemorrhages, and intracranial and intraspinal neoplasms
  - Management of cerebral herniations and spinal cord compression
  - Management of the organ donor (begin to understand this issue)
  - Management and differential diagnoses of encephalopathy
  - Treatment of severe headaches including status migrainosus

- Demonstrate knowledge of pharmacologic interventions and monitoring of treatment effect and adverse events.
- Demonstrate knowledge of non-pharmacologic management and monitoring of outcomes and progression.
- Recognize indications for subspecialty and non-neurology evaluation and implement the appropriate patient referrals.

Competency 3: Practice-Based Learning and Improvement
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Utilized practiced-based guidelines for evaluation and management of the obstetric neurology inpatient.
- Examine errors in practice and initiate improvements to eliminate or reduce errors in practice.

Competency 4: Interpersonal and Communication Skills
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. Residents are expected to:

- To communicate effectively and work collaboratively with allied health professionals and other professionals involved in patient care.
- To educate patients, families, and professionals in the about issues related to neurological conditions.
- To obtain, interpret, and evaluate consultations from other medical specialties.
- To serve as a consultant to other medical specialists, and communicate assessment, management plan, and follow up clearly and effectively.
- Review and supervise documentation and medical records of junior residents, medical students in order to maintain accurate and clear medical documentation. Educate junior residents and medical students on the appropriate use of electronic medical records for both order entry and general documentation.

Competency 5: Professionalism
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Initiate and lead communication effectively and honestly with patients and other consulting health professionals involved in patient care.
- Review, edit, and co-sign documentation of patient care management and patient interaction by other team members (junior residents, medical students).
- Provide and ensure adequate cross coverage of patients.
- Coordinate care of other health care providers and multidisciplinary team members in care of patients on the neurocritical care unit and general neurology inpatient wards.

Competency 6: Systems-Based Practices
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 year. Residents are expected to:

- Coordinate and participate with healthcare teams to provide comprehensive care for the patient such as physical and occupational therapy, social work, speech therapy, respiratory, nutrition and dietary services.
- Participate in family discussions of patient treatments including palliative care.
• Demonstrate skills of time management, clinical scheduling and efficient communication with referring physicians.
• Demonstrate an understanding of risk management, medical-legal aspects of care and the impact on patients and families.

PGY 4

Competency 1: Patient Care
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:

- To know and determine the appropriate diagnostic and laboratory tests to aid in diagnosis and management of patients: EEG and epilepsy monitoring, pulmonary function tests, CSF studies, EMG/NCV and Repetitive nerve stimulation.
- Identify and describe abnormalities on neuroradiographic tests, including: transcranial Doppler ultrasound, DWI and PWI MRI imaging, portable head CT scanning, cerebral angiography, continuous video-EEG monitoring.
- Evaluation and management of post lumbar puncture headache, including placement of epidural patch.

Competency 2: Medical Knowledge
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:

- Demonstrate knowledge obstetric neurology conditions including their underlying pathophysiology and therapeutic and experimental intervention.
- Demonstrate knowledge and management of stroke syndromes.
- Demonstrate knowledge of conditions leading to coma. Know diagnostic and interventions to determine organic versus psychogenic etiologies.

Competency 3: Practice-Based Learning and Improvement
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:

- The PGY4 residents are expected to participate in local, and national continuing medical education conferences and course to advance knowledge and up to date clinical practices. Such conferences include the annual meetings of the American Academy of Neurology, Society of Critical Care Medicine, and International Stroke Conference among others.

Competency 4: Interpersonal and Communication Skills
The resident will integrate the following competency objectives in addition to those acquired in the PGY3 year. Residents are expected to:

- Residents must acquire and demonstrate the ability to communicate effectively with the patient, patient advocates, other health care providers, and community and hospital based programs. The PGY4 residents are expected at this level to lead the team in communication with consulting services, allied health professional, family and patients; in addition to coordinate patient care conferences with consulting services, social services, and support staff to communicate treatment and management plans. The Resident will also communicate goals of team to junior residents and students as outline by attending physician and effectively supervise team performance and communicate performance evaluation under direction and guidance of attending physician.

Competency 5: Professionalism
The resident will incorporate and demonstrate competency in all objectives listed in the PGY2 and PGY3 years of training.

Competency 6: Systems-Based Practices
The resident will integrate the following competency objectives in addition to those acquired in the PGY2 and PGY3 year. Residents are expected to:

- Residents are expected to coordinate care plans within a multidisciplinary critical care and general inpatient team and participate in ongoing monitoring of patient outcomes through follow up care.

Practice Setting and Patient Population
The resident assigned to this rotation will evaluate patients who are admitted to the Texas Children's Pavilion for Women for obstetric, general gynecological, gynecological oncology, or urogynecological care. Obstetric patients at the Pavilion for Women are often experiencing high-risk pregnancies either due to an underlying chronic neurological condition or because of the development of a neurological condition during pregnancy.
Rotation Experience

Residents assigned to this service are part of the St. Luke's General Hospital (SLEH) General Neurology Inpatient/Consultation Service. They respond to consultations at the Texas Children's Pavilion for Women in addition to their responsibilities to the SLEH patients. The inpatient/consultation services are made up of an attending, a PGY1 and a PGY2 junior residents, and 1-2 medical students from Baylor College of Medicine and/or University of Texas Medical Branch. PGY3 and PGY4 residents on SLEH night float will provide after hours and weekend coverage of patients at the Pavilion for Women.

Residents evaluate and assess each patient and present the cases to the attending. Investigative studies are followed by the resident and reported to the patient and attending for evaluation, diagnosis, and recommended treatment. Residents are also responsible for the evaluation of elective and emergent consultations on the inpatient services. The resident follows the patients daily, writes notes and orders, requests and interacts with the primary and other consult services, and participates in treatment plans and discharge dispositions. Residents participate in attending-led teaching rounds. Teaching rounds occur between 9:00 a.m. to noon each day and follow up of tests, new consultations, new admissions, and performance of procedures occur in the afternoon. All cases are presented to the attending physicians whom direct and supervise the resident on patient care.

Residents will also attend required daily didactics and lectures at noon, including a weekly Professor's rounds in which a resident examines and evaluates a live patient and the case is discussed. In addition, residents will attend weekly neurovascular conferences every Tuesday and neurocritical care lectures every Tuesday and Wednesday.

A summary of all the expected activities are summarized below:

<table>
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<tr>
<th>Principal Teaching/Learning Activities</th>
<th>System-Based Practices</th>
<th>Professionalism</th>
<th>Interpersonal &amp; Communication Skills</th>
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<td>1. Work Rounds</td>
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<td>Residents and students are expected to pre-round on overnight consults and admissions.</td>
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<td>2. Attending Teaching Rounds</td>
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<td>The attending on service rounds with the service team seeing all new patients and follow-up patients if needed. Bedside teaching occurs during these rounds.</td>
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<td>3. Consultation service</td>
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<td>Each resident will take care of obstetric or gynecology patients with neurological issues.</td>
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<td>4. Noon Conference and Grand Rounds</td>
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<td>Occurs Monday through Friday from noon until 1 p.m. and attendance is required unless the resident is post-call and feels too fatigued to attend. Likewise, if attendance would violate duty hour rules, the post-call resident is excused from attendance.</td>
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<td>5. Professors' Rounds</td>
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<td>Occurs every other Friday at 1:15 p.m. A lower level resident is assigned to do a history and physical exam on a patient unknown to him/her while being observed by a faculty member and all residents and students. Thereafter, the Professor asks the residents and all in attendance to localize the lesion, develop an appropriate differential diagnosis, and then discuss either diagnostic, management, or basic science issues related to the patient's disease process.</td>
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<td>6. Neuroradiology, Neuropathology or M&amp;M Conferences (depending on the week)</td>
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<td>Occurs every Friday from 1-2 p.m.</td>
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<td>7. Continuity Clinics</td>
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<td>Residents will attend one half day out of the week for individual clinics inclusive of general neurology.</td>
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<td>Residents will see patients independently and discuss cases with attendings.</td>
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Supervision of Patient Care and Procedures
Residents are expected to provide full assessment, evaluation, and management of the patients including history and examination, review of medical records, review and interpretation of diagnostic tests and consultations, and implement pharmacologic and non-pharmacologic therapy. The resident will review every new and follow up patient with the attending. The attending will provide supervision and guidance to the resident in the management of all patients evaluated in this rotation at SLEH.

Residents will perform a procedure under the direct supervision of the attending faculty until the resident has accumulated sufficient experience and skill to perform the procedures independently. The faculty physician supervising the care of the patient is ultimately responsible for patient care and any procedures performed by the resident.

**Resident Responsibilities by PGY Level**

- **PGY1 and PGY2**
  - The PGY1-2 junior resident is responsible for performing a complete history and physical examination of the patients assigned to them. They will present these cases to the respective attending physician. The resident is responsible for writing daily notes, ordering tests and consultations, and implementing therapy under the direct supervision and guidance of the attending physician.
  - The resident will interact with consulting services and other health allied services in the care of the patient and communicate effectively with these services in addition to the patient and family. The resident will perform lumbar punctures under the supervision of the attending and the senior residents.

- **PGY3 and PGY4**
  - In addition to the responsibilities of the PGY2, the PGY3 adult neurology resident will have increasing responsibility as the senior resident on the team. The resident will provide in-servicing to all the junior residents and medical students at the beginning of the rotation. The resident will lead the team of other residents and students, including assigning admitted patients and consultations to junior residents and students, providing back up for junior residents on patient cases, and ensure that consults and orders are implemented. The senior resident will communicate with the attending physician regarding patient census, patient care, and final disposition. The senior resident will ensure that an appropriate hospital-course-summary note written by the junior resident accompanies the patient chart upon transfer between services.
  - The senior resident will interact with consulting services and communicate with participating health care providers. The resident will also supervise and teach the junior resident, non-neurology residents, and students on patient evaluations, procedures, and diagnoses.
  - The resident will ensure an accurate patient list available at bsm bcm.edu website and will supervise on-call residents during verbal sign-in/out at the beginning/end of their call to the rest of the team.
  - The resident will become skilled at performing neurocritical care and inpatient clinical procedures, including but not limited to lumbar puncture, central line and arterial line insertions, administration of thrombolytic therapy and induced hypothermia, under the direct supervision and teaching of the fellow or attending physician.
  - The resident will be responsible for arranging cross coverage when not available.

**Responsibilities of Teaching Faculty**

The attending is responsible for the following:

- Supervision and teaching to the resident including patient ‘bedside' teaching and lectures.
- Examination of every patient seen by the resident.
- Instruction and guidance regarding evaluation and management of each patient seen by the resident.
- Responsibility for the overall management of the patient, including appropriate investigations, treatment, and management plans.
- Assurance that each resident remains actively involved in each patient case and has a major role and responsibility to provide longitudinal care.
- Review the quality and accuracy of the medical record including review and co-signature of all notes, orders, and care-related documents signed by the resident and medical student.
- Appropriate discussions and excellent communication pertaining transfer of patient care between the neurocritical care and the inpatient/consultation services.
- Guarantee cross-coverage for attending the services if he/she is unable to attend, which must be communicated with residents, and division head.
Evaluation Methods

- Evaluation of resident performance
  - The supervising attending faculty will discuss expectations with each resident at the beginning of the rotation. Everyday during teaching rounds and after every clinical encounter the attending physician will provide direct feedback to the resident regarding presentations, performance, and educational goals. Attending physicians are encouraged to assign resident topics for review pertaining their patient's pathologies. In addition, attending physicians are encouraged to notify the residency program director at any time during the rotation with either commendation or concern regarding the resident performance.
  - Formal evaluation will include an individual monthly evaluation performed by the attending faculty using E-value. Attending physicians are encouraged to review this evaluation personally with each resident by the supervising faculty member at the end of a one month rotation. Competency in six core areas will be assessed. For those residents returning to the service areas with improvement or deterioration will be pointed out and possible remedial actions suggested.

- Evaluation of faculty/educational program
  - Residents will evaluate attending physicians anonymously using E-value. These monthly evaluations will include specific items about the rotation, clinical experience, and the faculty's teaching activities. The evaluations are confidential and are reviewed by the program director and departmental chair. Feedback on faculty performance is used to improve teaching.

Suggested Readings and References

The following materials are suggested to the residents for these rotations:

- Critical Care Neurology and Neurosurgery (Jose I. Suarez, Ed.)
- Basic Principles of Critical Care (P. Marino, Ed.)
- CD with updated literature provided by SLEH and compiled by the attending physicians and the advance practice nurse
- Neurology in Clinical Practice e-dition, 4th Edition (Bradley, Daroff, Fenichel, Jankovic, Eds.)
- Merritt's Textbook of Neurology
- Adams and Victor's Principles of Neurology
H. Multi-Site Rotations

1. Clinical Neurophysiology (SLEH, MEDVAMC, and TCH)

Rotation Mentors

Dr. Richard A. Hrachovy, Dr. Eli Mizrahi, Dr. David K. Chen, Dr. Alica Goldman, Dr. Ian Goldsmith, Dr. Vitor Pacheco, Dr. James Owens, Dr. Amy Malphrus, Dr. Anne Anderson, Dr. Cigdem Akman, Dr. Michael Quach, Dr. Zulfi Haneef

Contact Person

Linda K. Burns, Program Coordinator, Clinical Neurophysiology Residency Program
lkburns@bcm.edu

Level of Training

PGY2, PGY3, and PGY4

Rotation Type

Epilepsy Monitoring Unit and EEG Interpretation

Length of Rotation

One month

Rotation Overview, Goals, and Responsibilities

The Neurophysiology rotation is typically for a period of 2 months, which may be consecutive or split. Assignment to the rotation must be planned prior to the beginning of the academic year. Once a resident is assigned to the rotation, the resident is considered to be committed to the rotation. Any changes in the schedule can only be made with approval of both the Neurology Residency Director and the Clinical Neurophysiology Section Chief. This approval must be made in writing. If changes are made without such approval, an evaluation form will be placed in the resident's file indicating this deviation from accepted procedure.

All residents are expected to work toward improvement in all six core competencies as applied to patients with epilepsy as well as those undergoing evaluation with EEG. Resident performance will be judged in relation to achievement in all six competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

Resident physicians have outpatient responsibilities seeing new and follow-up seizure clinic patients at Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC) and inpatient responsibilities working up and following patients at the Epilepsy Monitoring Unit at St. Luke's Episcopal Hospital (SLEH). Training in EEG is primarily provided at SLEH (adults) and Texas Children's Hospital (pediatric). Residents will remain on the call schedule through their elective month. They are excused from neurophysiology duties one half day per week to attend continuity clinic as well as for all mandatory educational conferences.
Principals Teaching/Learning Activities

1. EEG Reading Sessions
   Schedules will be provided to each resident for EEG reading times and locations. Sessions will take place at St. Luke's Episcopal (23rd floor – Yellow Elevators) and Texas Children's Hospital (21st floor, West Tower). Residents are expected to arrive at the assigned laboratory and review as many EEGs as possible prior to the attendings' arrival and be prepared to discuss the pertinent findings and clinical implications. Attendings will take the time necessary to demonstrate important clinical observations and discuss the findings of the EEGs with the residents.

2. Epilepsy Monitoring Unit-SLEH
   - Initial evaluation
     - The Epilepsy Monitoring Unit is located on the 22nd of SLEH, Yellow Elevators. Residents will work in concert with the Neurophysiology fellow or Nurse Practitioner to work-up all patients admitted to the EMU at St. Luke's Episcopal Hospital. Most patients are admitted Monday mornings, although others are admitted occasionally throughout the week. Responsibilities include obtaining and documenting a history and physical examination for each patient. Typically 3-4 patients are admitted for evaluation each week. Follow up: Residents will round with the EMU attending each morning at 8 a.m. This is a priority in the scheduling of activities. Rounding and charting should be completed before going to the EEG laboratory or seizure clinic for additional activities.
     - In-patient epilepsy consultations:
       - Residents will initially evaluate patients referred to the Epilepsy Service at SLEH and then present findings to the designated attending.

3. Seizure Disorders Clinic
   Residents independently evaluate new or return patients in a half day clinic on Thursday mornings at the Michael E. DeBakey Veterans Affairs Medical Center. All patients are presented and discussed with the attendings.

4. Epilepsy Journal Club
   This is a session held quarterly for all neurology residents. During each session, residents discuss selected journal articles pertaining to epilepsy.

5. Epilepsy Surgery Conference
   This is a multidisciplinary conference held every Tuesday morning from 8:15-9:15 a.m. (except the first Tuesday of the month) in the Neurosurgery Conference Room (7th floor Faculty Center) to discuss the patients being evaluated for possible epilepsy surgery. Information reviewed includes neurophysiology data (routine EEG, long term video/monitoring studies, intracranial electrode recordings, magnetoencephalography), neuroimaging studies (MRI, CT, PET, SPECT), neuropsychological testing and WADA exams.
Principal Teaching/Learning Activities

6. **Continuity Clinics**
   Residents will attend one half day out of the week for individual clinics inclusive of general neurology. Residents will see patients independently and discuss cases with attendings.

7. **Neurology Grand Rounds and Noon Conference**
   Monday through Friday from noon until 1 p.m. Attendance is required.

8. **Professors’ Rounds**
   Wednesday at 1:15-2:15 p.m. Residents are assigned to do a history and physical exam on a patient unknown to them while being observed by a faculty member and all residents and students. Important specific clinical pearls are shared and the residents can benefit from master level clinical knowledge.

9. **Neuroradiology Conference/Neuropathology Conference/ Performance Improvement Conference**
   (depending on the week)
   Friday from 1-2 p.m. Attendance is required.

Principal Learning Objectives

Residents should gain a basic knowledge which may include but not necessarily be limited to the following:

- **Electroencephalography**
  - Fundamentals of the technical aspects of EEG recording
  - Fundamentals of the interpretation of EEG, its analysis and the basic parameters of normal and abnormal findings
  - Indications for ordering and EEG
  - Understanding of the clinical impressions in EEG reports

- **Epilepsy**
  - Understanding of the diagnosis and management of epilepsy in adults
  - Use of new antiepileptic drugs in adults with epilepsy
  - Strategies of management of women with epilepsy of child-bearing age
  - Patient selection for epilepsy surgery
  - Management of patients in the Epilepsy Monitoring Unit

Evaluation Methods

At the end of the rotation, the attending faculty is asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked. These evaluations are compiled and reviewed with each resident biannually.

Residents are asked to assess the faculty mentors that they have worked with as well as the overall rotation with the use of an electronic evaluation form.

Recommended Resources

- Comprehensive Clinical Neurophysiology, 2000, eds: Saunders, Levin and Luders
- Current Practice of Clinical Electroencephalography, 2003, eds: Ebersole and Pedley
2. Outpatient Clinics (BTGH and MEDVAMC)

Rotation Mentors

Dr. Joseph Kass, Dr. Corey Goldsmith, Dr. Thomas Kent, Dr. Richard Hrachovy, Dr. Vitor Pacheco, Dr. David Chen, Dr. Pitchaiah Mandava, Dr. Dennis Mosier, Dr. Roderic Fabian, Dr. Doris Kung, Dr. Paulo Moretti, Dr. Eroboghene Ubogu, Dr. Ian Goldsmith, Dr. Alica Goldman, Dr. Edward Cooper, Dr. Veneetha Cherian, Dr. Joohi Jimenez-Shahed.

Contact Person

Dr. Corey Goldsmith for BTGH issues
celam@bcm.edu

Dr. Vitor Pacheco for MEDVAMC issues
vhpachec@bcm.edu

Level of Training

PGY1, PGY2, PGY3, PGY4

Rotation Type

Outpatient setting. Lower level adult and child neurology residents as well as Internal Medicine PGY2 and PGY3 residents will also be responsible for overnight call for the neurology at either Ben Taub General Hospital or the Michael E. DeBakey Veterans Affairs Medical Center in compliance with the current ACGME work hour rules.

Length of Rotation

One month

Rotation Overview and Specific Goals by Level of Training

This rotation provides a wide-range of outpatient based neurology care, initial evaluations, and evaluation of subspecialty neurology in two diverse clinical settings: a large, academic county hospital and a large, academic VA medical center. Residents on these rotations may be PGY1-PGY4 adult neurology residents, PGY3 Child Neurology residents, as well as PGY2 or PGY3 Internal Medicine residents and PGY1 psychiatry residents. They will work under the immediate supervision of an attending physician. In general neurology clinics residents will hone their skills in evaluating and managing patients with common neurological conditions such as headache, vertigo, neck and back pain. Residents will also rotate through specialty clinics in the following areas: Movement Disorders, Epilepsy, Behavioral Neurology/Dementia, Neuromuscular Diseases, Multiple Sclerosis, Cerebrovascular Disease, Botox and Lumbar Puncture.

Overall Rotation Goals by Level of Training

• **Competency 1: Patient Care**

  Resident is able to provide timely, efficient, effective and compassionate patient care for the treatment of outpatient based medical problems with an emphasis in neurology subspecialty. Resident will understand how to prioritize medical problems, order appropriate diagnostic tests, prescribe medications, and utilize resources appropriately for effective patient care. Resident will demonstrate technical procedures adequately (primarily neurology upper levels) in Lumbar Puncture Clinic.
  
  o The intermediate level resident (PGY2) acquires a basic understanding of the care of neurology outpatients and moves to increasing independence and improved confidence as the year progresses.
  
  o The final year resident (PGY3 and PGY4) gains advanced competency in the outpatient care of patients with neurological disorders

• **Competency 2: Medical Knowledge**

  Resident demonstrates knowledge of established and evolving clinical, basic sciences, epidemiology and up-to-date evidence for application of patient care. Resident will assess and evaluate patient history, physical, ancillary data critically to deliver effective patient care.
  
  o The intermediate level neurology resident (PGY2) is to achieve a basic knowledge and move toward more advanced knowledge as the year progresses of neurologic disease presenting in the outpatient setting including presentation, differential diagnosis, and localization within the neuroaxis.
The final year resident (PGY3 and PGY4) is to gain and consolidate advanced knowledge of neurological diseases presenting in the outpatient setting, their presentation, differential diagnosis, and localization in the neuroaxis.

- **Competency 3: Practice-Based Learning and Improvement**
  Resident should critically evaluate their own diagnostic plans, scientific evidence and continuously improve their own patient care through self-learning as well as morning didactics. Resident should use medical knowledge to teach junior neurology residents, IM residents, psychiatry residents and medical students. Resident should accept constructive criticism through formative evaluations as well as oral feedback during presentations to set their own personal learning and improvement goals.
  - The intermediate level (PGY2) resident is to achieve a basic understanding of the practice of self-assessment and implementation of evidenced based medicine into clinical practice.
  - The final year resident (PGY3 and PGY4) is to gain advanced competency in practice-based learning issues that arise care of outpatients with neurological disorders.

- **Competency 4: Interpersonal and Communication Skills**
  Residents of all levels should demonstrate interpersonal and communication skills that will allow for effective and accurate information exchange necessary for optimal patient care. This includes medical record legibility and comprehensiveness. This also includes working as part of a health team with nurses, secretaries and other ancillary staff. Resident should be able to effectively lead didactics if appropriate.

- **Competency 5: Professionalism**
  Residents of all levels should be committed to carrying out their professional responsibilities and adhering to ethical principles. They should demonstrate respect for patient privacy, autonomy through adherence to HIPAA regulations. They should demonstrate compassion, integrity and respect for others through compassionate interactions with patients. They should demonstrate sensitivity and responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability and sexual orientation. They should answer pages in a timely fashion and treat colleagues with respect.

- **Competency 6: Systems-Based Practices**
  Resident should be capable in different systems of care, particularly in this rotation public county hospitals and a veteran affairs hospital system. They should demonstrate the ability to critically evaluate patient care problems and utilize resources in a cost-effective manner. They should always advocate within the system for optimal care for their patient.
  - The intermediate level (PGY2) resident is to achieve a basic understanding of the effects of system-based issues on the care of neurology outpatients.
  - The upper level resident is to gain advanced competency in the management of systems issues in the care of neurology outpatients.

**Rotation Objectives**

- **Patient Care**
  - Assess, manage, and serve as primary contact for outpatients.
  - Provide compassionate, appropriate and effective patients care for the treatment of health problems and the promotion of health.
  - Understand how to appropriately prioritize patient problems and develop an appropriate diagnostic plan.
  - Prescribe medications appropriately.
  - Show an appropriate balance between attention to the details of patient care and the overall context of treating the patient's illness.
  - Obtain consultations appropriately.
  - Perform technical procedures adequately, including lumbar puncture.
  - Be able to take a neurological history and perform a neurological examination competently.
  - Become familiar with the basics of diagnosis and treatment of common neurological problems in the outpatient setting, including epilepsy, headaches, neuromuscular disorders, gait disorders, cognitive disorders, movement disorders, neoplastic disorders of the nervous system, the long term management and prevention of stroke, sleep disorders, neuro-genetic disorders, and multiple sclerosis.

- **Medical Knowledge**
  - Demonstrate knowledge of evolving biomedical, clinical, epidemiological and social/behavioral sciences as well as the application of this knowledge to patient care.
  - Assess diagnostic information critically and constructively.
  - Develop skills in neuroanatomic localization.
  - Recognize psychosocial aspects of illness.
  - Critically evaluate the medical literature and apply new knowledge to the delivery of safe and effective patient care.
Gain basic knowledge of the use and interpretation of neuroimaging studies, basic knowledge of the appropriate use of electroencephalography, basic knowledge of the use of other neurodiagnostic and laboratory studies, and basic knowledge of the interpretation of cerebrospinal fluid results.

Begin to acquire knowledge of important principles of many areas of neuroscience, including neurochemistry, neurophysiology, neuroanatomy, neuropharmacology, and molecular neuroscience.

Gain exposure to the diagnosis and management of neurologic emergencies in the ICU, including coma, hypertensive crisis, cerebral edema, malignant stroke, etc.

**Practice-Based Learning and Improvement**
- Critically evaluate the care of patients.
- Appraise and assimilate scientific evidence and continuously improve patient care delivered on the basis of ongoing self-evaluation and learning.
- Use knowledge to educate patient families, medical students, allied health personnel, peers, and other health professionals as appropriate.
- Identify strengths, deficiencies, and limits of your knowledge and expertise.
- Be receptive to constructive criticism (formative evaluation feedback) regarding the care of patients and physician performance.
- Set learning and improvement goals and identify and perform activities appropriate to meeting these goals.
- Become familiar with key resources in the neurological literature and develop the ability to search the literature for more detailed and current information using internet-based resources and reference texts.
- Attend didactic conferences on neurologic topics.

**Interpersonal and Communication Skills**
- Demonstrate interpersonal and communication skills that result in effective information exchange and collaboration with patients, families, and other health professionals. These skills include the ability to communicate effectively across a broad range of socio-economic and cultural backgrounds and with physicians, health professionals, and health related agencies.
- Learn to effectively present information about outpatients in a concise fashion.
- Maintain comprehensive, timely, articulate medical records.
- Work effectively as a member of a healthcare team and serve appropriately as a consultant to other physicians and health professionals.
- Provide medical students with formative and summative feedback on their histories, physical examinations, and daily assessment and management of inpatients.

**Professionalism**
- Be committed to carrying out professional responsibilities and adhering to ethical principles.
- Demonstrate respect for patient privacy and autonomy.
- Be accountable to patient, society, and the medical profession for your actions.
- Demonstrate compassion, integrity and respect for others.
- Demonstrate responsiveness to a broad patient population including diversity in gender, age, culture, race, religion, disability, and sexual orientation.
- Demonstrate the ability to manage personal stress effectively.
- Answer pages or messages in a timely fashion.
- Improve skills in coordinating care, including patient contact via telephone and taking responsibility for test interpretation between visits.
- Understand how to maintain appropriate professional boundaries.
- Complete assigned tasks in a timely fashion.

**Systems-Based Practice**
- Understand and be capable of interacting effectively with different systems of care.
- Demonstrate the ability to provide high-quality care in a cost-effective manner.
- Incorporate consideration of cost-awareness and risk-benefit analysis in patient care decisions.
- Advocate for high quality care for all patients.
- Recognize situations where input is needed from physicians from other specialties or from other medical professionals.
- Understand the role of a Neurology specialist within the greater context of a healthcare team.
- Recognize situations where the input of more experienced neurologists is needed.
Principal Topics Covered as Part of Learning Objectives

Residents should gain a basic knowledge which may include but not necessarily be limited to the following depending on their emphasis for the month.

Basic familiarity with the common neurological diseases including, but not limited to, the following:

- **Headaches**
  - Migraine
  - Chronic Daily Headache
  - Cluster
  - Tension
  - Trigeminal Autonomic Cephalgias
  - Low and High Pressure Headaches
  - Secondary Headaches
- **Vertigo and Syncope**
- **Epilepsy/EEG**
  - Manage epilepsy on an outpatient basis.
  - Understand referral for epilepsy monitoring unit
  - Medical and surgical treatment of epilepsy
  - Distinguish between epileptic and non-epileptic events
  - Interpretation of EEG and related neurophysiological studies
- **Movement Disorders**
  - Parkinson's disease
  - Essential Tremor
  - Huntington's Disease
  - Progressive supranuclear palsy
  - Dystonias
  - Spinocerebellar ataxias
  - Corticobasal Syndrome
  - Drug-induced movement disorders
  - Psychogenic movement disorders
  - Multisystem Atrophy
  - Dementia with Lewy Bodies
  - Appropriate indications for botulinum toxin injection and techniques
- **Dementia and Behavioral Neurology**
  - Alzheimer's disease.
  - Mild cognitive impairment
  - Vascular Dementia
  - Dementia with Lewy Bodies
  - Frontotemporal Dementia
  - Normal Pressure Hydrocephalus
  - Cognitive Impairment associated with other neurological and general medical conditions
  - Cognitive Impairment and psychiatric disease
  - Fundamentals of Neuropsychological Testing
  - Cognitive sequelae of traumatic brain injury
- **Neuromuscular diseases**
  - Peripheral Neuropathies: inherited and acquired
  - Myopathies: inherited and acquired
  - Muscular dystrophies
  - Myasthenia Gravis and related myasthenic syndromes
  - Amyotrophic lateral sclerosis and related syndrome
  - Diseases of muscle storage
  - Periodic paralysis and myotonic disorders
  - EMG/NCV indications, technique and interpretation
  - Inflammatory/autoimmune disease
- **Inflammatory**
  - Multiple sclerosis
- Neuromyelitis optica
- Neurosarcoïdosis

- Infectious disease
  - Meningitis
  - Encephalitis
  - HIV and HIV related opportunistic infections
  - Neurocysticercosis

- Neoplasm
  - Primary CNS neoplasm
  - Metastatic neoplasm

- Spinal cord disease
  - Radiculopathy
  - Myelopathy
  - Cervical and lumbar stenosis

**Evaluation Methods**

At the end of the rotation, the attending faculty members are asked to fill out a comprehensive electronic evaluation on each resident with whom they have worked using E*Value. These evaluations are compiled and reviewed with each resident semiannually.

Residents are asked to assess the faculty mentors with whom they have worked with as well as the overall rotation via an electronic evaluation form. Upper level residents will evaluate junior residents.

Ancillary staff will be asked to evaluate resident rotators as well.

**Suggested Readings and References**

- Blumenfeld, Hal. Neuroanatomy through Clinical Cases.
VII. APPENDIX

A. Suggested Readings and References

- The following standard texts are available on site as are many others specific to neurology:
- Amato AA, Russel JA. Neuromuscular Disorders
- Aminoff, MJ. Neurology and General Medicine 4th Ed.
- Baylor College of Medicine Neurology Department Case-of-the Month Series. [https://www.bcm.edu/neurology/case.cfm](https://www.bcm.edu/neurology/case.cfm)
- Blumenfeld, H. Neuroanatomy Through Clinical Cases. 2nd Ed.
- Brazis PW, Masdeu JC, Biller J. Localization in Clinical Neurology 5th Ed.
- Brust JCM. Neurological Aspects of Substance Abuse 2nd Ed.
- Continuum: Lifelong Learning in Neurology series (various topics)
- Fahn S, Jankovic J. The Principles and Practice of Movement Disorders.
- Fisch BJ. Fisch and Spehlmann's EEG Primer: Basic Principles of Digital and Analog EEG.
- Irani DN. Cerebrospinal Fluid in Clinical Practice
- Miller BL, Boeve BF. The Behavioral Neurology of Dementia
- Patten J. Neurological Differential Diagnosis 2nd Ed.
- Preston DC, Shapiro B. Electromyography and Neuromuscular Disorders: Clinical-Electrophysiologic Correlations, Textbook with CD-ROM 2nd Ed.
- Rabinstein AA, Wijdicks EFM. Tough Calls in Acute Neurology
- Rolak LA. Neurology Secrets. 4th edition
- Roos, KL. Principles of Neurological Infectious Diseases
- Ropper AH, Samuels MA. Adams and Victor's Principles of Neurology 9th Ed.
- Sadock B, Sadock V. Kaplan and Sadock's Concise Textbook of Clinical Psychiatry 3rd Ed.
- Suarez, J. Critical Care Neurology and Neurosurgery
- Washington University-St. Louis Medical School Neuromuscular Web page [http://www.neuro.wustl.edu/neuromuscular/](http://www.neuro.wustl.edu/neuromuscular/)
B. Important Neurological Diseases

The program undergoes evaluation in many formats. Residents are given multiple opportunities to evaluate the Program in writing and in person. The faculty also evaluates the Program annually.

Cerebrovascular Disease

- Manage acute care of cerebral infarction including indications and contraindications for thrombolysis
- Understand the work-up for stroke in the young
- Infectious etiology of stroke
- Intracerebral hemorrhage
- Subarachnoid hemorrhage
- Cerebral venous thrombosis
- Dissections of the carotid and vertebral arteries
- Medical management of cerebrovascular risk factors
- Indications for surgical and endovascular cerebrovascular intervention
- Appropriate neurosurgical consultation for subdural, epidural, subarachnoid, and intracerebral hemorrhages and ischemic strokes
- Indications for neuroimaging in Cerebrovascular disease
- Interpretation of Cerebrovascular imaging

Epilepsy and Seizures

- Manage status epilepticus
- Manage patients new onset seizures
- Manage epilepsy patients with chronic seizures
- Surgical management of epilepsy patients
- Understand role of EEG
- Legal aspects of driving and epilepsy
- Neuropsychological effects of epilepsy

Movement Disorders

- Parkinson's disease
- Multi-system atrophy
- Progressive supranuclear palsy
- Acute and chronic dystonias
- Acute and Chronic Ataxias including the hereditary forms
- Essential Tremor and other tremor disorders
- Drug-induced Movement Disorders
- Tic Disorders
- Huntington's Disease
- Chorea
- Neuroleptic Malignant Syndrome
- Serotonin Syndrome
- Neuropsychological effects of movement disorders
- Neurosurgical interventions for movement disorders such as Deep Brain Stimulators

Dementias and Neuropsychiatry

- Alzheimer's disease
- Mild cognitive impairment
- Vascular Dementia
- Frontotemporal Dementia
- Dementia with Lewy Bodies
• Normal Pressure Hydrocephalus
• Cognitive impairment in other neurological diseases
• Infectious Dementias such as HIV and CJD
• Psychiatric Disease
• Rapidly Progressive Dementias
• Neurological complications of alcoholism and substance abuse
• Altered Mental Status and Delirium
• Cognitive decline due to other neurological or genetic diseases
• Neuroimaging in cognitive impairment including functional neuroimaging

Inflammatory/Autoimmune Disease

• Multiple sclerosis
• Neuromyelitis optica
• Neuropsychiatric lupus
• Neurosarcoïdosis
• Neurological complications of rheumatological diseases
• Neuroimaging in inflammatory/demyelinating disease
• Neuropsychological effects of multiple sclerosis

Infectious Disease

• Bacterial, Fungal, Viral, Parasitic meningitis and encephalitis
• Neurosyphilis
• Tuberculosis meningitis/ radiculomyelitis
• HIV related opportunistic infections of the CNS
• Neurocysticercosis
• Primary Neurological Complications of HIV

Neoplasms

• Primary CNS neoplasm
• Neoplasms metastatic to the nervous system
• Paraneoplastic syndromes of both the CNS and PNS

Spinal Cord Disease

• Radiculopathy and spondylosis
• Acute non-compressive myelopathies
• Spinal cord compression
• Back and neck pain
• Chronic myelopathies including hereditary forms
• Cervical and lumbar stenosis
• Indications for neuroimaging of the spine
• Interpretation of spinal neuroimaging

Neuromuscular Diseases

• Neuropathies, chronic and acute; acquired and hereditary
• Muscular dystrophies
• Myopathies: inflammatory and non-inflammatory; genetic and acquired
• Myasthenia gravis and related myasthenic syndromes
• Amyotrophic lateral sclerosis
• Guillain-Barre Syndrome
• Myotonic syndromes
• Isaac's syndrome
• Role of EMG/NCV studies
• Periodic paralyses
• Metabolic muscle diseases

Pregnancy and Women's Health

• Pregnancy and epilepsy
• Stroke in pregnancy
• Pregnancy and multiple sclerosis
• Neurological complications of eclampsia and pre-eclampsia
• Special issues for women and cerebrovascular disease

Headache and Other Pain Syndromes

• Primary headache syndromes
• High and low pressure headaches
• Secondary headaches
• Status migranosis

Neuro-Ophthalmology

• Diplopia
• Visual loss
• Anisocoria
• Nystagmus

Balance and Gait Disorders (Neuro-Otology)

• Vertigo
• Manouvers to evaluate the etiology of vertigo such as the Dix-Hallpike and Head Thrust
• Epley Manouver

Neuroradiological Techniques, Indications, Limitations, and Interpretation

Neuropathology

Special Considerations in Geriatric Neurology Including Psychosocial Issues

Neurogenetics

Child Neurology

• Childhood Epilepsies
• Neuromuscular Diseases of childhood
• Metabolic and Neurodegenerative Diseases
• Normal Developmental milestone
• Cognitive Disorders of childhood including Autism Spectrum Disorders, ADHD, and dementing illnesses
• Demyelinating/inflammatory diseases in children
• Tic and other movement disorders of childhood
• Cerebrovascular disease in children
• Neurological complications of prematurity and complicated labor and delivery
• CNS infections in children
• Neurological complications of childhood systemic disease