

Neurology Rotation Educational Goals & Objectives

The Neurology rotation will provide residents with an opportunity to evaluate and treat patients with neurological disorders. The goal is for residents to feel comfortable with the evaluation and management of neurologic conditions commonly seen in a general medicine practice. The rotation will also provide exposure to more complex neurological problems. The rotation will take place in both the inpatient and outpatient setting. The focus will be on developing the resident's ability to take a focused neurologic history and perform a detailed neurologic exam. Residents will learn appropriate diagnostic workup, including indications for procedures and neuroimaging, management of common neurologic disease, and appropriate indications for referral.

Faculty will facilitate learning in the 6 core competencies as follows:

Patient Care and Procedural Skills

- I. All residents must be able to provide compassionate, culturally-sensitive, and appropriate care for patients to prevent and treat neurologic disease.
 - PGY2s should seek directed and appropriate specialty or surgical consultation when necessary to further patient care.
 - PGY3s should supervise and ensure seamless transitions of care between primary and consulting teams and between inpatient and outpatient care.

- II. Residents will demonstrate the ability to take a pertinent neurological history and perform a focused physical exam.
 - PGY1s should be able to demonstrate basic neuroanatomical localization and differentiate between stable and unstable symptoms.
 - PGY2s should be able to differentiate between neurologic and psychiatric disease
 - PGY3s should be able to elicit useful findings on exam of a comatose patient and understand physical findings necessary for diagnosis of brain death.

- III. Residents will understand the indications, contraindications, complications, limitations, and interpretation of following procedures, and become competent in the their safe and effective use:
 - Lumbar puncture

Medical Knowledge

- I. PGY1s will develop an understanding of the basic pathophysiology and approach to the following common neurologic conditions:
 - Altered mental status, delirium and coma
 - Back and neck pain
 - Cognitive impairment and dementia
 - Concussion
 - Dizziness

- Dystonic reaction
- Headache
- Hearing loss
- Localized pain syndromes
- Movement disorders
- Neurologic manifestations of HIV
- Numbness and sensory loss
- Seizure
- Sleep disorders
- Syncope
- Tremor
- Weakness and paralysis

II. PGY2s and PGY3s will also develop a progressively more sophisticated understanding of the pathophysiology, clinical presentation, and targeted therapy for the following acute neurologic conditions, as they are exposed to patients with these conditions:

- Central vertigo
- Elevated intracranial pressure
- Guillan Barre
- Hypertensive emergency
- Meningitis, encephalitis, and lymphocytic pleocytosis in CSF
- Multiple sclerosis exacerbation
- Myasthenic crisis
- Neoplasms involving the CNS
- Status Epilepticus
- Stroke and TIA
- Subarachnoid and intracranial hemorrhage
- Trigeminal neuralgia

III. PGY1s will be able to understand the indications for ordering and the interpretation of the following laboratory values and procedures:

- Audiometry
- ANA
- B12 or MMA, folic acid
- Carotid duplex
- CRP or sed rate
- CSF analysis
- CT/MRI scanning
- Drug levels
- EEG/EMG and nerve conduction studies
- Screen for toxins, heavy metals
- Thyroid function tests
- VDRL, FTA, RPR

PGY2s will also demonstrate knowledge of the indications for ordering and the interpretation of:

- Cerebral angiography
- Evoked potentials
- Myelography
- Neuropsychologic testing
- Polysomnography
- Tensilon test
- Vestibular function tests
- Visual field testing

PGY3s will independently, appropriately order studies and be able to interpret results within the context of patient comorbidities, pretest probability of disease, and patient values. PGY3s will also demonstrate knowledge of the indications, contraindications, and appropriate timing for the following procedures:

- Brain biopsy
- Muscle biopsy

Practice-Based Learning and Improvement

- I. All residents should be able to access current national guidelines (e.g. American Academy of Neurology Practice Guidelines <https://www.aan.com/policy-and-guidelines/guidelines>) to apply evidence-based strategies to patient care.
- II. PGY2s should develop skills in evaluating new studies in published literature, through Journal Club and independent study.
- III. All residents should participate in case-based therapeutic decision-making, involving the primary care provider and neurologist. Residents should learn to coordinate patient care as part of a larger team, including the nurse, pharmacist, therapists, dietician, and social worker to optimize patient care, with PGY3s taking a leadership role.
- IV. All residents should respond with positive changes to feedback from members of the health care team.

Interpersonal and Communication Skills

- I. PGY1s must demonstrate organized and articulate electronic and verbal communication skills that build rapport with patients and families, convey information to other health care professionals, and provide timely documentation in the chart.
- II. PGY2s must also develop interpersonal skills that facilitate collaboration with patients, their families, and other health professionals.
- III. PGY3s should demonstrate leadership skills to build consensus and coordinate a multidisciplinary approach to patient care.

- IV. PGY3s must be able to elicit information or agreement in situations with complex social dynamics, for example, identifying the power of attorney or surrogate decision maker, and resolving conflict among family members with disparate wishes.

Professionalism

- I. All residents must demonstrate strong commitment to carrying out professional responsibilities as reflected in their conduct, ethical behavior, attire, interactions with colleagues and community, and devotion to patient care.
- II. PGY1s should be able to educate patients and their families in a manner respectful of gender, age, culture, race, religion, disabilities, national origin, socioeconomic status, and sexual orientation on choices regarding their care.
- III. PGY2s should be able to use time efficiently in the clinic to see patients and chart information.
- IV. PGY2s should be able to counsel patients and families both on diagnostic and treatment decisions and on withdrawal of care.
- V. PGY3s should be able to provide constructive criticism and feedback to more junior members of the team.

Systems-Based Practice

- I. PGY1s must have a basic understanding that their diagnostic and treatment decisions involve cost and risk and affect quality of care.
- II. PGY2s must be able to discuss alternative care strategies and the cost and risks involved in current quality issues in neurology, such as appropriateness of surgical treatment versus stenting in stroke.
- III. PGY3s must demonstrate an awareness of and responsiveness to established quality measures, risk management strategies, and cost of care within our system.

Teaching Methods

- I. Supervised patient care in the inpatient and outpatient setting.
 - Residents will initially be directly observed with patients, to facilitate the acquisition of excellent history taking and physical exam skills.
 - As residents become more proficient, they will interact independently with patients and present cases to faculty.
 - Initial emphasis will be on diagnosis and basic management.
 - When residents have mastered these skills, focus will be on medical decision-making, and residents will work with supervising physicians to finalize a care plan.
- II. Conferences
 - Specialty-specific didactics
- III. Independent study
 - Journal and Textbook reading TBD by neurology attending

- Gelb, D. MD, PhD. *Introduction to Clinical Neurology*. Oxford University Press, 2016.
- Online educational resources
 - Up to Date
 - Clinical Key

Evaluation

- I. Mini-CEX bedside evaluation tool
- II. Verbal mid-rotation individual feedback
- III. 360 Evaluation
- IV. Attending written evaluation of resident at the end of the month based on rotation observations and chart review.

Rotation Structure

- I. Residents should contact the attending neurologist the day prior to determine start time and location.
- II. Residents should divide their time between the hospital and the clinic as appropriate to achieve the above educational goals.
 - Rotations are a “hands-on” learning experience. If you have a resident, send them in to see a patient.
 - If the same patient returns during the rotation, send the resident in to see the follow-up.
 - Case-based learning is very effective. Give your resident patient-based questions to research and report back to you.
 - Consider having your resident do a short presentation to the group on a pertinent topic.
 - When doing consults, ensure the resident understands the question asked and provides a concise answer.
- III. Call and weekend responsibilities TBD by the attending physician.
 - Hours worked must be consistent with ACGME requirements and are subject to approval by the Program Director.
- IV. Residents have specialty-specific didactics and should be excused in a timely fashion to attend.