
AY 2024-2025 Neuroscience Clerkship

Clerkship Description

The primary purpose of the Clinical Neuroscience Clerkship offered in the MS III year is to provide the medical student with the ability to perform a neurological interview and examination, interpret signs, consolidate symptoms and signs into syndromes, accurately diagnose neurological diseases, and identify appropriate evidence-based management strategies. The goals and objectives outlined below have been developed internally and are consistent with the neurology core curriculum developed by the Consortium of Neurology Clerkship Directors and the Undergraduate Education Subcommittee of the American Academy of Neurology.

Clerkship Goals and Objectives

1. Student must master the basic techniques of a neurologic interview and neurological examination.
2. Student must be able to obtain practical information from the interview and neurological examination, and interpret the meaning of every bit of information obtained during the interview and neurological examination.
3. At the end of the rotation, the student must be able to integrate data and formulate appropriate statements regarding topographic localization of lesions within the central and peripheral nervous system.
4. Student will be able to formulate plans for investigation and management.
5. Student must master the knowledge of cardinal manifestation of primary neurologic diseases.
6. Student must know the basic neurologic complications of systemic diseases.
7. Student will be exposed to principles of geriatric neurology.
8. Student will learn utilization of laboratory data to complete a topographic and etiologic diagnosis.
9. Student should be able to define pathophysiologic mechanism of disease processes.
10. Student should be able to assess prognosis of neurological illnesses.
11. Student will identify neurologic emergencies and the need for expert assistance.
12. Able to critique latest and milestone research articles.

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During the Neuroscience Clerkship, students will be assigned 6 days on inpatient consultative services and 5-6 outpatient clinic sessions (half-day clinics). These services will take place in 3 different locations:

- University Medical Center (for the inpatient rotation).
- TTUHSC/Neurology clinic (4801 Alberta Ave, El Paso TX 79905) (for the outpatient period).
- 3-William Beaumont Hospital with Dr. Scully and Dr. Parry (for the students assigned to WBH for the whole rotation period, including both inpatient and outpatient experiences). (On Hold)
- WBH address: 5005 N Piedras St, El Paso TX 79920
- 5- VA Medical Center with Dr. Miranda (1 student assigned to VA for outpatient rotation period only) (On Hold)
- VA Medical Center address: 5001 N. Piedras St, El Paso TX 79930

Patient Care

Goal: The student will develop recognition and effective integration of factors that contribute to optimal and compassionate care of patients presenting with neurological concerns.

Objectives: By the end of the clerkship, students should be able to:

- Obtain a complete and reliable history (PGO 1.1).
- Conduct a focused and reliable neurological examination.(PGO 1.1)
- Formulate a differential diagnosis based on lesion localization, time course, signs, symptoms, and relevant demographic features (PGO 1.3).
- Formulate a plan for investigation and management of common neurological problems (PGO 1.2).
- Discuss neurological manifestations of systemic diseases. (PGO 1.5, 1.3)

Knowledge for Practice

Goal: The student will gain and develop an effective understanding of the assessment and management of common clinical conditions in neurology as they are encountered in the inpatient and outpatient settings. The student will master the expertise necessary to perform a complete neurologic examination. The learner will demonstrate the ability to acquire, critically interpret, and apply this knowledge.

Objectives: The student will recognize the signs, symptoms, and physical findings of neurological problems at the level of an MS III, including the following:

- Stroke
 - Describe the different subtypes of strokes and their etiologies. (PGO 2.2, 2.3)
 - List the major risk factors for stroke. (PGO 2.4)
 - Describe treatment of acute stroke and prevention of recurrent stroke. (PGO 2.3, 1.2, 4.4)
- Epilepsy and Seizures
 - Differentiate between seizures, epilepsy, and syncope. (PGO 2.1, 2.2, 2.3)
 - Classify seizure sub-types and describe the clinical features associated with these sub-types. (PGO 2.2, 2.3, 1.3)
 - Identify appropriate treatment options for patients with epilepsy including conventional and new antiepileptic agents. (PGO 2.3, 1.2, 1.2)
 - Recognize common adverse events associated with medications for the management of epileptic disorders. (PGO 2.3, 1.2, 6.3)
- Dementia
 - Define and differentiate between dementia and delirium. (PGO 2.1, 2.2, 2.3, 1.3)
 - Generate appropriate differential diagnoses for patients presenting with cognitive problems. (PGO 2.3, 1.3, 1.2)
- Neuromuscular diseases
 - Differentiate between upper motor neuron (UMN) and lower motor neuron (LMN) dysfunction. (PGO 2.2, 2.3)
 - Describe usual clinical features and differential diagnosis of motor neuron disease. (PGO 2.3, 1.3, 1.2)
 - Discuss localization for peripheral sensorimotor disorders (e.g. radicular pain, mononeuropathy, paresthesia, etc.). (PGO 2.2, 2.3)
- Headaches
 - Differentiate primary and secondary headaches. (PGO 2.2, 2.3)
 - Discuss the distinctive clinical characteristics and epidemiology of migraine and its variations. (PGO 2.3, 2.4, 1.3)
- Infectious Diseases
 - Integrate the information received in previous training about concepts on infectious diseases of the nervous system and their treatment, including viral encephalitis, bacterial meningitis, and fungal meningitis. (PGO 2.2, 2.3, 2.4, 1.2, 1.3)
 - Students will review different cerebral spinal fluid changes on different types of infections. (PGO 2.2, 2.3, 1.3)
- Movement disorders
 - Differentiate between hyperkinetic and hypokinetic movement disorders. (PGO 2.2, 2.3)
 - Describe pathological and neurochemical features of idiopathic Parkinson's disease. (PGO 2.3, 1.3)

Mind & Medicine

- Discuss pharmacological options available for treatment of essential tremor and Parkinson's disease. (PGO 1.2)

Professionalism

Goal: Students who demonstrate a commitment to carrying out professional responsibilities, adhering to ethical principles, displaying sensitivity to a diverse patient population.

OBJECTIVES: Throughout the clerkship students will demonstrate:

- Respect towards patient, families and co-workers whose lifestyles and values may be different from their own (PGO 5.1).
- Ethical behavior, including patient confidentiality (PGO 5.2, 5.5).
- Cultural sensitivity. (PGO 5.1, 5.4)
- Reliability. Arrive on time and be prepared for all required activities. (PGO 5.3, 5.7)
- Honesty and integrity in patient care (PGO 5.1, 5.6).
- Professional appearance. This means the student wears their white jackets with their nametags clearly visible and in business casual attire. Scrubs are only acceptable on inpatient settings. (PGO 5.7)
- *Be actively involved. (No Facebook, texting, talking socially with colleagues or cell phone use, during educational activities). (PGO 5.1, 5.3, 5.7)

Interpersonal and Communication Skills

Goal: The student will develop knowledge of specific techniques and methods that facilitate effective and empathic communication between the learner, faculty, colleagues, staff, and systems.

Objectives: Throughout the clerkship students will demonstrate the ability to:

- Communicate effectively with families and patients (PGO 4.1).
- Appropriately utilize interpreters if necessary to communicate with patients. (PGO 4.1, 4.3)
- Communicate effectively and respectfully with physicians and other health professionals in order to share knowledge and discuss management of patients (PGO 4.2, 4.3).
- Present clear, concise, and thorough oral and written presentations of patient history and physical examination results. (PGO 4.2, 4.4)
- Maintain professional and appropriate personal interaction with patients. (PGO 4.1, 5.2)

Practice-Based Learning & Improvement

Goal: Understand the application of scientific evidence and accept feedback for continuous self-assessment in the improvement of patient care.

Objectives: Throughout the clerkship students will demonstrate the ability to:

- Apply technology (e.g. PDA, PC, Internet) in the acquisition and evaluation of Evidence-Based Medical information (e-medicine, journals, AAFP, NEJM, etc.). (PGO 3.1, 3.4, 3.5)
- Accept feedback from the faculty and incorporate this into improvement of clinical practice (PGO 3.3).
- Critically assess the quality and utility of medical information based on sources and methodologies (PGO 3.2).

System-Based Practice

Goal: Develop an appreciation of supportive health care resources, and understand their utilization as part of patient advocacy.

Objectives: Throughout the clerkship students will demonstrate the ability to:

- Wisely utilize resources in patient care (e.g. efficiently use diagnostic and laboratory tests) (PGO 6.3).
- Understand and utilize ancillary health services and specialty consultants properly (PGO 6.2, 6.4).

Interprofessional Collaboration

Goal: Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient and population-centered care.

Objectives: Throughout the clerkship, students will be able to:

- Use knowledge of one's own role and the roles of other health care professionals to work together in providing safe and effective care (PGO 7.2).
- Function effectively as a team leader and team member (PGO 7.3).

Personal & Professional Development

Goal: Demonstrate the qualities required to sustain lifelong personal and professional growth.

Objectives: Throughout the clerkship, students will demonstrate the ability to:

- Recognize when to take responsibility and when to seek assistance (PGO 8.1)
- Utilize appropriate resources and coping mechanisms when confronted with uncertainty and ambiguous situations (PGO 8.4).
- Demonstrate the ability to employ self-initiated learning strategies when approaching new challenges, problems, etc. (PGO 3.1).

Integration Threads

X Geriatrics	__ Basic Science	X Ethics
X Professionalism	X EBM	X Chronic Illness Care
__ Patient Safety	__ Pain Management	X Clinical Pathology
__ Palliative Care	__ Quality Improvement	__ Clinical and Translational Research
X Communication Skills	X Diagnostic Imaging	X Interprofessionalism

Clinical Conditions

The clinical conditions students will be expected to see and document in the OPLOG patient encounter system are listed above in the section labeled “Medical Knowledge.” Level of involvement for required conditions is **assist or manage**. See Common Clerkship Requirements. These conditions will be encountered in the following settings:

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Outpatient (Clinical Sciences Building-Basement)

- General Neurology Clinic
- Parkinson Clinic (Different types of Parkinson's Disease, and deep brain stimulation)
- Epilepsy Clinic (Different types of seizure disorders and their treatment including the use of vagus nerve stimulation)
- Basis of Geriatric Medicine relevant to Neurology (i.e. Dementia, syncope, fall, etc...)
- Headache Clinic

Inpatient (Team meets at Neurology Conference room)

- General Neurology
- Neurological complications of systemic diseases
- Stroke rounds
- Epilepsy Unit Service

Clinical Presentations

The following clinical presentations (CPs) from year 1-2 will be revisited during this rotation:

- Movement Disorder (Parkinson's Disease, Huntington chorea, Wilson Disease)
- Dementia
- Gait Disorder
- Headaches
- Vertigo
- Epilepsy
- Stroke

Description of Clerkship Specific Assignments

Please see Appendix D.

Additionally, all students must complete at least 10 new patient evaluations.

If there is the opportunity, students will be able to perform diagnostic lumbar puncture at the Neurology Clinic under supervision.

List of Reading Assignments

Students are encouraged to consult the following material, which is provided at the library:

- Textbook: Aminof MJ, Greenberg DA, Simon RP: Clinical Neurology 9th Ed McGraw Hill
- Journal articles:
 - *RAMPART (Rapid Anticonvulsant Medication Prior to Arrival Trial): A double-blind randomized clinical trial of the efficacy of IM midazolam versus IV lorazepam in the pre-hospital treatment of status epilepticus by paramedics*, National Institution of Health.
 - *Multiple Sclerosis Risk after Optic Neuritis: Final Optic Neuritis Treatment Trial Follow-Up*, National Institution of Health.
 - *Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct*, The New England Journal of Medicine
 - *Randomized Trial of Thymectomy in Myasthenia Gravis*, The New England Journal of Medicine

Op Log Expectations

Please see Appendix C for a complete list of required patient encounters.

Absences:

Please see Common Clerkship Policies.