SCHOOL OF MEDICINE
Undergraduate Medical Education
UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

NC
Neurologic Care
Course Goals

Goals

1. Develop the knowledge and skills necessary to care for Neurology patients in the inpatient and outpatient setting.

2. Develop the skills to work effectively within a multi-disciplinary health care team or network for patients with Neurologic disease.

3. Develop Patient- Centered Clinical Skills and Reasoning in Neurologic Care.

4. Communicate effectively both verbally and in writing with colleagues including physicians, nurses, medical assistants, and other interprofessional team members in the Neurology Inpatient and Outpatient setting.

5. Form clinical questions, retrieve, and interpret high-quality evidence to advance patient care.

6. Develop knowledge of the procedural skills and diagnostic studies involved in the treatment of common Neurologic conditions and emergencies.

7. Predict the key localization of common conditions based on the history and neurological examination - "localize the lesion."

8. Value the importance of neurology and related fields.

9. Employ key foundational neuroscience concepts to predict clinically relevant concepts to core clinical conditions in neurology.

10. Support probable diagnoses for common neurologic conditions - "reason and diagnose."

11. Compose comprehensive evaluation and therapeutic plans for core neurologic conditions - "evaluate and treat."

12. Develop strategies to effectively counsel patients and their families on common neurologic diagnoses.

13. Develop an effective technique to discover novel diagnostic techniques, treatments or controversies in neurology though systematic inquiry and appraisal.

14. Value the importance of neurology and related fields.

NC
Neurologic Care
Clinical Learning Objectives

Clinical

Interpersonal and Communication Skills

1. Recognize differences in clinical care in the context of patient's preferences and overall health.

2. Identify when to use an interpreter during appropriate patient care scenarios.

3. Document and provide an oral report of an accurate history from patient using a systems based approach.

4. Document and provide an oral report of prioritized differential diagnoses for common clinical conditions in Neurologic care.

5. Seek and obtain additional information from secondary sources (ex. family, medical record, pharmacy, allied health professionals) when the patient presents and throughout the duration of their care episode.

6. Accurately communicate data orally or in writing to other physicians or health care providers.

Interprofessional Collaboration

1. Understands unique roles of other providers within the hospitalized system including but not limited to: physical and occupational therapists, social workers, case managers, and nurses.

2. Work effectively as a member of the health care team.

Medical Knowledge for Practice

1. Students will understand the medical, legal, and ethical implication of brain death, the vegetative state, and the minimally conscious state.

Patient Care

1. Students will understand the indications for and limitations of computed tomography (CT), magnetic resonance imaging (MRI), electroencephalography (EEG), lumbar puncture (LP), and nerve conduction studies and electromyography (NCS/EMG).

2. Recognize Neurologic emergency signs and symptoms, assessment and treatment (Status Epilepticus, Acute Stroke).

3. Gather data that defines both the disease and the illness experience (patient/caregivers' perspective, expectations and the illness' effect on their functioning, preferences for care) and develop diagnostic/management plans that account for these variables.

4. Demonstrates knowledge to interpret basic clinical tests and images commonly encountered in Neurologic care.

5. Perform an accurate and comprehensive Neurologic examination.

6. Students will have performed or witnessed a lumbar puncture (LP).

7. Apply an understanding of Neuroanatomy to the localization of disease for common presenting Neurologic signs in patients.

Personal and Professional Development

1. With assistance, reflect on feedback to develop plans for improvement.
2. With assistance, identify strengths and limits to one's knowledge and performance and set learning and improvement goals.

Practice-Based Learning and Improvement

1. Effectively search evidence based medicine resources to obtain original primary literature.
2. With assistance, determine if evidence can be generalizable to individual patients.
3. Identify clinical questions as they arise in patient care activities.

Professionalism

1. Communicate effectively with patients and families, across a broad range of cultural, literacy and socioeconomic backgrounds.
2. Demonstrate sensitivity to patients including but not limited to differences in race, gender, sexual orientation and literacy.
3. Document truthfully.
4. Demonstrate compassion, integrity, and respect for others and responsiveness to patient needs.

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Didactic Learning Objectives

Cerebrovascular Session

1. Predict localization of strokes to major brain regions and vascular territories.

2. Formulate a reasonable differential diagnosis for strokes.

3. Judge reasonable differential diagnoses based on clinical evidence.

4. Recognize the symptoms of transient ischemic attacks.

5. Choose appropriate diagnostic tests for acute stroke evaluation.

6. Choose appropriate therapies for acute treatment, and prevention of stroke.

7. Recognize common comorbidities of stroke.

8. Explain the natural histories and expected courses of stroke to patients.

9. Predict psychosocial issues of the patients and their caregivers.

10. Explain stroke phenomenon for patients through understanding of neurophysiology, anatomy, epidemiology, and pharmacology.

Cognitive Session

1. Synthesize key neurologic history & exam findings to localize to important brain regions.

2. Define the difference between subjective memory loss, mild cognitive impairment and dementia.

3. Formulate a reasonable differential diagnosis for dementia.

4. Judge reasonable diagnoses with the available evidence & foundational science.

5. Apply the standard of care to choose appropriate diagnostic tests for dementia.

6. Choose appropriate pharmaceutical therapies using knowledge of neuropharmacology including pharmacokinetics, dynamics & key side effect profiles.

7. Recognize common comorbidities of neurologic disease.

8. Appreciate the role of palliative care in neurologic disease.

9. Explain the natural histories and expected courses of dementia to patients.

10. Predict psychosocial issues of the patients and their caregivers.

11. Model disease phenomenon for patients through understanding of neurophysiology, anatomy, epidemiology, and pharmacology

Headache Session

1. Identify the structures in the head, brain and surrounding structures that are responsible for pain.
2. Formulate a reasonable differential diagnosis for primary and secondary headache types.
3. Judge reasonable diagnoses with the available evidence & foundational science.
4. Relate foundational knowledge of the physiology of cranial pressure to headaches.
5. Apply evidence to choose appropriate case for imaging and other evaluation in headache.
6. Choose appropriate pharmaceutical therapies using knowledge of neuropharmacology including pharmacokinetics, dynamics & key side effect profiles.
7. Recognize common comorbidities of neurologic disease.
8. Appreciate the role of palliative care in headache.
9. Explain the natural histories and expected courses of common conditions in neurology to patients.
10. Predict psychosocial issues of the patients and their caregivers.
11. Model migraines and headache phenomenon for patients through understanding of neurophysiology, anatomy, epidemiology, and pharmacology.
12. Judge common and critical neuro-ethical issues including high value care in headache evaluation.

Localizing Lesions: A Primer on Clinical Neuroanatomy and Neuroradiology

1. Recall important clinical neuroanatomic landmarks.
2. Synthesize key history and exam findings to important neuroanatomic landmarks.
3. Apply knowledge of clinical neuroanatomy to localize to major areas of the neuroaxis.
4. Identify common neuroradiological sequences and their uses (MRI, CT).

Movement Disorders Session

1. Appreciate the dopaminergic pathways relevance to the parkinsonian clinical presentations.
2. Formulate a reasonable differential diagnosis for parkinsonism.
3. Formulate a reasonable differential diagnosis for tremor.
4. Discover the latest available evidence for the diagnosis of common conditions.
5. Choose appropriate pharmaceutical therapies using knowledge of neuropharmacology including pharmacokinetics, dynamics & key side effect profiles.
6. Recognize common comorbidities of neurologic disease.
7. Appreciate the role of palliative care in neurologic disease.
8. Explain the natural histories and expected courses of common conditions in neurology to patients.
9. Predict psychosocial issues of the patients and their caregivers.
10. Model disease phenomenon for patients through understanding of neurophysiology, anatomy, epidemiology, and pharmacology.

Neuromuscular Session

1. Predict localization of focal weakness to major areas of the neuro-axis.
2. Formulate a reasonable differential diagnosis for focal and generalized weakness.
3. Judge reasonable differential diagnoses based on clinical evidence.
4. Choose appropriate diagnostic tests for focal and generalized weakness.
5. Choose appropriate therapies for acute treatment of urgent diagnoses.

NIHSS Certification

1. Complete and Submit a NIH Stroke Scale Certification (NIHSS) certification.

Seizure and Epilepsy

1. Appreciate how cortical neuronal physiology generates seizures and epileptogenic potentials.
2. Synthesize key neurologic history & exam findings to predict regional seizure localization.
3. Formulate a reasonable differential diagnosis for paroxysmal spells and events concerning for seizures.
4. Formulate a reasonable differential diagnosis for common causes of epilepsy at different ages.
5. Judge reasonable diagnoses with the available evidence & foundational science.
6. Understand the use of electroencephalography (EEG) in seizure evaluation.
7. Plan for the standard evaluation of new onset seizure.
8. Choose appropriate pharmaceutical therapies using knowledge of neuropharmacology including pharmacokinetics, dynamics & key side effect profiles.
9. Recognize common comorbidities of epilepsy.
10. Explain the natural histories and expected courses of seizures and epilepsy in neurology to patients.
11. Predict psychosocial and safety issues to the patients and their caregivers.
12. Model seizure and epilepsy phenomenon for patients through understanding of neurophysiology, anatomy, epidemiology, and pharmacology.

The Neurologic Exam

1. Recall major components of the comprehensive screening neurologic exam.
2. Apply knowledge of clinical neuroanatomy to choose appropriate examination techniques to compose a diagnostic exam.
3. Synthesize key exam findings to important neuroanatomic landmarks.
4. Describe the differences between upper and lower motor neuron weakness.
5. Relate the importance of the essential neurologic exam to your potential field of interest.

Thinking Like a Neurologist: Guide to Clinical Reasoning

1. Generate an approach and conceptual framework to analyze common neurological issues.
2. Correlate key neurologic history & exam findings to important neuroanatomic landmarks.
3. Formulate a reasonable differential diagnosis for common neurologic conditions.