

Elective Neurology Rotation Information and Instructional Objectives

Instructor of Record for Elective Neurology Rotation:

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Elective Neurology Clinical Rotation Topics

Eyes, Ears, Nose, and Throat

Eye disorders

Neuro-ophthalmologic disorders: Nystagmus, Optic neuritis, Papilledema

Vision abnormalities: Amaurosis fugax

Ear disorders

Inner ear: Acoustic neuroma, Vertigo

Neurologic System

Closed head injuries: Concussion, Post-concussion syndrome, Traumatic brain injury

Cranial nerve palsies

Encephalopathic disorders

Headaches: Cluster headache, Migraine, Tension headache

Infectious disorders: Encephalitis, Meningitis

Movement disorders: Essential tremor, Huntington disease, Parkinson disease, Tourette disorder

Neoplasms: Benign, Malignant

Neurocognitive disorders: Delirium, Major/mild neurocognitive disorders

Neuromuscular disorders: Cerebral palsy, Multiple sclerosis, Myasthenia gravis

Peripheral nerve disorders: Carpal tunnel syndrome, Complex regional pain syndrome, Guillain-Barré syndrome, Peripheral neuropathy

Seizure disorders: Focal seizure, Generalized seizures, Status epilepticus

Vascular disorders: Arteriovenous malformation, Cerebral aneurysm, Intracranial hemorrhage, Stroke, Syncope, Transient ischemic attack

Elective Neurology Rotation Learning Outcomes

Upon completion of the elective Neurology clinical rotation,

1. Students will demonstrate medical knowledge of the pathophysiology, etiology, epidemiology, patient presentation, differential diagnosis, diagnostic work-up, patient management, health promotion, and disease prevention for common conditions (listed in Neurology Clinical Rotation Topics above) encountered in Neurology for patients seeking medical care for the following age populations: infants, children, adolescents, adults and/or elderly.
2. Students will elicit a detailed and accurate patient history, perform an appropriate physical examination, appropriately use and interpret diagnostic testing and laboratory studies, and formulate differential diagnoses and assessment plans for

symptoms/conditions (listed in Neurology Clinical Rotation Topics above) commonly encountered in patients seeking acute neurology and chronic neurology care.

3. Students will demonstrate technical skills common to neurology.
4. Students will obtain and document information clearly and appropriately for the following types of patient encounters: (a) acute problem-focused encounters and (b) chronic disease follow-up encounters.
5. Students will listen empathetically and effectively, communicate clearly, and utilize shared decision-making for patients seeking care in neurology.
6. Students will facilitate difficult health care conversations in neurology.
7. Students will demonstrate compassion, integrity, respect, patient responsiveness, and accountability while providing care to patients in a neurology setting.
8. Students will (a) seek, implement, and accept feedback, (b) reflect on performance and develop plans for self-improvement, and (c) locate, appraise, and integrate evidence-based studies related to Neurology.
9. Students will (a) promote a safe environment for patients seeking care in a neurology setting, (b) demonstrate knowledge of quality improvement methodologies and metrics, (c) recognize the unique role of PAs and other health professions in neurology, (work effectively with other health professionals to provide collaborative, patient centered neurological care, (e) work effectively in an outpatient and/or inpatient health delivery settings, (f) incorporate considerations of cost awareness and funding into patients seeking care in an Neurology setting, and (g) describe basic health payment systems and practice models for Neurology.

Elective Neurology Instructional Objectives

Upon completion of the elective Neurology clinical rotation,

1. **Elective Neurology Rotation Learning Outcome #1:** Students will demonstrate medical knowledge of the pathophysiology, etiology, epidemiology, patient presentation, differential diagnosis, diagnostic work-up, patient management, health promotion, and disease prevention for common conditions (listed in Neurology Clinical Rotation Topics above) encountered in Neurology for patients seeking medical care for the following age populations: infants, children, adolescents, adults and/or elderly.
 - **Neurology instructional objective:** Evaluate the common disease process found in **Neurology** using suggested readings and course study guide. (MK-PLO2)
 - **Neurology instructional objective:** Identify the etiology, pathophysiology, and clinical presentation of conditions listed in the clinical topics for this rotation. (MK-PLO3)
 - **Neurology Rotation instructional objective:** Select appropriate treatment plans for patients using all pertinent medical data, including history, physical examination, and diagnostic data, under the preceptor's supervision. (MK-PLO3)
 - **Neurology Rotation instructional objective:** Identify medications commonly used in **Neurology**, including the indication, contraindication, mechanism of action, most common side effects, and appropriate dosage for age. (MK-PLO2)
 - **Neurology instructional objective:** Contrast possible risks and benefits of diagnostic studies and treatment plans. (MK-PLO3)

- **Neurology instructional objective:** Recommend appropriate screening tests and immunizations based on current standards. (MK-PLO3)
 - **Neurology instructional objective:** Contrast the risks and benefits of procedures that must be performed on your patient. (MK PLO-3)
 - **Neurology instructional objective:** Interpret and apply setting appropriate healthcare guidelines. (MK PLO-3)
2. **Elective Neurology Rotation Learning Outcome #2:** Students will elicit a detailed and accurate patient history, perform an appropriate physical examination, appropriately use and interpret diagnostic testing and laboratory studies, and formulate differential diagnoses and assessment plans for symptoms/conditions (listed in Neurology Clinical Rotation Topics above) commonly encountered in patients seeking acute Neurology, chronic and chronic neurological care.
- **Neurology instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient less than 1 year of age. (PC-PLO1, PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient 1-10 years of age. (PC-PLO1, PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient 11-17 years of age. (PC-PLO1, PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an age and setting appropriate well child history and physical. (PC-PLO1, PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an age-appropriate wellness history and physical exam for a patient 18-64 years of age. (PC-PLO1, PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient 18-64 years of age. (PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an appropriate history and physical exam on a patient greater than 65 years of age. (PC-PLO2)
 - **Neurology instructional objective:** Demonstrate an age and setting appropriate expanded history and physical exam on a patient greater than 65 years of age. (PC-PLO2)
 - **Neurology instructional objective:** Choose appropriate diagnostic tests to identify an abnormality. (PC-PLO3)
 - **Neurology instructional objective:** Interpret diagnostic studies related to the patient's medical condition. (PC-PLO3)
 - **Neurology instructional objective:** Formulate an appropriate differential diagnosis based on history, physical examination, and diagnostic study data. (PC-PLO4)
 - **Neurology instructional objective:** Construct an appropriate treatment plan based on history, physical exam, and diagnostic data. (PC-PLO4)
 - **Neurology instructional objective:** Select appropriate preventative exams and screening tests for all infants, children, adolescents, adults, and the elderly. (PC-PLO4)
 - **Neurology instructional objective:** Actively participate in the management of acute and chronic patient conditions. (PC- PLO4)

3. **Elective Neurology Rotation Learning Outcome #3:** Students will demonstrate technical skills common to Neurology.
4. **Elective Neurology Rotation Learning Outcome #4:** Students will obtain and document information clearly and appropriately for the following types of patient encounters: (a) acute problem-focused encounters and (b) chronic disease follow-up encounters.
5. **Elective Neurology Rotation Learning Outcome #5:** Students will listen empathetically and effectively, communicate clearly, and utilize shared decision-making for patients seeking care in Neurology.
 - **Neurology instructional objective:** Describe health promotion and disease prevention to your patients. (ICS-PLO3)
 - **Neurology instructional objective:** Adapt communication style and information context to the individual patient interaction. (ICS-PLO3)
 - **Neurology instructional objective:** Identify communication barriers with different patient populations. (ICS PLO-3)
 - **Neurology instructional objective:** Compose an oral case presentation and present it to the preceptor. (ICS-PLO3)
 - **Neurology instructional objective:** Explain possible risks and benefits of diagnostic studies and treatment plans to your patient as approved by the supervising provider. (ICS-PLO3)
 - **Neurology instructional objective:** Select written patient education handouts to address a health promotion issue using the most up-to-date, evidence-based medical data. (ICS PLO-3)
6. **Elective Neurology Rotation Learning Outcome #6:** Students will facilitate difficult health care conversations in Neurology.
7. **Elective Neurology Rotation Learning Outcome #7:** Students will demonstrate compassion, integrity, respect, patient responsiveness, and accountability while providing care to patients in a **Neurology** setting.
 - **Neurology instructional objective:** Practice professionally in a working situation with other healthcare team members, including appropriate dress, punctual attendance, and professional attitude. (P-PLO1)
 - **Neurology instructional objective:** Show sensitivity to the emotional, social, developmental, and ethnic background of patients and their families on their service. (P-PLO1)
 - **Neurology instructional objective:** Apply professional attitude in such areas as attendance, dress code, and performance in the medical setting. (P-PLO1)
 - **Neurology instructional objective:** Demonstrate sensitivity and responsiveness to patients' culture, gender, age, and disabilities. (P-PLO1)
 - **Neurology instructional objective:** Demonstrate motivation and desire to learn. (P-PLO3)

- **Neurology instructional objective:** Demonstrate knowledge of the legal and regulatory requirements of the role of a physician assistant. (P-PLO4)
8. **Elective Neurology Rotation Learning Outcome #8:** Students will (a) seek, implement, and accept feedback, (b) reflect on performance and develop plans for self-improvement, and (c) locate, appraise, and integrate evidence-based studies related to Neurology.
- **Neurology instructional objective:** Demonstrate an openness to receive constructive criticism. (PBLPI-PLO1)
 - **Neurology instructional objective:** Recognize limitations and locate assistance from supervising preceptors and appropriate reference material. (PBLPI-PLO1)
 - **Neurology instructional objective:** Develop the ability to learn from practice. (PBLPI-PLO2)
 - **Neurology instructional objective:** Recognize personal limitations and where to access help personally and professionally. (PBLPI-PL2)
 - **Neurology instructional objective:** Interpret independent outside readings concerning medical problems encountered. (PBL PI-PLO3)
 - **Neurology instructional objective:** Show ability to understand and apply decision-making tools. (PBL PI PLO-3)
 - **Neurology instructional objective:** Recognize the importance of lifelong learning in the medical field. (PBLPI-PLO3)
 - **Neurology instructional objective:** Assess medical evidence and communicate it to patients and colleagues. (PBLPI-PL3)
 - **Neurology instructional objective:** Apply information technology to access online medical information and continue personal education. (PBLPI-PL3))
 - **Neurology instructional objective:** Use medical information technology in decision-making, patient care, and patient education. (PBLPI-PL3)
9. **Elective Neurology Rotation Learning Outcome #9:** Students will (a) promote a safe environment for patients seeking care in a Neurology setting, (b) demonstrate knowledge of quality improvement methodologies and metrics, (c) recognize the unique role of PAs and other health professions in Neurology, (d) work effectively with other health professionals to provide collaborative, patient centered neurological care, (e) work effectively in an outpatient and/or inpatient health delivery settings, (f) incorporate considerations of cost awareness and funding into patients seeking care in an Neurology setting, and (g) describe basic health payment systems and practice models for Neurology.
- **Neurology instructional objective:** Operate under the rules of HIPAA to preserve patient confidentiality. (SBP-PLO1)
 - **Neurology instructional objective:** Practice according to policy and procedures set forth by the health care facility. (SBP-PLO1)
 - **Neurology instructional objective:** Employ a professional relationship with the supervising providers and other health care team members. (SBP-PLO4)
 - **Neurology instructional objective:** Identify the obstacles to obtaining medical care for those with financial difficulties. (SBP-PLO6)

- **Neurology instructional objective:** Evaluate cost-effective health care and resources that do not compromise the quality of patient care. (SBP-PLO6)
- **Neurology instructional objective:** Identify the funding sources and payment systems that provide coverage for the patient. (SBP-PLO7)
- **Neurology instructional objective:** Choose the appropriate code for billing the responsible payment service under the direct supervision of the preceptor. (SBP-PLO7)

Elective Neurology Rotation Curriculum Integration Table

Elective Neurology Rotation Learning Outcome	Assessment Method (Benchmark Requirements)	PAS Program Goal	PAS Program Learning Outcome (ARC-PA)/Student Learning Outcomes (GVSU)
<p>Students will demonstrate medical knowledge of the pathophysiology, etiology, epidemiology, patient presentation, differential diagnosis, diagnostic work-up, patient management, health promotion, and disease prevention for common conditions (listed in Neurology Clinical Rotation Topics above) encountered in Neurology for patients seeking medical care for the following age populations: infants, children, adolescents, adults and/or elderly.</p>	<p>Preceptor Evaluation (80% average score on Medical Knowledge competency section)</p>	<p>Medical Knowledge and Competence in Patient Care</p>	<p>MK #2 MK #3</p>
<p>Students will elicit a detailed and accurate patient history, perform an appropriate physical examination, appropriately use and interpret diagnostic testing and laboratory studies, and formulate differential diagnoses and assessment plans for symptoms/conditions (listed in Neurology Clinical Rotation Topics above) commonly encountered in patients seeking acute and chronic neurological care.</p>	<p>Preceptor Evaluation (80% average score on Patient competency section)</p>	<p>Medical Knowledge and Competence in Patient Care</p>	<p>PC #1 PC #2 PC #3 PC #4</p>

Students will demonstrate technical skills common to Neurology.	Preceptor Evaluation (80% average score on Patient competency section)	Medical Knowledge and Competence in Patient Care	PC #5
	Clinical Skills Checklist (Pass/Fail)		
Students will obtain and document information clearly and appropriately for the following types of patient encounters: (a) acute problem-focused encounters and (b) chronic disease follow-up encounters,	Preceptor Evaluation (80% average score on Interpersonal and Communication Skills competency section)	Medical Knowledge and Patient Care	ICS#2
Students will listen empathetically and effectively, communicate clearly, and utilize shared decision-making for patients seeking care in Neurology.	Preceptor Evaluation (80% average score on Interpersonal and Communication Skills competency section)	Medical Knowledge and Patient Care	ICS #1
		Collaborative Practice	ICS #3 ICS #5
Students will facilitate difficult health care conversations in Neurology.	Preceptor Evaluation (80% average score on Interpersonal and Communication Skills competency section)	Collaborative Practice	ICS #4
Students will demonstrate compassion, integrity, respect, patient responsiveness, and accountability while providing care to patients in a Neurology setting.	Preceptor Evaluation (80% average score on Professionalism competency section)	Professionalism	P #1 P #2 P #3
Students will (a) seek, implement, and accept feedback, (b) reflect on performance and develop plans for self-improvement, and (c) locate, appraise, and integrate evidence-based studies related to Neurology.	Preceptor Evaluation (80% average score on Practice-Based Learning and Proficiency Improvement competency section)	Lifelong Learning	PBLPI #1 PBLP #2 PBLP #3

<p>Students will (a) promote a safe environment for patients seeking care in a Neurology setting, (b) demonstrate knowledge of quality improvement methodologies and metrics, (c) recognize the unique role of PAs and other health professions in Neurology, (d) work effectively with other health professionals to provide collaborative, patient centered neurological care, (e) work effectively in an outpatient and/or inpatient health delivery settings, (f) incorporate considerations of cost awareness and funding into patients seeking care in an Neurology setting, and (g) describe basic health payment systems and practice models for Neurology.</p>	<p>Preceptor Evaluation (80% average score on Systems-Based Practice competency section)</p>	<p>Medical Knowledge and Patient Care</p>	<p>SBP #1 SBP #6</p>
		<p>Lifelong Learning</p>	<p>SBP #2</p>
		<p>Collaborative Practice</p>	<p>SBP #3 SBP #4 SBP #5 SBP #7</p>

Neurology Preceptor Evaluation of the Student

1. What is your group and/or site name (i.e., Trinity Health Neurosciences- GR Campus)
2. Medical Knowledge: This section evaluates the student's ability to demonstrate medical knowledge, clinical reasoning, and problem-solving ability of sufficient breadth and depth to practice medicine as an entry-level physician assistant

	60% (Failing)	70% (D+/ C-)	80% (C+ / B)	90% (B+/ A-)	100% (A)	N/A
Student demonstrates medical knowledge in pathophysiology, etiology, and epidemiology for patients seeking medical care for common conditions encountered in Neurology in the following age populations (MK#2, 3):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of patient presentations for common conditions encountered in Neurology for the following age populations (MK#2,3):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of differential diagnosis and diagnostic work-up for patients seeking medical care for common conditions encountered in Neurology in the following age populations (MK#2,3)						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of patient management strategies for patients seeking medical care for common conditions encountered in Neurology in the following age populations (MK#2,3):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of health promotion and disease prevention for patients seeking medical care for common conditions encountered in Neurology in the following age populations (MK#2, 3)						
Infants						
Children						

Adolescents						
Adults						
Elderly						
Additional Comments:						

3. Patient Care: This section evaluates the student's ability to provide person-centered care that includes patient- and setting-specific assessment, evaluation, management, and health promotion.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)	N/A
Elicit a detailed and accurate history and perform an appropriate physical examination for the following populations encountered in neurology (PC#1):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Elicit a detailed and accurate patient history for patients encountered in neurology seeking (PC#1):						
Acute care						
Chronic care						
Perform appropriate physical examination for patients encountered in Neurology seeking (PC#2):						
Acute care						
Chronic care						
Student demonstrates knowledge of the appropriate use and interpretation of diagnostic testing and laboratory studies commonly used for patients seeking (PC#3):						
Acute care						
Chronic care						
Student organizes information from the interview, diagnostic testing, and physical examination to formulate differential diagnoses for patients seeking (PC#4):						
Acute care						
Chronic care						
Student organizes information from the interview, diagnostic testing, and physical examination to formulate assessment plans for symptoms/conditions commonly encountered in patients seeking (PC#4):						
Acute care						
Chronic care						
Demonstrate basic technical skills common to Neurology. (PC#5):						
Additional Comments:						

4. Interpersonal and Communication Skills: This section evaluates the student's ability to demonstrate verbal and non-verbal communication skills needed to have respectful, compassionate, and effective conversations with patients, patients' families, and health professionals to exchange information and make medical decisions.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)	N/A
Listen empathetically and effectively to patients seeking care in Neurology (ICS#1)						
Obtain and document information clearly and accurately at an appropriate level the following types of patient encounters (ICS#2):						
Acute problem-focused encounters						
Chronic disease follow-up encounters						
Communicate information clearly to patients, families, colleagues, and teams as appropriate across a broad range of socioeconomic and cultural backgrounds to provide care in neurology (ICS#3)						
Facilitate difficult health care conversations in neurology (ICS#4):						
Utilize shared-decision making to promote patient-centered communication by eliciting and incorporating patient preferences (ICS#5)						
Additional Comments:						

5. Professionalism: This section evaluates the student's ability to demonstrate commitment to carrying out professional responsibilities and adhering to ethical principles and practices.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)
Demonstrate compassion, integrity, and respect for patients seeking care in a neurology setting (P#1)					
Demonstrate responsiveness to patient needs that supersede self-interest while providing care in a neurology setting (P#2)					

Show accountability to patients, society, and the profession while providing care in a neurology setting (P#3)					
Demonstrate leadership and advocacy for the PA profession (P#4)					
Additional Comments:					

6. **Practice-Based Learning and Proficiency Improvement:** This section evaluates the student's ability to acquire, appraise, and apply evidence-based medicine to patient care, and accurately assess and improve clinical performance based on constant self-evaluation and lifelong learning.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)
Seek, implement, and accept feedback (PBLPI#1)					
Reflect on performance to identify strengths and deficiencies in one's knowledge and expertise and develop a plan for self-improvement (PBLPI#2)					
Locate, appraise, and integrate evidence-based studies related to neurology (PBLPI#3)					
Additional Comments:					

7. **Systems-Based Practice:** This section evaluates the student's ability to engage with other healthcare professionals in a manner that optimizes patient care within the context of the larger healthcare system.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)
Promote a safe environment for patients seeking care in a neurology setting (SBP#1)					
Demonstrate knowledge of quality improvement methodologies and metrics in neurology (SBP#2)					
Recognize the unique roles of PAs and those of other healthcare professions in neurology (SBP#3)					
Work effectively with other health professionals to provide collaborative, patient centered neurological care (SBP#4)					

Work effectively in an inpatient and/or outpatient health delivery setting (SBP#5)					
Incorporate considerations of cost awareness and funding sources into patients seeking care in a neurology setting (SBP#6)					
Describe basic health payment systems and practice models for Neurology (SBP#7)					
Additional Comments:					

8. Did the student have any absences during the rotation?
 - a. Yes
 - b. No
 - c. If yes, please indicate dates and reason for absence:
9. Please write a short note commenting on this student's particular strengths.
10. Please write a short note commenting on this student's particular areas for improvement.
11. Was this evaluation discussed with the student?
 - a. Yes
 - b. No
 - c. Additional comments:
12. Preceptor Signature:

Neurosurgery

Elective Neurosurgery Rotation Information and Instructional Objectives

Instructor of Record for Elective Neurosurgery Rotation: Amanda Reddy, PA-C

Primary Sources of Information for Neurosurgery Rotation

1. Berkowitz A.L.(Ed.), (2022). Clinical Neurology & Neuroanatomy: A Localization-Based Approach, 2e. McGraw Hill. <https://accessmedicine-mhmedical-com.ezproxy.gvsu.edu/content.aspx?bookid=3206§ionid=267213261>
2. Brust J.M.(Ed.), (2019). CURRENT Diagnosis & Treatment: Neurology, 3e. McGraw Hill. <https://accessmedicine-mhmedical-com.ezproxy.gvsu.edu/content.aspx?bookid=2567§ionid=207221980>
3. Ramayya A.G., & Sinha S, & Grady M (2019). Neurosurgery. Brunicardi F, & Andersen D.K., & Billiar T.R., & Dunn D.L., & Kao L.S., & Hunter J.G., & Matthews J.B., & Pollock R.E.(Eds.), Schwartz's Principles of Surgery, 11e. McGraw Hill. <https://accessmedicine-mhmedical-com.ezproxy.gvsu.edu/content.aspx?bookid=2576§ionid=216212278>
4. Smith T.R. (2020). Neurosurgery. Doherty G.M.(Ed.), Current Diagnosis & Treatment: Surgery, 15e. McGraw Hill. <https://accessmedicine-mhmedical-com.ezproxy.gvsu.edu/content.aspx?bookid=2859§ionid=242161973>
5. Loscalzo J, Fauci A, Kasper D, Hauser S, Longo D, Jameson J. eds. Harrison's Principles of Internal Medicine, 21e. McGraw Hill; 2022. Accessed April 04, 2023. <https://accessmedicine-mhmedical-com.ezproxy.gvsu.edu/content.aspx?bookid=3095§ionid=259856983>
6. Gomella LG, Haist SA. eds. Clinician's Pocket Reference: The Scut Monkey, 11e. McGraw Hill; 2007. Accessed April 07, 2023. <https://accessmedicine-mhmedical-com.ezproxy.gvsu.edu/content.aspx?bookid=365§ionid=43074905>

Elective Neurosurgery Clinical Rotation Topics

Eyes, Ears, Nose, and Throat

Eye disorders

Neuro-ophthalmologic disorders: Nystagmus, Optic neuritis, Papilledema

Vision abnormalities: Amaurosis fugax

Ear disorders

Inner ear: Acoustic neuroma, Vertigo

Neurologic System

Closed head injuries: Concussion, Post-concussion syndrome, Traumatic brain injury

Cranial nerve palsies

Encephalopathic disorders

Headaches: Cluster headache, Migraine, Tension headache

Infectious disorders: Encephalitis, Meningitis

Movement disorders: Essential tremor, Huntington disease, Parkinson disease, Tourette disorder

Neoplasms: Benign, Malignant

Neurocognitive disorders: Delirium, Major/mild neurocognitive disorders

Neuromuscular disorders: Cerebral palsy, Multiple sclerosis, Myasthenia gravis

Peripheral nerve disorders: Carpal tunnel syndrome, Complex regional pain syndrome, Guillain-Barré syndrome, Peripheral neuropathy

Seizure disorders: Focal seizure, Generalized seizures, Status epilepticus

Vascular disorders: Arteriovenous malformation, Cerebral aneurysm, Intracranial hemorrhage, Stroke, Syncope, Transient ischemic attack

Elective Neurosurgery Rotation Learning Outcomes

Upon completion of the elective Neurosurgery clinical rotation,

1. Students will demonstrate medical knowledge of the pathophysiology, etiology, epidemiology, patient presentation, differential diagnosis, diagnostic work-up, patient management, health promotion, and disease prevention for common conditions (listed in Neurosurgery Clinical Rotation Topics above) encountered in Neurosurgery for patients seeking medical care for the following age populations: infants, children, adolescents, adults and/or elderly.
2. Students will elicit a detailed and accurate patient history, perform an appropriate physical examination, appropriately use and interpret diagnostic testing and laboratory studies, and formulate differential diagnoses and assessment plans for symptoms/conditions (listed in Neurosurgery Clinical Rotation Topics above) commonly encountered in patients seeking emergent neurosurgery care, acute neurosurgery, chronic Neurosurgery care, preoperative, interoperative, and/or postoperative neurosurgery care.
3. Students will demonstrate technical skills common to Neurosurgery.
4. Students will obtain and document information clearly and appropriately for the following types of patient encounters: (a) emergent problem-focused encounters, (b) acute problem-focused encounters (c) chronic disease follow-up encounters, (d) preoperative encounters, (e) intraoperative encounters, and/or (f) post-operative encounters.
5. Students will listen empathetically and effectively, communicate clearly, and utilize shared decision-making for patients seeking care in neurosurgery.
6. Students will facilitate difficult health care conversations in neurosurgery.
7. Students will demonstrate compassion, integrity, respect, patient responsiveness, and accountability while providing care to patients in a neurosurgery setting.
8. Students will (a) seek, implement, and accept feedback, (b) reflect on performance and develop plans for self-improvement, and (c) locate, appraise, and integrate evidence-based studies related to neurosurgery.
9. Students will (a) promote a safe environment for patients seeking care in a neurosurgery setting, (b) demonstrate knowledge of quality improvement methodologies and metrics, (c) recognize the unique role of PAs and other health professions in neurosurgery, (d) work effectively with other health professionals to provide collaborative, patient centered neurosurgical care, (e) work effectively in an outpatient and/or inpatient health delivery settings, (f) incorporate considerations of cost awareness and funding into patients seeking care in a neurosurgery setting, and (g) describe basic health payment systems and practice models for neurosurgery.

Elective Neurosurgery Instructional Objectives

Upon completion of the elective Neurosurgery clinical rotation,

1. **Elective Neurosurgery Rotation Learning Outcome #1:** Students will demonstrate medical knowledge of the pathophysiology, etiology, epidemiology, patient presentation, differential diagnosis, diagnostic work-up, patient management, health promotion, and disease prevention for common conditions (listed in **Neurosurgery Clinical Rotation Topics** above) encountered in **Neurosurgery** for patients seeking medical care for the following age populations: infants, children, adolescents, adults and/or elderly.

- **Neurosurgery instructional objective:** Evaluate the common disease process found in **Neurosurgery** using suggested readings and course study guide. (MK-PLO2)
 - **Neurosurgery instructional objective:** Identify the etiology, pathophysiology, and clinical presentation of conditions listed in the clinical topics for this rotation. (MK-PLO3)
 - **Neurosurgery Rotation instructional objective:** Select appropriate treatment plans for patients using all pertinent medical data, including history, physical examination, and diagnostic data, under the preceptor's supervision. (MK-PLO3)
 - **Neurosurgery Rotation instructional objective:** Identify medications commonly used in **Neurosurgery**, including the indication, contraindication, mechanism of action, most common side effects, and appropriate dosage for age. (MK-PLO2)
 - **Neurosurgery instructional objective:** Contrast possible risks and benefits of diagnostic studies and treatment plans. (MK-PLO3)
 - **Neurosurgery instructional objective:** Recommend appropriate screening tests and immunizations based on current standards. (MK-PLO3)
 - **Neurosurgery instructional objective:** Contrast the risks and benefits of procedures that must be performed on your patient. (MK PLO-3)
 - **Neurosurgery instructional objective:** Interpret and apply setting appropriate healthcare guidelines. (MK PLO-3)
2. **Elective Neurosurgery Rotation Learning Outcome #2:** Students will elicit a detailed and accurate patient history, perform an appropriate physical examination, appropriately use and interpret diagnostic testing and laboratory studies, and formulate differential diagnoses and assessment plans for symptoms/conditions (listed in Neurosurgery Clinical Rotation Topics above) commonly encountered in patients seeking emergent neurosurgery, acute neurosurgery, chronic neurosurgery, preoperative, intraoperative, and/or postoperative care
- **Neurosurgery instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient less than 1 year of age. (PC-PLO1, PC-PLO2)
 - **Neurosurgery instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient 1-10 years of age. (PC-PLO1, PC-PLO2)
 - **Neurosurgery instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient 11-17 years of age. (PC-PLO1, PC-PLO2)
 - **Neurosurgery instructional objective:** Demonstrate an age and setting appropriate history and physical exam for a patient 18-64 years of age. (PC-PLO2)
 - **Neurosurgery instructional objective:** Demonstrate an appropriate history and physical exam on a patient greater than 65 years of age. (PC-PLO2)
 - **Neurosurgery instructional objective:** Demonstrate an age and setting appropriate expanded history and physical exam on a patient greater than 65 years of age. (PC-PLO2)

- **Neurosurgery instructional objective:** Choose appropriate diagnostic tests to identify an abnormality. (PC-PLO3)
 - **Neurosurgery instructional objective:** Interpret diagnostic studies related to the patient's medical condition. (PC-PLO3)
 - **Neurosurgery instructional objective:** Formulate an appropriate differential diagnosis based on history, physical examination, and diagnostic study data. (PC-PLO4)
 - **Neurosurgery instructional objective:** Construct an appropriate treatment plan based on history, physical exam, and diagnostic data. (PC-PLO4)
 - **Neurosurgery instructional objective:** Select appropriate preventative exams and screening tests for all infants, children, adolescents, adults, and the elderly. (PC-PLO4)
 - **Neurosurgery instructional objective:** Actively participate in the management of acute and chronic patient conditions. (PC- PLO4)
3. **Elective Neurosurgery Rotation Learning Outcome #3:** Students will demonstrate technical skills common to Neurosurgery.
 4. **Elective Neurosurgery Rotation Learning Outcome #4:** Students will obtain and document information clearly and appropriately for the following types of patient encounters: (a) emergent problem-focused encounters, (b) acute problem-focused encounters, (c) chronic disease follow-up encounters, (d) preoperative encounters, (e) intraoperative encounters, and/or (f) post-operative encounters.
 5. **Elective Neurosurgery Rotation Learning Outcome #5:** Students will listen empathetically and effectively, communicate clearly, and utilize shared decision-making for patients seeking care in Neurosurgery.
 - **Neurosurgery instructional objective:** Describe health promotion and disease prevention to your patients. (ICS-PLO3)
 - **Neurosurgery instructional objective:** Adapt communication style and information context to the individual patient interaction. (ICS-PLO3)
 - **Neurosurgery instructional objective:** Identify communication barriers with different patient populations. (ICS PLO-3)
 - **Neurosurgery instructional objective:** Compose an oral case presentation and present it to the preceptor. (ICS-PLO3)
 - **Neurosurgery instructional objective:** Explain possible risks and benefits of diagnostic studies and treatment plans to your patient as approved by the supervising provider. (ICS-PLO3)
 - **Neurosurgery instructional objective:** Select written patient education handouts to address a health promotion issue using the most up-to-date, evidence-based medical data. (ICS PLO-3)
 6. **Elective Neurosurgery Rotation Learning Outcome #6:** Students will facilitate difficult health care conversations in Neurosurgery.

7. **Elective Neurosurgery Rotation Learning Outcome #7:** Students will demonstrate compassion, integrity, respect, patient responsiveness, and accountability while providing care to patients in a **Neurosurgery** setting.
- **Neurosurgery instructional objective:** Practice professionally in a working situation with other healthcare team members, including appropriate dress, punctual attendance, and professional attitude. (P-PLO1)
 - **Neurosurgery instructional objective:** Show sensitivity to the emotional, social, developmental, and ethnic background of patients and their families on their service. (P-PLO1)
 - **Neurosurgery instructional objective:** Apply professional attitude in such areas as attendance, dress code, and performance in the medical setting. (P-PLO1)
 - **Neurosurgery instructional objective:** Demonstrate sensitivity and responsiveness to patients' culture, gender, age, and disabilities. (P-PLO1)
 - **Neurosurgery instructional objective:** Demonstrate motivation and desire to learn. (P-PLO3)
 - **Neurosurgery instructional objective:** Demonstrate knowledge of the legal and regulatory requirements of the role of a physician assistant. (P-PLO4)
8. **Elective Neurosurgery Rotation Learning Outcome #8:** Students will (a) seek, implement, and accept feedback, (b) reflect on performance and develop plans for self-improvement, and (c) locate, appraise, and integrate evidence-based studies related to Neurosurgery.
- **Neurosurgery instructional objective:** Demonstrate an openness to receive constructive criticism. (PBLPI-PLO1)
 - **Neurosurgery instructional objective:** Recognize limitations and locate assistance from supervising preceptors and appropriate reference material. (PBLPI-PLO1)
 - **Neurosurgery instructional objective:** Develop the ability to learn from practice. (PBLPI-PLO2)
 - **Neurosurgery instructional objective:** Recognize personal limitations and where to access help personally and professionally. (PBLPI-PL2)
 - **Neurosurgery instructional objective:** Interpret independent outside readings concerning medical problems encountered. (PBL PI-PLO3)
 - **Neurosurgery instructional objective:** Show ability to understand and apply decision-making tools. (PBL PI PLO-3)
 - **Neurosurgery instructional objective:** Recognize the importance of lifelong learning in the medical field. (PBLPI-PLO3)
 - **Neurosurgery instructional objective:** Assess medical evidence and communicate it to patients and colleagues. (PBLPI-PL3)
 - **Neurosurgery instructional objective:** Apply information technology to access online medical information and continue personal education. (PBLPI-PL3))
 - **Neurosurgery instructional objective:** Use medical information technology in decision-making, patient care, and patient education. (PBLPI-PL3)
9. **Elective Neurosurgery Rotation Learning Outcome #9:** Students will (a) promote a safe environment for patients seeking care in a Neurosurgery setting, (b) demonstrate

knowledge of quality improvement methodologies and metrics, (c) recognize the unique role of PAs and other health professions in Neurosurgery, (d) Work effectively with other health professionals to provide collaborative, patient centered neurosurgical care, (e) work effectively in an outpatient and/or inpatient health delivery settings, (f) incorporate considerations of cost awareness and funding into patients seeking care in an Neurosurgery setting, and (g) describe basic health payment systems and practice models for Neurosurgery.

- **Neurosurgery instructional objective:** Operate under the rules of HIPAA to preserve patient confidentiality. (SBP-PLO1)
- **Neurosurgery instructional objective:** Practice according to policy and procedures set forth by the health care facility. (SBP-PLO1)
- **Neurosurgery instructional objective:** Employ a professional relationship with the supervising providers and other health care team members. (SBP-PLO4)
- **Neurosurgery instructional objective:** Identify the obstacles to obtaining medical care for those with financial difficulties. (SBP-PLO6)
- **Neurosurgery instructional objective:** Evaluate cost-effective health care and resources that do not compromise the quality of patient care. (SBP-PLO6)
- **Neurosurgery instructional objective:** Identify the funding sources and payment systems that provide coverage for the patient. (SBP-PLO7)
- **Neurosurgery instructional objective:** Choose the appropriate code for billing the responsible payment service under the direct supervision of the preceptor. (SBP-PLO7)

Elective Neurosurgery Rotation Curriculum Integration Table

Elective Neurosurgery Rotation Learning Outcome	Assessment Method (Benchmark Requirements)	PAS Program Goal	PAS Program Learning Outcome (ARC-PA)/Student Learning Outcomes (GVSU)
<p>Students will demonstrate medical knowledge of the pathophysiology, etiology, epidemiology, patient presentation, differential diagnosis, diagnostic work-up, patient management, health promotion, and disease prevention for common conditions (listed in Neurosurgery Clinical Rotation Topics above) encountered in Neurosurgery for patients seeking medical care for the following age populations: infants, children, adolescents, adults and/or elderly.</p>	<p>Preceptor Evaluation (80% average score on Medical Knowledge competency section)</p>	<p>Medical Knowledge and Competence in Patient Care</p>	<p>MK #2 MK #3</p>
<p>Students will elicit a detailed and accurate patient history, perform an appropriate physical examination, appropriately use and interpret diagnostic testing and laboratory studies, and formulate differential diagnoses and assessment plans for symptoms/conditions (listed in Neurosurgery Clinical Rotation Topics above) commonly encountered in patients seeking emergent neurosurgery, acute neurosurgery, chronic neurosurgery, preoperative,</p>	<p>Preceptor Evaluation (80% average score on Patient competency section)</p>	<p>Medical Knowledge and Competence in Patient Care</p>	<p>PC #1 PC #2 PC #3 PC #4</p>

intraoperative, and/or postoperative care.			
Students will demonstrate technical skills common to Neurosurgery.	Preceptor Evaluation (80% average score on Patient competency section)	Medical Knowledge and Competence in Patient Care	PC #5
	Clinical Skills Checklist (Pass/Fail)		
Students will obtain and document information clearly and appropriately for the following types of patient encounters: (a) emergent problem-focused encounters, (b) acute problem-focused encounters, (c) chronic disease follow-up encounters, (d) preoperative encounters, (e) intraoperative encounters, and/or (f) post-operative encounters.	Preceptor Evaluation (80% average score on Interpersonal and Communication Skills competency section)	Medical Knowledge and Patient Care	ICS#2
Students will listen empathetically and effectively, communicate clearly, and utilize shared decision-making for patients seeking care in Neurosurgery.	Preceptor Evaluation (80% average score on Interpersonal and Communication Skills competency section)	Medical Knowledge and Patient Care	ICS #1
		Collaborative Practice	ICS #3 ICS #5
Students will facilitate difficult health care conversations in Neurosurgery.	Preceptor Evaluation (80% average score on Interpersonal and Communication Skills competency section)	Collaborative Practice	ICS #4
Students will demonstrate compassion, integrity, respect, patient responsiveness, and accountability while providing care to patients in a Neurosurgery setting.	Preceptor Evaluation (80% average score on Professionalism competency section)	Professionalism	P #1 P #2 P #3
Students will (a) seek, implement, and accept feedback, (b) reflect on performance and develop plans for	Preceptor Evaluation (80% average score on	Lifelong Learning	PBLPI #1 PBLP #2 PBLP #3

<p>self-improvement, and (c) locate, appraise, and integrate evidence-based studies related to Neurosurgery.</p>	<p>Practice-Based Learning and Proficiency Improvement competency section)</p>		
<p>Students will (a) promote a safe environment for patients seeking care in a Neurosurgery setting, (b) demonstrate knowledge of quality improvement methodologies and metrics, (c) recognize the unique role of PAs and other health professions in Neurosurgery, (d) work effectively with other health professionals to provide collaborative, patient centered neurosurgical care, (e) work effectively in an outpatient and/or inpatient health delivery settings, (f) incorporate considerations of cost awareness and funding into patients seeking care in an Neurosurgery setting, and (g) describe basic health payment systems and practice models for Neurosurgery.</p>	<p>Preceptor Evaluation (80% average score on Systems-Based Practice competency section)</p>	<p>Medical Knowledge and Patient Care</p>	<p>SBP #1 SBP #6</p>
		<p>Lifelong Learning</p>	<p>SBP #2</p>
		<p>Collaborative Practice</p>	<p>SBP #3 SBP #4 SBP #5 SBP #7</p>

Neurosurgery Preceptor Evaluation of the Student

1. What is your group and/or site name (i.e., Corwell Health Neurosurgery)
2. Medical Knowledge: This section evaluates the student's ability to demonstrate medical knowledge, clinical reasoning, and problem-solving ability of sufficient breadth and depth to practice medicine as an entry-level physician assistant.

	60% (Failing)	70% (D+/ C-)	80% (C+ / B)	90% (B+/ A-)	100% (A)	N/A
Student demonstrates medical knowledge in pathophysiology, etiology, and epidemiology for patients seeking medical care for common conditions encountered in Neurosurgery in the following age populations (MK#2, 3):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of patient presentations for common conditions encountered in Neurosurgery for the following age populations (MK#2,3):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of differential diagnosis and diagnostic work-up for patients seeking medical care for common conditions encountered in Neurosurgery in the following age populations (MK#2,3)						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of patient management strategies for patients seeking medical care for common conditions encountered in Neurosurgery in the following age populations (MK#2,3):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Student demonstrates medical knowledge of health promotion and disease prevention for patients seeking medical care for common conditions encountered in Neurosurgery in the following age populations (MK#2, 3)						
Infants						
Children						

Adolescents						
Adults						
Elderly						
Additional Comments:						

3. Patient Care: This section evaluates the student's ability to provide person-centered care that includes patient- and setting-specific assessment, evaluation, management, and health promotion.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)	N/A
Elicit a detailed and accurate history and perform an appropriate physical examination for the following populations encountered in neurosurgery (PC#1):						
Infants						
Children						
Adolescents						
Adults						
Elderly						
Elicit a detailed and accurate patient history for patients encountered in Neurosurgery seeking (PC#1):						
Emergent						
Acute care						
Chronic care						
Preoperative care						
Intraoperative care						
Postoperative care						
Perform appropriate physical examination for patients encountered in Neurosurgery seeking (PC#2):						
Emergent						
Acute care						
Chronic care						
Preoperative care						
Intraoperative care						
Postoperative care						
Student demonstrates knowledge of the appropriate use and interpretation of diagnostic testing and laboratory studies commonly used for patients seeking (PC#3):						
Emergent						
Acute care						
Chronic care						
Preoperative care						
Intraoperative care						
Postoperative care						
Student organizes information from the interview, diagnostic testing, and physical examination to formulate differential diagnoses for patients seeking (PC#4):						
Emergent						

Acute care						
Chronic care						
Preoperative care						
Intraoperative care						
Postoperative care						
Student organizes information from the interview, diagnostic testing, and physical examination to formulate assessment plans for symptoms/conditions commonly encountered in patients seeking (PC#4):						
Emergent						
Acute care						
Chronic care						
Preoperative care						
Intraoperative care						
Postoperative care						
Demonstrate basic technical skills common to Neurosurgery. (PC#5):						
Additional Comments:						

4. Interpersonal and Communication Skills: This section evaluates the student’s ability to demonstrate verbal and non-verbal communication skills needed to have respectful, compassionate, and effective conversations with patients, patients’ families, and health professionals to exchange information and make medical decisions.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)	N/A
Listen empathetically and effectively to patients seeking care in Neurosurgery (ICS#1)						
Obtain and document information clearly and accurately at an appropriate level the following types of patient encounters (ICS#2):						
Emergent problem-focused encounters						
Acute problem-focused encounters						
Chronic disease follow-up encounters						
Preoperative encounters						
Intraoperative encounters						
Post-operative encounters						
Communicate information clearly to patients, families, colleagues, and teams as appropriate across a broad range						

of socioeconomic and cultural backgrounds. (ICS#3)						
Facilitate difficult health care conversations in Neurosurgery (ICS#4):						
Utilize shared-decision making to promote patient-centered communication by eliciting and incorporating patient preferences (ICS#5)						
Additional Comments:						

5. Professionalism: This section evaluates the student’s ability to demonstrate commitment to carrying out professional responsibilities and adhering to ethical principles and practices.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)
Demonstrate compassion, integrity, and respect for patients seeking care in a Neurosurgery setting (P#1)					
Demonstrate responsiveness to patient needs that supersede self-interest while providing care in a Neurosurgery setting (P#2)					
Show accountability to patients, society, and the profession while providing care in a Neurosurgery setting (P#3)					
Demonstrate leadership and advocacy for the PA profession (P#4)					
Additional Comments:					

6. Practice-Based Learning and Proficiency Improvement: This section evaluates the student’s ability to acquire, appraise, and apply evidence-based medicine to patient care, and accurately assess and improve clinical performance based on constant self-evaluation and lifelong learning.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)
Seek, implement, and accept feedback (PBLPI#1)					
Reflect on performance to identify strengths and deficiencies in one’s knowledge and expertise and develop a plan for self-improvement (PBLPI#2)					

Locate, appraise, and integrate evidence-based studies related to Neurosurgery (PBLPI#3)					
Additional Comments:					

7. Systems-Based Practice: This section evaluates the student's ability to engage with other healthcare professionals in a manner that optimizes patient care within the context of the larger healthcare system.

	60% (Failing)	70% (D+/ C-)	80% (C+/ B)	90% (B+/ A-)	100% (A)
Promote a safe environment for patients seeking care in a Neurosurgery setting (SBP#1)					
Demonstrate knowledge of quality improvement methodologies and metrics in Neurosurgery (SBP#2)					
Recognize the unique roles of PAs and those of other healthcare professions in Neurosurgery (SBP#3)					
Work effectively with other health professionals to provide collaborative, patient centered neurosurgical care (SBP#4)					
Work effectively in an inpatient and/or outpatient health delivery setting (SBP#5)					
Incorporate considerations of cost awareness and funding sources into patients seeking care in a Neurosurgery setting (SBP#6)					
Describe basic health payment systems and practice models for Neurosurgery (SBP#7)					
Additional Comments:					

8. Did the student have any absences during the rotation?
- Yes
 - No
 - If yes, please indicate dates and reason for absence:
9. Please write a short note commenting on this student's particular strengths.
10. Please write a short note commenting on this student's particular areas for improvement.
11. Was this evaluation discussed with the student?
- Yes
 - No
 - Additional comments:

12. Preceptor Signature: