Mapping of Neurosurgery Curricular Competencies with Assessment Tools

This outline maps curricular competencies\objectives with the assessment tools and potential test type. Tests will emphasize certain parts of the outline, and no single test will include questions on all aspects. Questions may include content that is not included in this outline.

Construct	Domain	Rotation	Year	Code	Performance indicator (Curriculum)	Page #	Learning Domain (1:Cognitive, 2:Skills, 3:Attitude)	Assessment Method			
								MCQ - Part I Written	MCQ - Final Written	OSCE - Final Clinical	SOE - Final Clinical
A. Medical Expert	A1. Basic science	General	Junior	A1.1	Apply knowledge of the basic and clinical sciences relevant to surgical neurology.	11	1	*	*		*
		Spinal Surgery	NA	A1.2	Understand and review the anatomy of different spinal regions with an emphasis on junctional zones.	18	1	*	*		*
				A1.3	Recognize the basic biomechanics of different spinal regions and how they relate to spinal anatomy.	18	1	*	*		*
				A1.4	Review the pathogeneses of different spinal pathologies and how they impact treatment.	18	1	*	*		*
				A1.5	Understand basic spinal cord anatomy and its blood supply, pathological conditions, and related clinical presentations.	18	1	*	*		*
				A1.6	Understand the pathology of spinal cord injuries.	18	1	*	*		*
		Functional Surgery		A1.7	Understand the principles of stereotactic surgery and the basic science of basal ganglia and motor circuits	18	1	*	*		*
		Neurovascular Surgery		A1.8	Understand the neurovascular anatomy of the brain and spinal cord	18	1	*	*		*
				A1.9	Understand the pathophysiology of various neurovascular problems affecting the brain and spinal cord	18	1	*	*		*
		Neuro-oncology		A1.10	Understand the basic pathological descriptions of intracranial tumors affecting the brain, skull base, spinal cord, and peripheral nerves.	18	1	*	*		*
				A1.11	Understand the pathophysiology of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
				A1.12	Understand the latest molecular genetics research into brain neoplasms.	18	1	*	*		*
				A1.13	Clearly understand intracranial brain cysts, non-neoplastic lesions, and other benign pathologies.	18	1	*	*		*
		Pediatric Neurosurgery		A1.14	Understand the basic pathological descriptions of common congenital anomalies in spinal dysraphysim, hydrocephalus, and encephalocele.	19	1		*		*
				A1.15	Understand the principle mechanics, and genetic basis of craniosynostosis and syndromic craniosynostosis.	19	1		*		*
				A1.16	Understand the genetics of infantile and pediatric brain tumor.	19	1		*		*
		General Neurosurgery		A1.17	Understand the pathophysiology and types of head trauma.	19	1		*		*
				A1.18	Understand the pathophysiology of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
				A1.19	Understand the pathophysiology, types, critical care of head trauma.	19	1		*		*
	A2. Assessment &	General	Junior	A2.1	Obtain a detailed an accurate medical history.	11	2			*	
				A2.2	Conduct a thorough and accurate general and neurological physical examination.	11	2			*	
				A2.3	Perform a differential diagnosis by evaluating symptoms and signs.	11	1	*	*		*
				A2.4	Thoroughly understand the use and interpretation of ancillary diagnostic aids for neurological diseases.	11	1	*	*		*
				A2.5	Localize the precise anatomical sites of neurological disorders based on clinical findings and investigations.	11	1	*	*		*
		Neurovascular Surgery	NA	A2.6	Can diagnose all neurovascular lesions.	18	1,2		*	*	*
				A2.7	Understand various surgical approaches and techniques for vascular lesions.	18	1		*		*
		Neuro-oncology		A2.8	Understand the clinical presentations of patients with brain tumors and understand different assessment	18	1		*		*
				A2.9	Understand the diagnosis of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
				A2.10	Can recognize, diagnose various nervous system pathogens, with emphasis on immunocompromised cases and common infections.	19	1		*		*
				A2.11	Clearly understand intracranial brain cysts, non-neoplastic lesions, and other benign pathologies.	18	1	*	*		*
				A2.12	Understand the clinical presentations of patients with brain tumors and understand different assessment	18	1	*	*		*
		Spinal Surgery		A2.13	Understand the assessment of spinal cord injuries.	18	1	*	*		*
		Pediatric Neurosurgery		A2.14	Understand the clinical presentation of phakomatosis or neurocutaneous tumor genetics.	19	1		*		*
		General Neurosurgery		A2.15	Understand the diagnosis of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
	A3. Management	General	Junior	A3.1	Outline a medical and surgical management plan.	11	1	*	*		*
				A3.2	Can track outcomes of cases in which one has had significant involvement.	12	3				
				A3.3	Manage common and important perioperative problems.	11	1	*	*		*
		Neurovasuclar Surgery	NA	A3.4	Understand various surgical approaches and techniques for vascular lesions	18	1	*	*		*
				A3.5	Selects appropriate techniques for managing these lesions, including neuro intervention procedures and radiosurgery.	18	1		*		*
				A3.6	Can manage all neurovascular lesions.	18	1		*		*
		Neuro-oncology		A3.7	Understand the treatment options for patients with brain tumors	18	1	*	*		*
				A3.8	Clearly understand intracranial brain cysts, non-neoplastic lesions, and other benign pathologies.	18	1	*	*		*
				A3.9	Understand the management of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
				A3.10	Can manage various nervous system pathogens, with emphasis on immunocompromised cases and common infections.	19	1		*		*
				A3.11	Understand the treatment options of patients with brain tumors and understand different assessment	18	1		*		*
				A3.12	Be able to plan and execute standard and complex surgical approaches.	18	1		*		*

		Pediatric Neurosurgery		A3.13	Understand the management of different types of phakomatosis or neurocutaneous tumor genetics	19	1		*		*
				A3.14	Understand the importance of minimal blood loss and proper technique to avoid excessive blood loss.	19	1		*		*
				A3.15	Understand the management of craniosynostosis and syndromic craniosynostosis.	19	1		*		*
		General Neurosurgery		A3.16	Understand the perioperative management of neurosurgical patients and how to avoid complications.	19	1		*		*
				A3.17	Understand positions and approaches for neurosurgical procedures.	19	1		*		*
				A3.18	Understand the management of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
				A3.19	Can manage various nervous systempathogens, with emphasis on immunocompromised cases and common infections.	19	1		*		*
				A3.20	Understand positions and approaches for neurosurgical procedures.	19	1		*		*
				A3.21	Is familiar with the neurosurgical armamentarium.	19	3		*		*
				A3.22	Understand the management of peripheral nerve entrapments, injuries, and neoplasms.	19	1		*		*
				A3.23	Understand the indications and outcomes for brain injury rehabilitation.	19	1		*		*
				A3.24	Understand the timely surgical management of head trauma.	19	1		*		*
		Functional Surgery		A3.25	Understand surgeries for movement disorders	18	1	*	*		*
				A3.26	Understand surgeries for epilepsy	18	1	*	*		*
				A3.27	Understand neurosurgeries for pain	18	1	*	*		*
				A3.28	Understand other current applications of functional neurosurgery	18	1	*	*		*
		Spinal Surgery		A3.29	Understand the modern treatment of spinal cord injuries.	18	1	*	*		*
	A4. Health Promotion & Illness Prevention	General Surgery	Junior	A4.1	Understand how to avoid complications during the perioperative period of neurosurgical patients	19	1		*		*
B. Communicator			Junior	B.1	Demonstrates proficient verbal and written communication with patients and their relatives.	12	3			*	
				B.2	Can explain neurological diseases.	12	3			*	
				B.3	Can guide patients and their families to sources of reliable information about neurosurgical conditions and coping methods.	12	3			*	
				B.4	Can seek and understand feedback from patients and their families regarding care given by oneself and one's team.	12	3			*	
				B.5	Demonstrates proficiency in dictating and charting the following: Histories, Physical Examinations, Consultations, Progress notes, Discharge summaries, Preoperative notes, Operative notes.	12	2				
			Senior	B.6	Accurately informs and adivses family or other significant associates of procedure completion, expected outcomes and risks, and plans for the early postoperative phase.	12	3			*	
				B.7	Can list management options and present information needed for informed consent for surgery while confirming that the patient or substitute decision-maker has adequate recall and uderstanding of that information.	12	3			*	
				B.8	Demonstrates proficiency in presenting clinical and investigative information at teaching rounds and scientific conferences and can interactively engage the audience and accurately evaluate learning results.	12	2				
C. Collaborator			Junior	C.1	Can effectively participate in interdisciplinary meetings and demonstrate proffesional behavior, respect for healthcare team members' opinions, comprehension of others' in-depth expertise, and contribution to decision-making.	12	3				
				C.2	Demonstrates awareness of his/her limitations and those of other healthcare team members by not anticipating and declining performance of surgery if he/she is unfamiliar with the patient and/or the procedure.	12	3				
				C.3	Recognizes and respects boundaries between specialities.	12	3			*	
				C.4	Can interact with physicians and surgeons from other specialties.	12	3			*	
				C.5	Can perform surgical procedures accurately and efficiently and demonstrate the following: 1. Organizes tasks so that the surgical team can perform them efficiently and safely. 2. Anticipates next steps and communicates with team members to avoid unnecessary confusion, stress, and delay. 3. Uses proper technical lexicon in communicating with surgical nurses.	13	3			*	
D. Leader			Junior	D.1	Gradually improve clinical decision-making skills so that he/she can function independently at senior level.	11	3				
				D.2	Can properly use appropriate laboratory aids to document and substantiate the clinical diagnosis.	13	3				
				D.3	Can help others and himself/herself to become fully aware of each other's strengths and weaknesses in a timely and professional manner.	12	3			*	
				D.4	Demonstrates practical administrative skills such as arranging meetings, delegating tasks, chairing meetings, setting schedules and resolving problems with self-control and fairness.	13	3				
				D.5	Can evaluate his/her knowledge and abilities and their limitations	14	3				
				D.6	Addresses his/her limitations by asking for help from colleagues when he/she is uncomfortable with a cilinical situation.	15	3				
				D.7	Demonstrates a keen sense of responsibility and compassion.	15	3				
			Senior	D.8	Appropriately delegates clinical and scholarly tasks to residents and clerks and evaluates their results.	13	3				
				D.9	Evaluates himself/herself and fellow health professionals in an accurate, effective, professional, and timely manner.	15	3				
				D.10	Helps guide junior residents in all aspects of their learning and training.	15	3				
				D.11	Obtains informed consent, appropriately discusses the planned surgical intervention with a patient's relevant associates, and demonstrates the ability to prepare for the surgical procedure by: 1. Scheduling the procedure based on its urgency and duration. 2. Requisitioning the appropriate equipment. 3. Assembling a team capable of the procedure. 4. Accurately noting the portential teaching and learning opportunities and planning for their utilization.	13	2,3				
E. Health Advocate			Junior	E.1	In appropriate circumstances, acts as a health advocate for the patient to facilitate optimal outcomes.	13	3				
				E.2	Demonstrates awareness of efficacious prophylactic measures for various at-risk patient groups (e.g., educational interventions).	13	3			*	
			Senior	E.3	To be proactive when needed to overcome systemic problems such as access to healthcare resources for diagnosis and treatment.	13	3				
				E.4	Understands the determinants of health as they apply to neurosurgical patients and seeks to provide appropriate resources and opportunities for patient health and autonomy.	13	3				

F. Scholar			Junior	F.1	Clinical issues: identifies clinical issues that he/she does not fully understand and does the following: 1. Formulates a clinical question 2. Identifies his/her own knowledge and its limitations 3. Develops a plan for appropriate research 4. Assimilates and analyzes the material available 5. Consults other physicians and allied health care personnel as needed 6. Proposes a solution to the clinical question 7. Implements the solution 8. Evaluates the solution's efficacy 9. Formulates relevant new clinical questions	14	1				
				F.2	Educational issues: demonstrates ability to 1. Understand the principles of self-directed learning 2. Teach clinical clerks and undergraduates the various clinical and surgical aspects of neurosurgery 3. Impart appropriate clinical information to allied health personnel 4. Review textbooks, papers, and other publications prior to surgery and be comfortable with the surgical approach prior to the operation 5. Prepare for neuroscience rounds and neurosurgical seminars despite busy schedule 6. Study and use hardcopy and electronic sources to gather information relating to observations in the emergency room, clinics, and neurosurgical wards	14	1				
				F.3	Research issues: demonstrates ability to 1. generate a research question 2. review relevant literature 3. assimilate the literature 4. identify and collaborate with appropriate personnel 5. write a research proposal 6. conduct the research 7. disseminate the results by presenting at conferences, writing a paper for publication, and identifying future research possibilities	14	1				
			Senior	F.4	Accurately, consistently, and conspicuously incorporates evidence-based research and guidelines into treatment decisions and discussions, particularly noting points of controversy and progress.	14	1,3		*	*	*
				F.5	Supports, attends, and often organizes educational sessions for the neurosurgical team	14	3				
				F.6	Understand the scientific literature and the latest seminal articles.	18	1	*	*		*
G. Professional			Junior	G.1	Professionally interacts with patients, relatives, his/her peers and other healthcare personnel.	14	3				
				G.2	Respects the opinions of others.	14	3				
				G.3	Provides care in an honorable and ethical manner.	14	3				
			Senior	G.4	Demonstrates appropriate continuing patient care by completing and documenting frequent postoperative visits to ensure that patients' needs for comfort, safety, information, and optimal outcomes are met.	15	3				