

Appendix: Operative figures of neurosurgical procedures

				Minimum competency level at the end of training*			
Operative Totals		ADULT	minimum	optimum	1	2	3
1. Head Injuries	Total						
Burr holes (external ventricular drainage, ICP-monitoring, reservoir)		15	30				X
Chronic subdural haematoma		10	20				X
Craniotomy (extradural/subdural/intracerebral haematoma, contusions)		10	20				X
Depressed skull fracture		5	8				X
Dural repair (CSF fistula)		2	5		X		
Cranioplasty		5	10				X
2. Supratentorial Tumours and Lesions (Craniotomy)	Total						
Glioma		20	40				X
Metastasis		10	20				X
Meningioma		8	12				X
Pituitary adenoma (transsphenoidal - transcranial)		0	10		X		
Stereotactic/image guided tumour biopsy		10	20				X
Other lesions (epidermoid, arachnoidal cyst etc.)		2	4				
3. Posterior Fossa Lesions	Total						
Primary and metastatic tumours		3	6				X
Chiari malformation		2	4		X		
Other lesions (epidermoid, arachnoidal cyst etc.)		2	4		X		
4. Infection (cranial - spinal)	Total						
Abscess / subdural empyema		5	10				X
5. Vascular Neurosurgery	Total						
Aneurysm clipping		0	5	X			
AVM		0	2	X			
Cavernous malformation		2	5		X		
Haematoma (spontaneous intracerebral and intracerebellar)		8	12				X
6. Hydrocephalus	Total						
Shunting procedure, initial		20	30				X
Shunt-revision		10	15				X
Third ventriculostomy		2	5		X		
External ventricular drainage		10	20				X
7. Spine	Total						
Cervical disc disease-spondylosis: anterior decompression/foraminotomy		15	25				X
Cervical instrumentation (anterior/posterior)		5	10		X		
Lumbar disc disease-spondylosis and spinal stenosis		50	70				X
Lumbar instrumentation		5	20		X		
Spinal Tumours: Extradural		3	5				X
Spinal Tumours: Intradural extramedullary		0	5		X		
Instrumentation in vertebral tumours		0	5	X			
Spinal Trauma: Decompression/Instrumentation		5	10		X		
8. Trigeminal Neuralgia and other neuralgias	Total						
Injection techniques, radiofrequency lesion		5	10		X		
Microvascular decompression		0	5	X			

9. Functional Neurosurgery	Total					
DBS, Thalamotomy, Pallidotomy	0	5	X			
Surgery for epilepsy	0	5	X			
Therapeutic electrostimulation (peripheral nerve, spinal)	10	20		X		
Implantation of ports/pumps for intrathecal drug delivery	10	20				X
10. Peripheral Nerve Surgery**	Total					
Entrapment decompression/transposition	30	45				X
12. Basic Techniques	Total					
Craniotomy supratentorial	60	80				X
Craniotomy posterior fossa	20	30				X

Operative totals		PAEDIATRIC		minimum	optimum	1	2	3
1. Hydrocephalus and Congenital Malformation	Total							
External ventricular drainage	5	10						X
Shunting procedure	5	10						X
2. Head and Spine Injuries	Total							
Burr holes, ICP-monitoring/drainage/reservoir	0	5				X		
Chronic subdural haematoma/hygroma	0	2				X		
Extra-/subdural hematoma	0	3				X		
3. Brain tumours and lesions (craniotomy)	Total							
Supratentorial and infratentorial tumors	0	5				X		

Other procedures that trainees have to assist or perform in part	minimum	1	2	3
Craniopharyngioma	5	X		
Pituitary adenoma (transphenoidal - transcranial)	10	X		
Vestibular neurinoma	10	X		
Parasagittal meningioma	10		X	
Complex basal / posterior fossa meningioma	10	X		
Aneurysm clipping	10	X		
AVM	5	X		
Carotid endarterectomy	3	X		
Thoracic disc disease	3	X		
Spinal Tumours: Intradural extramedullary	5		X	
Spinal Tumours: intramedullary	3	X		
Instrumentation in vertebral tumours	3	X		
Microvascular decompression	5	X		
Deep Brain Stimulation (DBS), Thalamotomy, Pallidotomy	5	X		
Surgery for epilepsy	5	X		
Craniosynostosis	5	X		
Paediatric supratentorial tumors	5	X		
Paediatric Infratentorial tumors	5	X		
Meningocele, meningomyelocele	3	X		
Tethering syndromes, spinal dysraphism	5	X		
Peripheral nerve sutures (with graft) **	3	X		

It is of great importance that within the specific areas there is sufficient experience. If the minimum of one key procedure is not fully met, this can be compensated by a comparable key procedure of the same area. The minimum operative total of each area should be attained.

For some operations only "optimum" figures are given. Some national societies may define such operations as key procedures.

* 1 Should have assisted in, but is unable to perform the procedure.

* 2 Competent to perform procedure under direct supervision.

* 3 Competent to perform procedure without direct supervision.

** In some European countries peripheral nerve procedures have not been a mandatory requirement.