Neurosurgical Training in Canada: A National Exit Survey of Program

Thank you for participating in this study. The purpose of this survey is to evaluate the effectiveness of the existing training programs in Canada at achieving the new Objectives of Training in Neurosurgery (revised July 2010).

Several surgical organizations have recognized the need to assess the value of residency training and the preparedness for practice. To date, there has been no comprehensive study conducted among neurosurgical residency graduates regarding the quality and value of their educational and training experience in preparing them for practice.

As such, with the support of the Royal College Specialty Committee for Neurosurgery, our aim is to determine the thoughts and attitudes of graduating neurosurgeons and their program directors (PDs) regarding the preparedness of trainees to practice independently in the areas outlined in the Objectives for Training. This information is useful to strategic planning and educational program development of neurosurgical residency programs in the future.

As a PD, we are asking you to complete one full survey for each resident who completed training in your program this year. For example, if two residents completed training in your program in June, please complete one full survey answering all questions in reference to the first resident. Once you have submitted the first questionnaire, re-click on the survey link and complete a second form answering all questions in reference to the second resident.

You will require approximately 15 minutes to complete each questionnaire in full. Your participation is voluntary; if you choose not to answer a question, simply close the browser and your data will not be recorded. If you have any questions or concerns, please contact the Primary Investigators.

Demographic Information

Please complete the following information regarding your residency training program. If you will be completing multiple surveys (due to multiple residents graduating from your program this year), please indicate only the name of your residency program and for all other fields, write "As prior".

*1. Please complete the following:

Residency Program Name:	
Number of Years as PD:	
Number of trainees who graduated from program while PD:	
Number of Trainees who graduated this year:	
Number of residents in program:	
Number of fellows in program:	
Number of nurse practitioners on affiliated teaching units:	
Number of attending neurosurgeons on faculty:	
Total annual caseload for program:	

Non-Procedural Knowledge and Skills Training

***2. This resident is able to perform the following tasks at the expected competence level for an attending neurosurgeon:**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
a. Perform a neurosurgical consultation	◯	◯	◯	◯	◯
b. Identify and respond to ethical issues	◯	◯	◯	◯	◯
c. Prioritize professional duties when faced with multiple patients and problems	◯	◯	◯	◯	◯
d. Demonstrate compassionate and patient-centered care	◯	◯	◯	◯	◯

If you checked (strongly) disagree for any of the above, please indicate what factors prevented this resident from completing these tasks to the expected level of competence

***3. This resident's knowledge in the following clinical areas is to the expected level of competence for an independent neurosurgeon:**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Clinical, socio-behavioural, and fundamental biomedical sciences relevant to neurosurgery (e.g. common neurological conidtions, neuroendocrinology, neuro-opthalmology/otology, neuropsychology, rehabilitation, anesthesia, pharmacology, infectious diseases, genetics, radiation therapy, epidemiology)	◯	◯	◯	◯	◯
Gross and microscopic pathology of neurosurgical conditions	◯	◯	◯	◯	◯
Anatomy, physiology and embryology of the nervous system and associated systems relevant to neurosurgical procedures	◯	◯	◯	◯	◯
Interpretation of diagnostic tests (CSF studies, electrophysiology, and neuroimaging)	◯	◯	◯	◯	◯

If you checked (strongly) disagree for any of the above, please indicate what factors have prevented this resident from gaining the necessary knowledge in these areas to the expected level of competence:

Standard Procedure Knowledge/Skills

***4. This resident is able to independently perform the following CRANIAL neurosurgical procedures:**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Burrholes for intracranial biopsy	◯	◯	◯	◯	◯
Burrholes for evacuation of hematoma	◯	◯	◯	◯	◯
Burrholes for intracranial pressure monitoring	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for evacuation of hematomas	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for treatment of intracranial infections	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for brain biopsy	◯	◯	◯	◯	◯
Decompressive craniectomy (supra/infratentorial)	◯	◯	◯	◯	◯
Utilization of image guidance technology	◯	◯	◯	◯	◯
The treatment of simple and compound depressed skull fractures	◯	◯	◯	◯	◯
Cranioplasty	◯	◯	◯	◯	◯
External ventricular drainage	◯	◯	◯	◯	◯
Endoscopic third ventriculostomy	◯	◯	◯	◯	◯
Ventricular shunt	◯	◯	◯	◯	◯
Ventricular or cyst access device insertion	◯	◯	◯	◯	◯

Please list all procedures from the above list that you do not feel this resident is able to perform independently and indicate what factors have prevented him/her from being able to do so (inadequate exposure/case load, too complex, etc.):

***5. This resident is able to independently perform the following procedures for the treatment of congenital, degenerative, neoplastic, traumatic and infectious SPINAL pathology:**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Anterior cervical discectomy	◯	◯	◯	◯	◯
Anterior vertebrectomy	◯	◯	◯	◯	◯
Posterior cervical laminectomy/ foramenotomy	◯	◯	◯	◯	◯
Posterior thoracic laminectomy	◯	◯	◯	◯	◯
Posterolateral thoracic decompression	◯	◯	◯	◯	◯
Posterior lumbar laminectomy	◯	◯	◯	◯	◯
Posterior lumbar discectomy	◯	◯	◯	◯	◯
Posterolateral lumbar decompression	◯	◯	◯	◯	◯
Anterior cervical spinal arthrodesis +/- instrumentation	◯	◯	◯	◯	◯
Posterior cranial-cervical/axial arthrodesis (occiput, C1, C2)	◯	◯	◯	◯	◯
Posterior subaxial cervical arthodesis	◯	◯	◯	◯	◯
Posterior throacolumbar arthrodesis (+/- instrumentation)	◯	◯	◯	◯	◯
Posterior lumbar arthrodesis (+/- instrumentation)	◯	◯	◯	◯	◯
Closed reduction and external immobilization of cervical spinal fractures	◯	◯	◯	◯	◯
Resection of intradural extramedullary spinal tumours	◯	◯	◯	◯	◯
Spinal CSF diversion/shunt	◯	◯	◯	◯	◯
CSF Leak Repair	◯	◯	◯	◯	◯

Please list all procedures from the above list that you do not feel this resident is able to perform independently and indicate what factors have prevented him/her from being able to do so (inadequate exposure/case load, too complex, etc.):

***6. This resident is able to independently perform the following neuro-oncological, neurovascular, pediatric, functional and peripheral nerve procedures:**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Craniotomy (supra/infratentorial) for resection of intrinsic/extrinsic tumors	◯	◯	◯	◯	◯
Transsphenoidal removal of pituitary tumours	◯	◯	◯	◯	◯
Ventricular endoscopy for tumour biopsy or excision	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for repair of cerebral aneurysms	◯	◯	◯	◯	◯
Extracranial cerebrovascular procedures (including carotid endarterectomy)	◯	◯	◯	◯	◯
Release of tethered cord	◯	◯	◯	◯	◯
Treatment of simple sagittal craniosynostosis	◯	◯	◯	◯	◯
Fontanelle tap	◯	◯	◯	◯	◯
Skull tumour biopsy/resection	◯	◯	◯	◯	◯
Microvascular decompression	◯	◯	◯	◯	◯
Percutaneous techniques for trigeminal neuralgia	◯	◯	◯	◯	◯
Carpal tunnel decompression	◯	◯	◯	◯	◯
Ulnar nerve decompression and transposition	◯	◯	◯	◯	◯
Nerve and muscle biopsy	◯	◯	◯	◯	◯
Sural nerve harvest	◯	◯	◯	◯	◯
Resection of simple nerve tumours	◯	◯	◯	◯	◯

Please list all procedures from the above list that you do not feel this resident are able to perform independently and indicate what factors have prevented him/her from being able to do so (inadequate exposure/case load, too complex, etc.):

Complex Procedure Knowledge

***7. This resident is able to describe the nature and purpose, indications, and potential complications of the following procedures to the expected competence level of an independent neurosurgeon:**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Craniotomy (supra/infratentorial) for complex aneurysms	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for vascular malformations	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for vascular reconstruction and bypass	◯	◯	◯	◯	◯
Craniotomy (supra/infratentorial) for complex intrinsic and extrinsic tumours	◯	◯	◯	◯	◯
Stereotactic and functional procedures: DBS, Spinal Stimulation, Intrathecal pump inserion, DREZ	◯	◯	◯	◯	◯
Surgical reatment of epilepsy	◯	◯	◯	◯	◯
Expanded endonasal skull base approaches	◯	◯	◯	◯	◯
Stereotactic radiotherapy and radiosurgery	◯	◯	◯	◯	◯
Carotid stenting and endovascular embolization of vascular and neoplastic lesions	◯	◯	◯	◯	◯
Transoral spinal decompression	◯	◯	◯	◯	◯
Thoracic anterior transcavitary spinal decompression (discectomy/vertebrectomy)	◯	◯	◯	◯	◯
Lumbosacral transabdominal or retroperitoneal spinal decompression (discectomy/vertebrectomy)	◯	◯	◯	◯	◯
Odontoid screw fixation	◯	◯	◯	◯	◯
C1/C2 fixation	◯	◯	◯	◯	◯
Multilevel complex spinal reconstruction and arthrodesis	◯	◯	◯	◯	◯
Cervical-thoracic arthrodesis	◯	◯	◯	◯	◯
Thoracic arthrodesis (+/- instrumentation)	◯	◯	◯	◯	◯
Vertebroplasty/Kyphoplasty	◯	◯	◯	◯	◯
Laminoplasty	◯	◯	◯	◯	◯
Surgical management of spinal cord tumours and vascular malformations	◯	◯	◯	◯	◯
Surgical management of complex dysraphic conditions	◯	◯	◯	◯	◯
Surgical management of brachial plexus lesions	◯	◯	◯	◯	◯
Nerve grafting	◯	◯	◯	◯	◯
Surgery for entrapment neuropathies other than CTS and ulnar nerve	◯	◯	◯	◯	◯
Surgical management of complex nerve tumours	◯	◯	◯	◯	◯
Sympathectomy	◯	◯	◯	◯	◯

If you checked (strongly) disagree for any of the above, please indicate what factors have prevented this resident from gaining the necessary knowledge in these areas to the expected competence level:

CanMEDS Competencies

***8. This resident has sufficiently developed skills in the following CanMEDS roles to the expected competence level for an independent neurosurgeon:**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Communicator: Be able to establish a theraputic relationship, elicit, synthesize and convey relevant information, develop a shared plan of care and communicate this orally and in written form	◯	◯	◯	◯	◯
Collaborator: Be able to participate effectively in an interprofessional health care team and work with others to resolve interprofessional conflict	◯	◯	◯	◯	◯
Manager: Be able to contribute to the effectiveness of the health care organization and system, manage a practice/ career, allocate finite resources appropriately and serve in admin and leadership roles	◯	◯	◯	◯	◯
Health Advocate: Be able to responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations	◯	◯	◯	◯	◯
Scholar: Demonstrate a lifelong learning, critical appraisal, and contribute to the development and dissemination of new knowledge	◯	◯	◯	◯	◯
Professional: Be able to demonstrate committment to the health and well-being of individuals and society through ethical practice, profession-led regulation, and personal health and sustainable practice	◯	◯	◯	◯	◯

If you checked (strongly) disagree for any of the above, please indicate what factors have prevented this resident from developing the above CanMEDS competencies to the expected level:

Closing Remarks

9. Please provide any additional comments regarding your residency training program and its preparation of this resident for independent practice below: