UK, 27 collaboratives have been established in various specialties by trainees. Some published high quality trials with implications on their clinical fields. Evidence suggests that such endeavors improves trainees' research skills and may help cultivate a research culture tailored towards clinical trials. *Conclusions:* Given the growing evidence for research collaboratives in the UK, we propose launching the Canadian Neurosurgery Research Collaborative (CNRC) which currently represents 12 out of 14 neurosurgery programs in Canada, and planning its first multicenter prospective study.

P.011

Evaluation of educational needs in neurology in the province of Quebec: a survey-based study

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Background: In contrast with 56% of US medical schools, most Canadian medical schools do not offer a required clerkship neurology rotation. This study aims to assess the need for additional clinical neurology training in Quebec medical schools. *Methods:* Third and fourth year medical students from the province of Quebec completed surveys inquiring about accumulated theoretical teaching time, clinical neurology exposure, self-reported neurological examination proficiency and interest in additional training. *Results:* 66 students answered the survey. 43% were from Université de Montréal, 18 % from McGill University, 14% from Université Laval and 24% from Université de Sherbrooke. For theoretical teaching, 44% reported at least 60 hours (h) of teaching, 44% reported 40 to 60h and 23% reported 10 to 40h. For clinical exposure, 24% reported at least 60h, 8% reported 40 to 60h, 40% reported 10 to 40h and 29% reported less than 10h. Most students reported being comfortable with their neurological examination skills (58%) but still 41% were uncertain or felt uncomfortable. 80% indicated interest in receiving additional clinical exposure. *Conclusions:* Amongst Quebec medical students, clinical neurology exposure is likely insufficient. An important proportion of students remain uncomfortable with the neurological examination and most students are interested in additional neurological training.

P.012

Spinal durotomy repair simulator for deliberate microsurgical practice: integration into a residency training module

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Background: Deliberate practice is one aspect of gaining competency in surgical skills. We have previously integrated a vascular microsurgery module into our residency training curriculum, and have recently described our experience with constructing patient-specific spine models for simulating lumbar spinal durotomy repair. The goal of this project is to develop the necessary infrastructure to facilitate practice on the spine model during residency. *Methods:* A 3D-printed plastic lumbar spine model was created from a patient computed tomography scan. L2 was manually laminectomized, and paraspinal tissues were simulated using Polyvinyl Chloride (PVC)

Plastisol. Harvested bovine pericardium was sewn into tubular form as a dural substitute. The pericardial tubes were tied at either end and attached to intravenous tubing to create a closed loop water system. *Results:* We are developing a video tutorial describing how to setup and use the model. Residents will be recorded while performing a 1.5 cm durotomy and repair using a surgical microscope available in our training laboratory (Drake-Hunterian Neurovascular Laboratory, London, Ontario, Canada). Residents are asked to grade the realism of the model using a questionnaire. Metrics of quality are to be determined. *Conclusions:* Our proposed model is a cost-effective, easy-to-prepare lumbar spinal simulator that facilitates microsurgical practice during neurosurgical residency.

P.013

Conflicts of interest in neurosurgical research - comparing voluntary physician disclosure to mandatory company data

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Background: Industry involvement in neurosurgical research is common, creating financial conflicts of interest (COIs). Most journals require voluntary disclosure of financial COIs. In 2013, the Sunshine Act (SA) was passed in the US, mandating industry disclosure of all payments to physicians. The accuracy of voluntary disclosure can now be determined by comparing voluntary author disclosure with industry data. *Methods:* We reviewed disclosure statements and calculated rates of voluntary disclosure in major neurosurgical journals before (2011) and after (2013) the Sunshine Act to determine if voluntary disclosure increased after its implementation. We then determined the accuracy of voluntary disclosure in 2013, comparing voluntary disclosure with industry disclosure on the Open Payments Database (OPD). Mean, median and range of industry payments to neurosurgeons were calculated *Results:* Voluntary disclosure significantly increased in JNS-Spine only (10.7% to 35.4%,p<0.001) after implementation of the SA. The average rate of non-disclosure in all journals studied was 38.3% (Range 33.8%-42.2%)

$32,598,522.97 of industry payments were provided to 656 authors in the five-month period studied (Average $49,692.87/author) *Conclusions:* Voluntary COI disclosure in JNS- Spine increased after implementation of the Sunshine Act. Industry payments to physicians publishing in neurosurgery journals are common and rates of non-disclosure of COIs are high. The ethical implications of COIs and non-disclosure are discussed.

P.014

Cadaveric avian wing model complements live rat model in microsurgical simulation training for neurosurgical residents: technical aspects

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Background: Training of surgical residents based on the traditional Halstedian model is becoming increasingly scrutinized. The

emergence of competency-based training has put pressure on training programs to provide high-fidelity simulation sessions that compliment residents' training in the operating room. Here we present a novel combination of perfused cadaveric avian wing model in conjunction with live rats for neurosurgical resident training. *Methods:* The brachial artery of cadaveric duck wing was cannulated and connected to a roller pump. The duck wings remain perfused while residents performed microvascular anastomoses of the brachial and ulnar arteries. This took place prior to live rat modules. *Results:* The duck wing brachial artery diameter measured 1.5-2.0mm, similar to the proximal middle cerebral artery in humans. The ulnar artery diameter measured 1.0-1.5mm, similar to the cortical vessels. 8 interrupted stitches were placed during anastomosis using a 10-0 Nylon suture. Residents who performed the duck wing module felt more comfortable when they moved onto the live rat model with a shallower learning curve. *Conclusions:* The perfused cadaveric avian wing model provides intermediate to high fidelity simulation that complements the live rat model well. The number of rats needed for neurosurgical simulation training could be reduced via the use of avian wings.

P.015

Demographics of Canadian neurosurgery residents – a national cross-sectional study from the Canadian Neurosurgery Research Collaborative

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Background: The Canadian Neurosurgery Research Collaborative (CNRC) is a new consortium of neurosurgery residency programs set-up to facilitate the planning and implementation of multi-center studies. As a trainee-led organization, it will focus on resident-initiated, resident-driven projects. The goal of this study is to assess the demographics of Canadian neurosurgery residents, with particular focus on their academic and subspecialty interests. *Methods:* After approval by the CNRC, an online survey will be sent to all Canadian neurosurgery residents and fellows with reminders at 2, 4 and 6 weeks. Anonymous, basic demographic data will be collected. Specific interest towards the various subspecialties, research and academic vs community practice will be measured. The data will be crossed with the ongoing *Canadian Neurosurgery Operative Landscape* study to assess the impact of case volume on academic and subspecialty interests. *Results:* This is the first study providing a snapshot of Canadian neurosurgery residents at all levels of training. The study is ongoing and the official results will be presented at the meeting. As one of the first CNRC studies, it will also demonstrate the effectiveness of the collaborative. *Conclusions:* Understanding the demographics and interests of Canadian neurosurgery residents will allow the CNRC to better fulfill its mission.

P.016

Bimanual psychomotor performance in neurosurgical resident applicants assessed using NeuroVR (formerly NeuroTouch), a virtual reality simulator

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Background: Current selection methods for neurosurgical residents lack objective measurements of psychomotor performance. This pilot study was designed to answer three questions: 1) What are the differences in bimanual psychomotor performance among neurosurgical residency applicants using the NeuroVR (formerly NeuroTouch) neurosurgical simulator? 2) Are there exceptionally skilled medical student applicants? 3) Does previous surgical exposure influence surgical performance? *Methods:* Medical students attending neurosurgery residency interviews at McGill University were asked to participate. Participants were instructed to remove 3 simulated brain tumors. Validated tier 1, tier 2, and advanced tier 2 metrics were utilized to assess bimanual psychomotor performance. Demographic data included weeks of neurosurgical elective and prior operative exposure. *Results:* Sixteen of 17 neurosurgical applicants (94%) participated. Performances clustered in definable top, middle, and bottom groups with significant differences for all metrics. Increased time spent playing music, increase applicant self-evaluated technical skills, high self-ratings of confidence and increased skin closures statistically influenced performance on univariate analysis. A trend for both self-rated increased operating room confidence and increased weeks of neurosurgical exposure to increase blood loss was seen in multivariate analysis. *Conclusions:* Simulation technology identifies neurosurgical residency applicants at the extremes of technical ability and extrinsic and intrinsic applicant factors appear to influence performance.

NEUROLOGY

DEMENTIA, AGING, AND COGNITIVE

P.019

Trends in medication use over eleven years in patients presenting to a rural and remote memory clinic

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Background: Anticholinergic and sedating medications are generally contraindicated in those with cognitive decline. We examined trends in medication use by patients presenting to a rural and remote memory clinic (RRMC) between March 2004 and June 2015 to determine whether patterns of medication use have changed. *Methods:* The first 445 patients seen at the RRMC between 2004 and 2015 were included in this analysis. Medication lists were collected at the patient's initial visit, and