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

it was noted whether patients were taking anticholinergic or potentially sedating drugs. Statistical analysis (Spearman's Correlation) was conducted to examine trends in medication use over time. *Results:* Ninety-one patients (20.5%) were taking at least one anticholinergic medication. There was a statistically significant decline (25.0% in 2004 to 12.5% in 2014) in percentage of patients presenting with anticholinergic medications over the eleven years of this study (Spearman's correlation coefficient = -0.64, p=0.035). *Conclusions:* The most encouraging statistic to come from this study is a decline in anticholinergic medication use in this rural population. Prescribers must be properly informed to ensure that the number of medications per patient does not continue to rise, that medications are used only as necessary, and that potentially deleterious medications are avoided.

Epilepsy/EEG

P.020

Septo-optic dysplasia plus manifesting with medically refractory epilepsy

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Background: Septo-Optic Dysplasia is a rare disorder with developmental malformations that was first reported by De Morsier. SOD associated with refractory epilepsy has not been well studied. We report six cases with SOD in patients with malformation of cortical development(MCD) and medically refractory epilepsy that underwent video-EEG telemetry. *Methods:* Six cases of SOD plus were admitted to the Epilepsy Monitoring Unit at London Health Sciences Centre because of medically refractory epilepsy. Functional hemispherectomy in one patient resulted in significant reduction of her seizures while insertion of a vagus nerve stimulator was not successful in controlling seizures in another patient. Right temporal resection for one patient resulted in about 60% reduction in her seizures. The remaining three patients were not surgical candidates and they remained on antiepileptic drugs. *Results:* MCD was present in 4/6 patients. Bilateral optic nerve hypoplasia was found in 50% of the patients. EEG was abnormal in all cases(6/6).Intractable epilepsy was found in 6/6 patients. *Conclusions:* SOD plus was associated with medically refractory epilepsy.

Case	Brain MRI	Hypothalamic-pituitary axis MRI	EEG	Surgery	Seizure Outcome
1	Schizencephaly in bilateral frontal lobe absent septum pellucidum, pachygyria.	Normal	Multi-focal	No	
2	Bilateral perisylvian cortical dysplasia and polymicrogyria , absent septum pellucidum.	Normal	Multi-focal	VNS	Class5 ILAE Less than 50 Reduction of baseline seizu days
3	Absent septum pellucidum, hypoplasia of chiasm and bi-optic nerve,right frontal cortical dysplasia , agenesis of corpus callosum .	Normal	Right hemi-sphere	Right functional hemi-spherec-tomy 2000	Class 3 ILAE One to three seizure days p year; with or without auras
4	Schizencephaly, absent septum pellucidum, cortical dysplasia, hypoplasia of chiasm ,optic nerve and pituitary gland.	Hypoplastic anterior pituitary	Right temporal	right temporal neocortical resection in 2006	Class 4 ILAE Four seizure days year to 50% reduct of baseline seizu days; with or without auras
5	Absent septum pellucidum, hypoplasia of chiasm and optic nerve,, agenesis of corpus callosum ,heterotopia.	Normal	Multi-focal	No	
6	Absent septum pellucidum, hypoplasia of chiasm and bi-optic nerve,pituitary gland, agenesis of corpus callosum.	Hypoplastic anterior pituitary	Multi-focal	No	

P.021

Seizures among drivers in Newfoundland and Labrador

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Background: Regulation of drivers licences aims to strike a balance between autonomy and public safety. In Newfoundland and Labrador, an individual experiencing seizures must have a 6-month seizure-free interval before a driving licence is reinstated, although exceptions apply. There is a paucity of data surrounding driving safety in people with epilepsy. *Methods:* The Department of Motor Vehicles and Registration extracted data from the charts of drivers experiencing seizures for the period between 2010-2014, inclusive. Two groups were examined: drivers aged 16-24 (n=104) and 75+ (n=115). Given that mandatory reporting is required in Newfoundland and Labrador, this theoretically represents a population-based study. *Results:* Overall, 5.1% of the population experienced a motor vehicle collision, and collisions were more frequent among younger drivers. Significantly more people in the 75+ category had a medical history that could have contributed to seizures. Only 37.6% of the overall sample had their first seizure reported. This was not different between age groups or seizure types (generalized vs. focal). Though the age groups differed with respect to seizure type, this did not affect driving safety, as measured by motor vehicle collisions and driving disobedience. *Conclusions:* We found a high rate of driving disobedience despite the requirement for mandatory reporting and seizure type did not affect driving safety.