CONCLUSION: Surgeons are more likely to have a fixed mindset when compared to medical students as well as the general population. This can be explained in several ways: (1) medical students with a fixed mentality are more likely to pursue surgical fields, (2) students develop a fixed mentality as they progress into a surgical career, or (3) a fixed mentality is selected for in the surgical fields. These results provoke questions about what a predominantly fixed mindset means in a population as successful as that of neurosurgeons.

177
ENGAGED: Educating Nurses about Postoperative Delirium on the Neurosurgical Floor
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INTRODUCTION: Delirium is a common, preventable postoperative complication in older adults which frequently goes unrecognized. Delirium is associated with multiple adverse outcomes including increased length of stay, falls, pressure ulcers, functional decline, and discharge to nursing facility.

METHODS: Nurses on the neurosurgical floor were asked to attend a 45-minute educational session conducted by a geriatric health care provider. Surveys regarding delirium knowledge were administered before and after each session. Three Registered Nurses (RNs) became nurse champions to implement the 4AT and facilitate change in nursing workflow. Patient charts were audited using an EMR Reporting Tool to monitor rates of delirium screening.

RESULTS: A greater proportion of nurses (76.07%) answered delirium knowledge questions correctly post-intervention as compared to pre-intervention (67.86%). The chi-square test showed the impact of nursing education was statistically significant ($P = .0167$, $CI = 0.4763-0.9294$). Daily delirium screening rates improved from 0% at baseline to 81.6% in a randomly selected 5-day period 7 weeks post-intervention.

CONCLUSION: A delirium initiative utilizing nurse champions can be effective in educating nurses about delirium and initiating delirium screening on a postoperative neurosurgical floor. Further studies are needed to determine if nursing delirium education and improved delirium recognition will lead to improved outcomes for older adults undergoing spine surgery.

178
Establishing an Interactive Web-based Neurosurgery Resident Curriculum: Challenges and Opportunities in the Time of COVID
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INTRODUCTION: During this unprecedented time, standard residency didactic conferences have been put on hold. Here we present our preliminary experience from a pilot program devised to optimize online resident education.

METHODS: We moved our residency didactic conferences to an online format. In order to create a streamlined process for didactics, a curriculum website was created to house the conference schedule, learning objectives, presentations, reading assignments, and assessments. Assigned reading topics, including any relevant publications were posted in advance of weekly didactics conference. It is known that spaced repetition improves recall. Therefore, quizzes are posted at the 1 week, and 3 week intervals after the lecture to prime recall and enhance retention of content. The lectures themselves were optimized for learning with active learning techniques such as case-based discussion, polling and games.

RESULTS: Residents prepare by reading the relevant material in advance of the lecture, and complete an Individual Readiness Assurance Test (iRAT). This new program was reviewed well by both faculty and residents participating in conferences.

CONCLUSION: With residency programs continuing to evolve, the challenges of educating trainees in a vast and ever-growing fund of knowledge are not unique. Our experience offers an outline for using a web based platform as part of a rigorous system for residency didactics, while taking advantage of online teaching tools to create an engaging learning environment.

179
Path to Reopening Surgery during the COVID-19 Pandemic: Neurosurgery Experience
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INTRODUCTION: The COVID-19 pandemic created a major public health threat to patients and health care systems around the world. Many hospitals cancelled elective surgeries to brace for the pandemic thus impacting many neurosurgical patients that had their surgeries postponed.

METHODS: We implemented several measures for staff and patients to minimize the risk of exposure to SARS-CoV-2. For surgical clearance, all patients needed to be tested for SARS-CoV-2 within 48h prior to the non-elective surgery. A triage protocol was implemented to manage patients in need of non-elective surgeries. A “drive-through” testing center was developed for preoperative surgical clearance to triage cases in need of non-elective surgery. Similarly, all patients admitted to the hospital were tested. Telemedicine played a big role in evaluating the need of surgery. We reviewed the clinical, radiographic, and laboratory data for all patients that underwent surgery within the neurosurgery department from March 26th to April 22nd 2020.

RESULTS: Using a combination of preoperative outpatient COVID-19 drive-through and inpatient testing to help obtain surgical clearance with selected telemedicine evaluations, 103 non-elective neurological procedures were performed on 102 patients. No patients tested positive for the COVID-19 testing prior to surgery. None of the operated patients developed any COVID-19 symptoms during their hospitalization or were re-admitted to our ED postoperatively for COVID-19 symptoms. A subset of patients developed symptoms suspect for COVID-19 postoperatively but were restested and all tested negative.

CONCLUSION: We describe a multi-faceted preoperative triage protocol for safely performing non-elective neurological cases during the COVID-19 pandemic, which could help other neurological departments and hospitals minimize coronavirus exposure for patients and
healthcare workers. We believe this triage strategy helps safely identify selected patients in need of neurosurgical care amidst hospital capacity concerns, COVID-19 testing limitations, limited personal protective equipment, and this approach could be implemented at other centers to gradually restart a process towards elective surgeries in a safe way.

180
An Assessment of Recent Trends in Endovascular and Open Vascular Neurosurgery Using Medicare Data: A 10-Year Analysis from 2009–2018
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INTRODUCTION: The development of endovascular technologies that supplant or support conventional microsurgical techniques has transformed cerebrovascular neurosurgery. While recent database studies have demonstrated an increasing preference for endovascular modalities, Medicare data has not been used to study corresponding national trends in this area across multiple intracranial vascular pathologies.

METHODS: ACGME case log statistical reports were used to identify 28 current CPT codes for open and endovascular neurosurgical procedures. Medicare payments and allowed services (number of reimbursed procedures) per CPT code were abstracted from the CMS Part B National Summary Data File from 2009–2018. Payments were adjusted for inflation to 2018 prices. Payments per procedure and procedures per 100,000 Medicare enrollees were analyzed via linear regression. Because new endovascular CPT codes were introduced in 2014 and 2016 for procedures that were historically coded alongside non-neurologic procedures, analyses of endovascular procedures were restricted to the 2016–2018 period.

RESULTS: From 2009–2018, the number of open vascular procedures reimbursed per 100,000 Medicare enrollees dropped linearly at a rate of -11.0 cases/year ($R^2 = 0.98, P < .001$), and at a slower rate of −7.9 cases/year ($R^2 = 0.99, P = .030$) from 2016-2018. Endovascular procedures reimbursed per 100,000 enrollees trended upwards from 2016–2018 (+5.5 cases/year; $R^2 = 0.98, P = .08$), outpacing the contemporaneous decline in reimbursed open vascular procedures ($t_2 = 17.4, P = .003$). Reimbursement per open vascular procedure fluctuated from 2009–2018 ($R^2 = 0.08, P = .437$). However, during 2016–2018, it declined by -$20.26 per year ($R^2 = 0.99, P = .046$) while payment per endovascular procedure grew +$14.80 per year ($R^2 = 0.99, P = .019$). By 2018, reimbursements for endovascular and open vascular procedures were $479.43 and $767.69, respectively.

CONCLUSION: Both the number of procedures reimbursed and the payment per procedure declined for open vascular procedures over the entire study period and specifically from 2016–2018. From 2016–2018 an upward trend in the number of reimbursed endovascular procedures was observed, as well as a significant increase in payment per procedure. By 2018, Medicare reimbursed 1.6 times as much for an open vascular neurosurgical procedure than an endovascular procedure.

181
Disparities in Inpatient Costs and Outcomes after Elective Anterior Cervical Discectomy and Fusion at Safety-net Hospitals. An Analysis from the National Inpatient Sample, 2002–2011
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INTRODUCTION: Better characterizing the disparities between safety-net hospitals and their counterparts is crucial for crafting national healthcare reform policies. The disparities in performing elective neurosurgery procedures like anterior cervical discectomy and fusion (ACDF) at safety-net hospitals have not yet been examined.

METHODS: The NIS from 2002 to 2011 was queried for patients who received ACDF in the context of degenerative cervical spine disease. Patients were excluded if they were less than 18 years old, were transferred from another hospital, received another major procedure, or had a diagnosis of trauma or malignancy. Hospital safety-net burden was designated as low (LBH), medium (MBH), or high (HBH) based on the proportion of inpatient admissions that were billed as Medicaid, self-pay, or charity care.

RESULTS: A total of 220,793 admissions were included in this analysis. HBHs were more likely than LBHs to treat patients who were Black (11.3% vs 7.0%), Hispanic (10.1% vs 3.9%), on Medicaid (8.8% vs 1.9%), or had myelopathy (27.5% vs 24.0%) ($P < .001$). After adjusting for patient factors (age, race, payer), hospital factors (teaching status, bedsize, procedure volume) and clinical factors (myelopathy, Elixhauser severity score), HBHs had greater in-patient inflation-adjusted log cost ($P < .001$), but not greater LOS ($P = .336$) or inpatient mortality ($P = .744$) than LBHs. Additionally, HBHs and MBHs did not differ in the rates of incidental durotomy ($P = .183$), DVT ($P = .127$), orSSI ($P = .073$).

CONCLUSION: Safety net hospitals had greater inpatient costs, but no greater LOS, inpatient mortality, or incidental durotomy rate after elective ACDF. Overall, this national analysis better characterizes the disparities that exist with safety-net hospitals performing ACDF.

182
Influence of Palliative Care on Cost, Procedure Utilization, and Complications after Severe TBI: A Nationwide Analysis
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INTRODUCTION: In the United States, traumatic brain injury (TBI) annually leads to 282,000 hospitalizations (2013) and over $60 billion in total costs (2010). Severe TBI is the most costly, and there is a need to find interventions to reduce economic burden while also enhancing patient outcomes. Palliative care (PC) aims to improve quality of life via optimizing symptom management and/or discussing care goals, and it has also been shown to reduce healthcare costs in multiple settings.