



Fusion

The Bi-Annual Newsletter of the Department of Neurological Surgery

UC DAVIS
HEALTH

Department of
Neurological Surgery

Issue 3: January to June 2020

Message from the Chair

Welcome to the third issue of Fusion, the newsletter of the UC Davis Department of Neurological Surgery. The past four months have been a remarkable journey through recognition, responsiveness, preparedness, and innovation. I am very proud of and grateful for the department's ability to adapt to quickly changing circumstances and for the consistent demonstration of teamwork. The Department has not missed a beat.

In April, we learned of our Comprehensive Stroke Center's certification by the Joint Commission on Comprehensive Stroke Centers. This recognition attests to our commitment to excellence and collaboration, and I applaud all faculty who participated in the site review process, particularly Drs. Waldau, Zimmermann, Martin and Kwan Ng in Neurology. We also earned certification as a Level 4 Epilepsy Center, for the provision of complex forms of neurodiagnostic monitoring, medical treatments, and surgical interventions in Epilepsy.

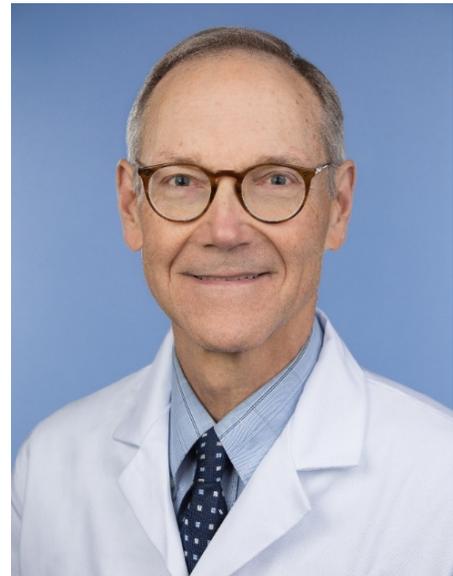
I sincerely appreciate the remarkable thoughtfulness and teamwork of the faculty, residents, nurses and staff in responding to Covid-19. We consolidated the call schedule and Kally Turner led virtualization of our meetings in an effort to reduce potential exposure and protect our most precious resource, our people. I wish to highlight the availability of Drs. Zwienerberg, Ebinu and Bloch throughout the initial months of the crisis and Dr. Waldau's uninterrupted call covering the cerebrovascular service as we worked to recruit partners for him. Faculty have received numerous expressions of heartfelt appreciation from grateful patients who needed care regardless of the risk Covid-19 posed. I am proud of the outstanding patient care being delivered by our department.

Our residency program, under the direction of Dr. Kia Shahlaie continues to flourish. Over the past several months, Dr. Shahlaie's leadership and uninterrupted communication revealed a clear path forward and continues to guide the residency program as we move into a new normal. Our approaches to student rotations, applicant interviews, and resident recruitment are also evolving; expect to see additional changes and an increasingly virtual format as we redesign our recruitment process.

I am especially grateful to Dr. Seun Omofoye, our 2020 resident graduate. Dr. Omofoye exhibited unwavering leadership, dedication and flexibility in the face of exceptional challenges. Our virtual graduation ceremony in June celebrated his numerous accomplishments and allowed us to express our appreciation for his contributions over the last two years. We plan to bring him back next year to honor him in person at our 2021 graduation ceremony in 2021. Dr. Omofoye will spend a year in a Neurooncology fellowship at Cedars Sinai Hospital in Los Angeles prior to seeking a position in academic neurosurgery. Seun, we are very proud of your achievements and wish you great success in the future.

We are pleased to welcome four new faculty members during the second half of 2020. Allan Martin, M.D., Ph.D., will join Drs. Kim and Ebinu in the Comprehensive Spine Center. Branden Cord, M.D., Ph.D., will work closely with Dr. Ben Waldau on the cerebrovascular service. Jeffrey Vitt, M.D., will join Drs. Martin and Zimmermann in neurocritical care and Orwa Aboud, M.D., Ph.D. will work with Dr. Bloch and our colleagues in the Comprehensive Cancer Center and Department of Neurology. I appreciate the efforts of Jennifer Aten, Joe Valadez, and Stacy Miller in recruiting these superb physicians. We are continuing our recruitment of a functional neurosurgeon and a senior scientist to lead our research effort. I am excited to see our department adapt and grow as we expand our practice of excellent care throughout northern California and adjacent states and provide superb education to our resident trainees.

Your commitment to excellence is apparent throughout our department. Faculty, residents, APP's, and clinic and department staff have all demonstrated a determination to serve our patients and collaborate with each other and our peers in the medical center. I am confident that we will surmount any challenge that the remainder of 2020 brings.



*Griffith R. Harsh IV, M.D., M.B.A.
Professor and Chair*

New Faculty Members

We are delighted to welcome Drs. Allan Martin and Branden Cord to the department.



Allan Martin, M.D., Ph.D., earned his Medical Degree in 2011 at the University of Toronto, and completed his Ph.D. in 2017 at the University of Toronto, Institute of Medical Sciences Surgeon Scientist Training Program. He graduated from the neurological surgery residency program at the University of Toronto in 2019 and completed a spinal fellowship in June of 2020. We look forward to welcoming Dr. Martin in the summer. Dr. Martin will join Drs. Kee Kim and Julius Ebinu in the Comprehensive Spine Center.



Branden Cord, M.D., Ph.D., completed his Medical Degree and Doctor of Philosophy degree in Medical Science in 2012 at Stanford University. He graduated from the Neurological Surgery Residency Program at Yale-New Haven Hospital in 2019 and completed an enrolled neuro-endovascular intervention fellowship in 2017. From 2017 to 2020 Dr. Cord was a Neurovascular Fellow and Clinical Instructor at Yale-New Haven Hospital in New Haven, Connecticut. Dr. Cord will join Dr. Ben Waldau in providing cerebrovascular neurosurgical services here at UC Davis.

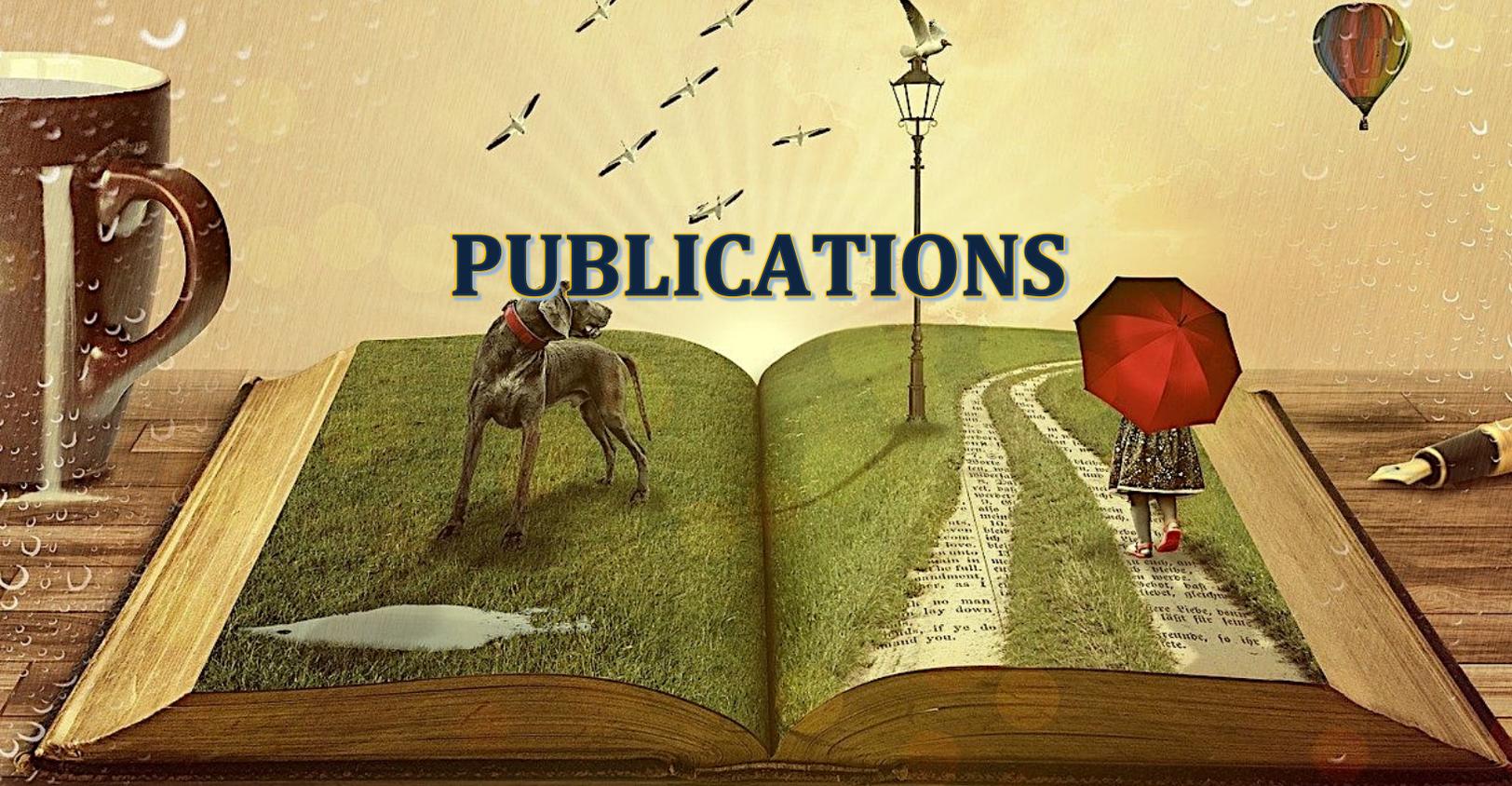
Drs. Jeffrey Vitt and Orwa Aboud will join the department in August.



Jeffrey Vitt, M.D., earned his Doctor of Medicine at the Georgetown University School of Medicine in Washington, DC in 2014. He graduated from the Neurology Residency Program at the University of California, San Francisco in 2018 and completed a clinical fellowship in neurocritical care also at the University of California, San Francisco in June of 2020.



Orwa Aboud, M.D., Ph.D., earned his medical degree at Damascus University in 2007. He completed his Ph.D. in neurobiology and neurosciences in 2013 and his residency training in neurology in 2017 at the University of Arkansas for Medical Sciences. Dr. Aboud has completed three-years of training in clinical and research neuro-oncology at the joint National Cancer Institute and Johns Hopkins University program. His research includes designing clinical trials for glioblastoma patients. He will join the department in August.



Dr. Orin Bloch is one of several authors of, [“The practical application of emerging technologies influencing the diagnosis and care of patients with primary brain tumors,”](#) an American Society of Clinical Oncology Educational Book.

Dr. James Boggan partnered with other UC neurosurgeons in a study funded by the UCOP and the Center for Health Quality and Innovation Quality Enterprise Risk Management which examined OR team communications and its relationship to clinical outcomes, safety and costs. They published, [“UC-Care check – a postoperative neurosurgery operating room checklist: an interrupted time series study,”](#) in the January issue of the Journal of Healthcare Quality.

Dr. Michael Edwards co-authored, [“Recurrence of cavernous malformations after surgery in childhood,”](#) published in the May issue of Journal of Neurosurgery: Pediatrics which looked at the “clinical presentation, outcomes, and recurrence rate following surgery for a large cohort of CMs in children”.

Dr. Gene Gurkoff and **Dr. Marike Zwieneberg** were two of six authors of, [“A new model of repeat mTBI in adolescent rats,”](#) published in the May issue of Experimental Neurology. This study “combined two existing models for inducing TBI in rats, the Impact Acceleration and Controlled Cortical Impact models, to create a new method relevant to the study of cognitive sequelae of repeat mTBI in adolescent athletes”.

Dr. Griff Harsh is one of multiple authors of, [“A phase I/II trial of 5-fraction stereotactic radiosurgery with 5-mm margins with concurrent temozolomide in newly diagnosed glioblastoma: primary outcomes”](#), published in the January issue of Neuro-Oncology.

Dr. Kee Kim and collaborators published, [“Effects of pre-contoured and in situ contoured rods on the mechanical strength and durability of posterior cervical instrumentation: a finite element analysis and scanning electron microscopy investigation”](#) in the May issue of Spine Deformity.

Dr. Ryan Martin and **Dr. Lara Zimmerman** are among multiple authors of [Treatment of adults with intracranial hemorrhage on apixaban or rivaroxaban with prothrombin complex concentrate products](#), e-published ahead of print in the June issue of the Journal of Thrombosis and Thrombolysis. This publication reports the result of a retrospective study of patients admitted with apixaban or rivaroxaban related ICH at three Level 1 trauma centers over 4-years.

Dr. Ignacio Saez and **Dr. Kia Shahlaie** collaborated with colleagues in Neurology, Drs. Eric Ovruchesky, Jeffrey Kennedy and Masud Seyal to write, “[Superior accuracy and precision of SEEG electrode insertion with frame-based vs. frameless stereotaxy methods](#),” published in the May issue of Acta Neurochirurgica.

Dr. Kia Shahlaie published 6 articles in the first half of 2020. He collaborated with resident Dr. Amir Goodarzi and colleagues Dr. Mirna Lechpammer from the Department of Pathology and Drs. Hilary Brodie and Rodney Diaz from the Department of Otolaryngology on “[Internal acoustic canal stenosis due to hyperstosis](#),” in the June issue of the Journal of Neurological Surgery Part B. This article examines two cases managed by surgery and a review of previously reported clinical outcomes.

In, “[Seizure-related apneas have an inconsistent linkage to amygdala seizure spread](#),” **Dr. Shahlaie** and Drs. Park, Kanth, Bajwa and Seyal from Neurology note that seizure-related apneas are common and implicated in the pathophysiology of sudden unexpected death in epilepsy. The article was published in the May issue of Epilepsia.

Dr. Shahlaie collaborated with our graduating resident, Dr. Omofoye and medical students, Robert Riestenberg and Dennis Lee from Dr. Bloch’s lab on “[Subarachnoid fat dissemination secondary to intrathecal pump](#),” published in April issue of the Journal of Clinical Neuroscience.

Dr. Shahlaie and **Dr. Martin** were among several authors of, “[The increasing age of TBI patients at a single level 1 trauma center and the discordance between GCS and CT Rotterdam scores in the elderly](#),” published in the February issue of Frontiers in Neurology.

Drs. Saez and **Shahlaie** collaborated with Dr. Lin Zhang, former faculty member Dr. Fady Girgis and other colleagues to write, “[Comparison of intraoperative computed tomography scan with postoperative magnetic resonance imaging for determining deep brain stimulation electrode coordinates](#),” published in the June issue of World Neurosurgery.

Dr. Ben Waldau obtained funding for and designed the experiments that contributed to his article, [Cyclin D2-knock-out mice with attenuated dentate gyrus neurogenesis have robust deficits in long-term memory formation](#), published in Scientific Reports a Nature research journal.

Dr. Lara Zimmermann is one of several authors of “[Guidelines for the acute treatment of cerebral edema in neurocritical care patients](#)”, in the June issue of Neurocritical Care. This article provides recommendations for treating cerebral edema and elevated cranial pressure in a variety of neurocritical care patients.

Dr. Marike Zwienenberg and **Dr. James Boggan** contributed authorship to, “[A genome-wide association study implicates the BMP7 locus as a risk factor for nonsyndromic metopic craniosynostosis](#)” in the April issue of Human Genetics. This article “provides additional insights into genetic factors in midline CS”.

Publication Analysis 2014-2019

In May 2020, the Office of Research provided publication metrics from SciVal covering 5-years of scholarly output and impact. From 2014 to 2019 the Department of Neurological Surgery had 325 publications, averaging 55 per year. We were cited over 3,337 times. We are effective collaborators, co-authoring 170 articles with 275 colleagues from UC Davis. After UC Davis, our top author collaborators come from Stanford, Northwestern, UCSF and UCLA. Sixty-six of our publications are in the top 10% of the most cited publications worldwide. We are justifiably proud of the scholarly output and the faculty and residents of the department.

Chart 8: Number of Publications at SOM in Top 10% Journals from 2014 to 2019 (Source: SciVal)

Department: Neurological Surgery

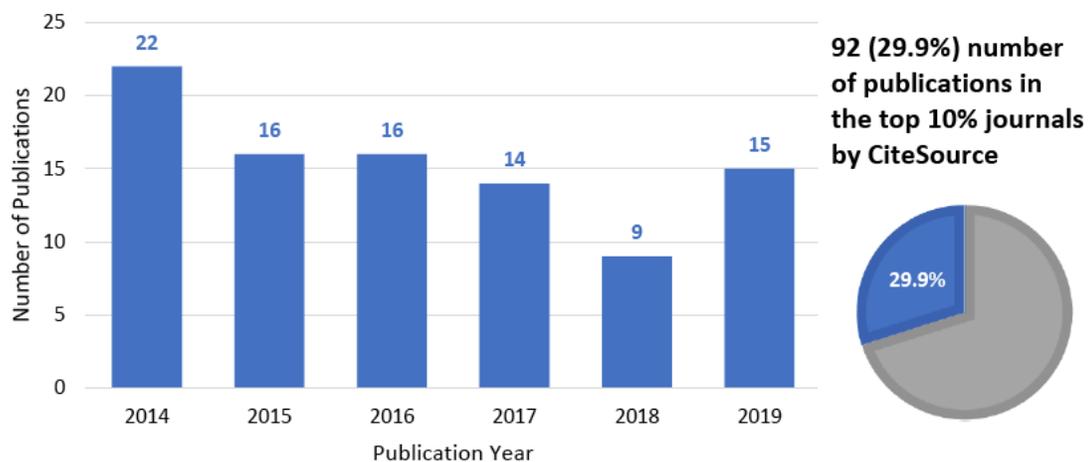


Chart 9: SOM Top 20 Research Topics from 2014 to 2019 (Source: SciVal)

Department: Neurological Surgery

Topic	Scholarly Output	Field-Weighted Citation Impact
Discectomy; Spine; Cervical degenerative	16	2.36
Fragile X Syndrome; Fragile X Mental Retardation Protein; Inherited intellectual	14	1.54
Glioblastoma; Glioma; Glioblastoma GBM	10	2.08
Chordoma; Neoplasms; Base chordoma	8	0.21
Neoplasm Metastasis; Brain; Multiple brain	7	1.47
Brain Injuries; Wounds and Injuries; Percussion injury	7	1.04
Meningioma; Neoplasms; Atypical meningiomas	5	1.59
Pituitary Neoplasms; Adenoma; Non-functioning pituitary	5	0.99
Brain Injuries; Seizures; Epilepsy PTE	5	1.18
General Surgery; Skull Base; Endonasal transsphenoidal	4	0.50
Discectomy; General Surgery; Transforaminal endoscopic	4	1.78
Spine; General Surgery; Thoracic pedicle	4	1.35
Radar; Doppler radar; IR-UWB radar	4	1.34
Brain Injuries; Patients; Neurosurgical intervention	4	1.13
Deep Brain Stimulation; Parkinson Disease; Microelectrode recording	3	0.58
Neuroma, Acoustic; Radiosurgery; Serviceable hearing	3	0.26
Venous Thrombosis; Intracranial Thrombosis; Thrombosis CVST	3	1.22
Reward; Learning; Cortex OFC	3	2.03
Epilepsy; Seizures; Fast ripples	3	0.21
Ependymoma; Neoplasms; Myxopapillary ependymoma	3	0.14

Chart 14: Output in Top Citations from 2014 to 2019 (Source: SciVal)

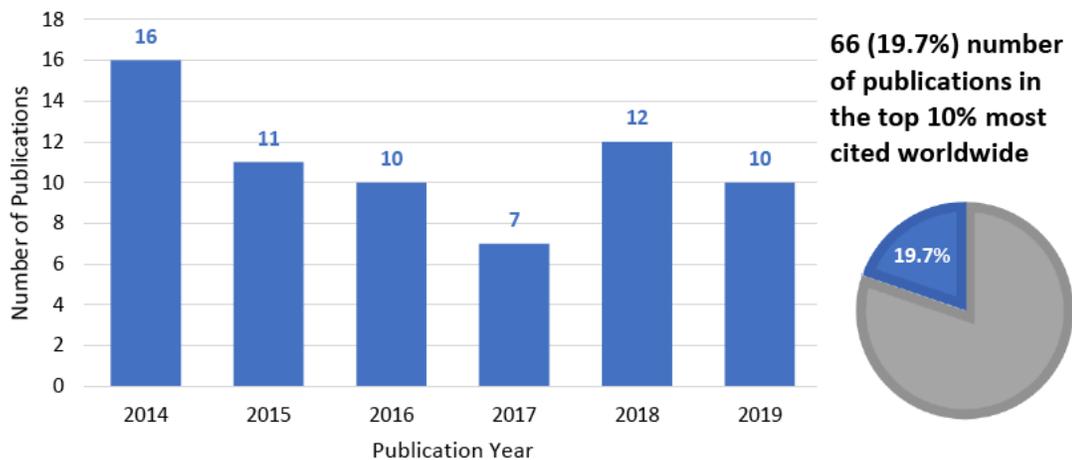


Chart 15: Top 5 publications by number of citations from 2014 to 2019 (Source: SciVal)

Department: Neurological Surgery

Publication	Citations
Purification and Characterization of Progenitor and Mature Human Astrocytes Reveals Transcriptional and Functional Differences with Mouse. Zhang, Y., Sloan, S.A., Clarke, L.E. and 14 more (2016) <i>Neuron</i> , 89 (1), pp. 37-53. View in Scopus	465
Magnetic resonance image features identify glioblastoma phenotypic subtypes with distinct molecular pathway activities. Itakura, H., Achrol, A.S., Mitchell, L.A. and 13 more (2015) <i>Science Translational Medicine</i> , 7 (303). View in Scopus	111
Heat-shock protein peptide complex-96 vaccination for recurrent glioblastoma: A phase II, single- arm trial. Bloch, O., Crane, C.A., Fuks, Y. and 11 more (2014) <i>Neuro-Oncology</i> , 16 (2), pp. 274-279. View in Scopus	101
Two-level total disc replacement with Mobi-C cervical artificial disc versus anterior discectomy and fusion: A prospective, randomized, controlled multicenter clinical trial with 4-year follow-up results. Davis, R.J., Nunley, P.D., Kim, K.D. and 8 more (2015) <i>Journal of Neurosurgery: Spine</i> , 22 (1), pp. 15-25. View in Scopus	100
Adjuvant radiotherapy for atypical and malignant meningiomas: A systematic review. Kaur, G., Sayegh, E.T., Larson, A. and 6 more (2014) <i>Neuro-Oncology</i> , 16 (5), pp. 628-636. View in Scopus	93

GRANTS & CLINICAL TRIALS

Dr. Kia Shahlaie is a co-investigator on a study of “Precision and binding as two dimensions of medial temporal lobe amnesia,” in collaboration with Drs. Arne D. Ekstrom and Andrew P. Yonelinas from the University of Arizona. Dr. Shahlaie has also received a grant from the CTSC to study, “Dual frequency, dual region deep brain stimulation of the subthalamic nucleus in Parkinson’s disease”.

Dr. Orin Bloch has taken over as the principal investigator of the Glioblastoma Multiforme (GBM) AGILE trial which brings together over 130 oncologists, statisticians, pathologists, neurosurgeons and other experts to better understand the most effective treatment strategies for GBM patients. Dr. Harsh will serve as his Co-PI until Dr. About is onboarded.

Dr. Kee Kim is the principal investigator of a new device study, “An assessment of P-15L bone graft in transforaminal lumbar interbody fusion with instrumentation.” This study will evaluate if P-15L is not inferior in effectiveness and safety to local autologous bone when applied in instrumented TLIF in subjects with degenerative disc disease.

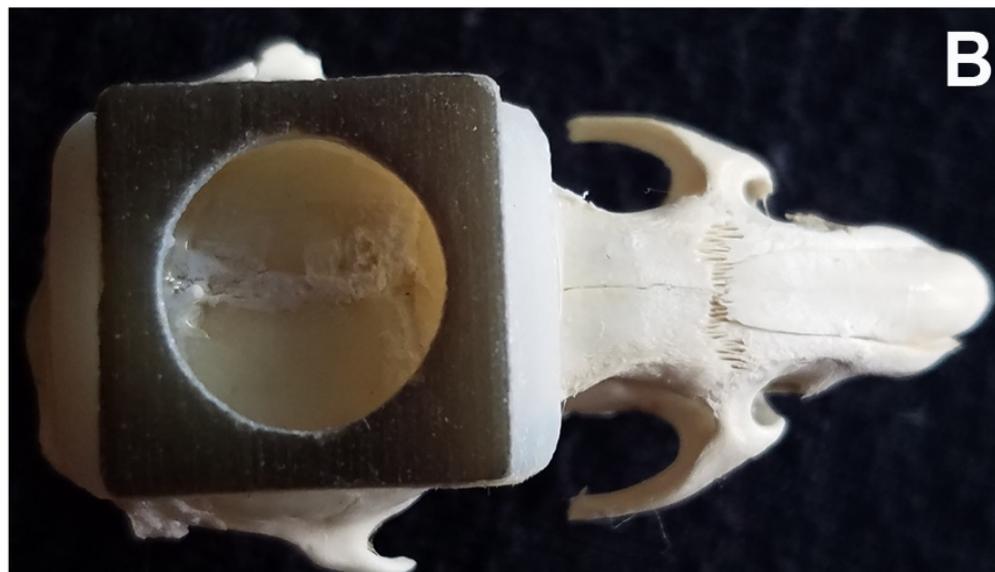
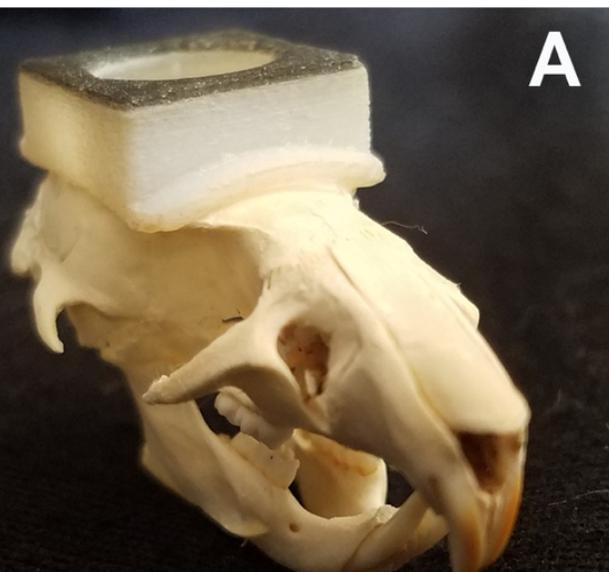
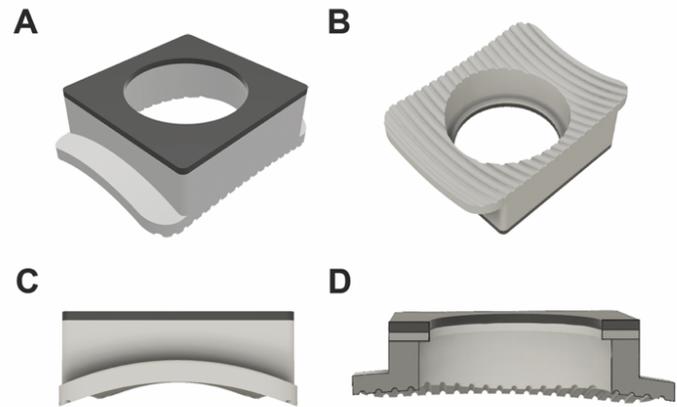
Dr. Lara Zimmermann, local principal investigator, and **Dr. Ryan Martin**, co-investigator of “EpiBioS4Rx” received additional award funding for their work in this large, international, multicenter study of post-traumatic epilepsy, (PTI). UC Davis is one of thirteen institutions participating in this study working to identify post traumatic epilepsy biomarkers and develop treatment. They also partner with TBI and epilepsy patients to assist with PTI research design, and work with the TBI and epilepsy communities to improve health and lifestyle for those living with PPE. EpiBioS4Rx has developed the data and hardware infrastructure to enable the collection and retrieval of data from participating institutions on a secure platform. Learn more about this study by visiting the [EpiBioS4Rx Website](#).

Though our research efforts were impacted by COVID-19, the Office of Research has approved all of our investigator’s Phase 1 and Phase 2 reopening plans. **Dr. Ryan Martin** will be resuming his “Imaging of glial activation and risk for post-traumatic epilepsy study,” which involves obtaining PET scans on patients with moderate-severe traumatic brain injury. **Dr. Ignacio Saez** is resuming his project, “Delineating the anatomical and physiological basis of cognition,” which collects behavioral data from patients with brain lesions. **Dr. Ben Waldau’s** study on the “Mechanism of memory decline after intraventricular hemorrhage,” was also approved to resume. As always, the safety of our researchers and the public health are our highest priorities; we are pleased to be able to resume investigations in each of these important areas.



Advancing Research

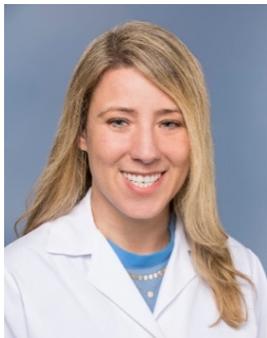
Congratulations to **Drs. Gene Gurkoff** and **Marike Zwieneberg** for their recent publication, “A New Model of Repeat mTBI in Adolescent Rats” published in the May issue of *Experimental Neurology*. Interested in studying potential therapeutic strategies for athletes or soldiers, younger individuals at higher risk of repeat traumatic brain injury, Drs. Zwieneberg and Gurkoff realized that they first needed to develop a model. Working with the UC Davis TEAM prototype lab they designed a 3D printed implant and a metal impact disc that could be permanently affixed to a rat’s skull. Similar to helmets worn by athletes, the implant was intended to absorb and diffuse force, preventing skull fracture and reducing the severity of impact. Their data demonstrated that both single and repeat injury groups resulted in subtle but significant deficits in how injured animals navigated a spatial maze as compared to sham controls. They recently have submitted a follow-on paper to *MethodsX* detailing how they developed and tested the helmet. Future studies will look at the relevance of timing and severity of impacts. Ultimately the creation of the implanted helmet provides them with a relevant model of sports related injuries which they will use to evaluate mechanisms of injury and long-term deficits as well as potential therapeutic options for treating individuals with repeat traumatic brain injury.



RECOGNITIONS



Dr. Kia Shahlaie presented, “Programmatic Development” at the 48th annual meeting of the California Association of neurological Surgeons in Sonoma, CA in January. Dr. Shahlaie has begun service as Medical Director for the Midtown Ambulatory Neurological Surgery Clinic. He has also been named Director of the Traumatic Brain Injury Program and will be leading multidisciplinary efforts to establish a comprehensive multidisciplinary program to lead research efforts and treat TBI at UC Davis Health.



Dr. Lara Zimmermann presented, “Multimodality monitoring in traumatic brain injury,” at the 49th Annual Critical Care Congress of the Society of Critical Care Medicine in Florida in February. Dr. Zimmermann has been named Director of the Neurocritical Care Service. The service has expanded by adding several new advanced practice providers who will provide overnight coverage.



Obtaining Joint Commission Comprehensive Stroke Center Certification meant committing to call coverage by a neurointerventionalist. Due to resignations in radiology and administrative issues complicated by Covid-19, the only provider certified to provide this coverage for the first half of the year has been **Dr. Ben Waldau**. We are most appreciative of Dr. Waldau who has singlehandedly provided call coverage for over four months. His heroic effort and service were truly remarkable.



Congratulations to **Gene Gurkoff, Ph.D.** who was promoted to Associate Professor of Neurological Surgery. Dr. Gurkoff has made innovative and important contributions to DBS and TBI research and we recognize his achievements.

Neurological Surgery News

UC DAVIS HEALTH



[Prompt diagnosis, team surgery and intensive care save the life of landscape architect](#)

Dr. Griff Harsh and Dr. Lee L. Q. Pu, professor of plastic and reconstructive surgery, were recognized in an article for leading a team of six surgeons through a complex surgery to treat a large infected cancer-induced scalp and skull erosion and brain abscess. Read the story to learn more about the complex multi-specialty surgical procedures they performed and Mr. Hewitt's amazing recovery.



[UC Davis Medical Center Achieves Comprehensive Stroke Certification](#)

Thank you to Drs. Lara Zimmermann, Ben Waldau, Ryan Martin and Griff Harsh for collaborating with Dr. Kwan L. Ng, Director of Vascular Neurology and the entire stroke certification team in the recent successful site visit associated with evaluation for certification of our Comprehensive Stroke Center. In addition to providing 24/7 service, the Center allows patients to participate in clinical trials, including studies to improve stroke assessments, to decrease fluid buildup without surgery and to the frequency of reduce subsequent strokes.



[Deep Brain Stimulation | Focus on Health](#)

DBS patient Dan Lofing says, "DBS is my second miracle in life. I can write again and I can play the piano again, with those two things my life, there is a new dimension in my life that is much more complete, I feel like I'm going from a broke down Volkswagen beetle to a Ferrari." PBS Channel KVIE produced a feature story on deep brain stimulation, (DBS) for treating movement disorders when medication alone is ineffective. Producers were following Dan Lofing who underwent DBS to treat essential tremor.

Watch the story

to see the radical improvement in his quality of life as a result of this procedure.





[Seeking Pain-relieving Surgery During a Pandemic](#)

Dr. Kee Kim was highlighted for skill in treating Bonnie Unger in the May issue of Inside Out. He used a new technique to treat the stenosis and spondylolisthesis compressing her nerves and causing pain. He used a 12-mm titanium alloy implant that fits between adjacent spinous processes to stabilize the vertebral column. Dr. Kim was also featured in the April edition of Newsroom in [Surgery to Ease Severe Pain of a Pinched Nerve a 'Godsend'](#),

which features patient Amber Griffin who underwent a minimally invasive decompression surgery. Both patients were grateful for Dr. Kim's willingness to proceed with surgery despite the pandemic. Dr. Kim's work is also featured in the latest marketing campaign for UC Davis Health. You can read [Mike's Journey](#) and watch the video to learn more about how Dr. Kim got him flying again with a disc replacement.



[Visit to Dentist Leads to Lifesaving Repair of Soon-to-rupture Aneurysm](#)

Dr. Ben Waldau was featured for treating Joseph Peterson whose dental x-ray revealed a suspicious area in his brain. Mr. Peterson's primary care team referred him to our interventional radiology team for coiling. After the coiling procedure, a routine MRI showed a recurrence and Dr. Waldau treated the aneurysm via open surgery and clipping.



[Pediatric Neurosurgery Team at UC Davis Saves Local Boy's Life](#)

Dr. Marike Zwienenberg teamed up with Dr. Craig Senders from the otolaryngology cranial facial clinic to treat Rhoen Papini, a six-month-old boy. Rhoen's brain growth was being restricted by craniosynostosis. Rhoen's parents shared his story and their gratitude for the care he received in the April issue of InsideOut.



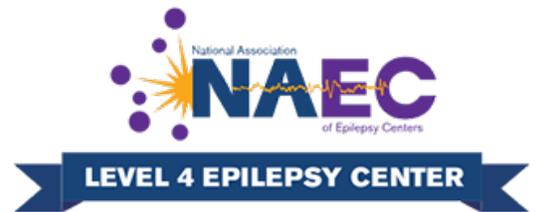


[Another Record Year of Research Funding for UC Davis School of Medicine](#)

Dr. Orin Bloch was a featured early career scholar at the School of Medicine Research Faculty Celebration Day. Held on January 29th, the annual event highlights researchers seeking answers to difficult health problems and obtaining grants to support their work. His R01 grant with Dr. Laura Marcu was recently scored in the 2nd percentile. We are excited for the growth of the Brain Tumor Program under his direction and eager to welcome Dr. Orwa Aboud as his Neuro-Oncology partner in August. Visit his Brain Tumor Immunotherapy Lab.

[Comprehensive Epilepsy Program Receives Highest National Accreditation Rating](#)

Congratulations to faculty and staff from the Departments of Neurological Surgery and Neurology who participated in the accreditation review. UC Davis Medical Center’s Comprehensive Epilepsy Program earned the Level 4 designation, the highest rating awarded by the National Association of Epilepsy Centers. Level 4 centers provide complex forms of intensive neurodiagnostic monitoring, extensive neuropsychological and psychosocial treatment, and advanced surgical treatment options.



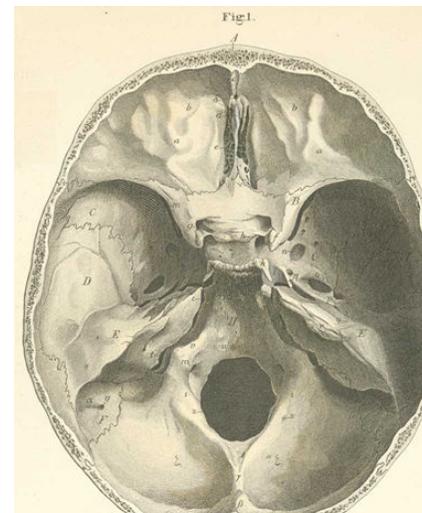
[Wall of Hope Gives Families Optimism and Inspiration](#)

Edith Stewart describes how the Wall of Hope helped her stay optimistic during her husband’s treatment for a traumatic brain injury. The Wall of Hope was started by neuroscience nurse Delia Christian. Currently 60 patients are featured on the wall. Neurological injuries can be devastating; the wall serves as a powerful reminder that recovery is possible. Dr. Ryan Martin, Delia Christian, RN and Dr. Kia Shahaie are featured in the photo.



UC Davis Health has been selected for the **2020 North American Skull Base Society Team Honor Roll** based on having at least four NASBS members as follows:

- one member in an NASBS core specialty such as Otolaryngology, Rhinology, or Neuro-otology
- one member in an NASBS core specialty such as Neurosurgery, or Neuroradiology;
- two members in NASBS non-core specialties such as Ophthalmology, Radiology, Radiation Oncology, Oral Maxillo-facial Surgery, Head and Neck Reconstructive Surgery, Plastic Surgery, Endocrinology, Pathology, or Medical Oncology.



Advanced Practice Providers

Essential, exceptional care

The Advanced Practice Providers are now providing overnight patient care in our Neurocritical Care Unit. We welcome **Megan Rye, NP** to the Department and the Neurocritical Care Unit. Megan earned her MSN at the University of California, San Francisco in June of 2014 and comes with over 10 years of neurosurgical ICU experience.



Claire Basco, NP was the 2020 recipient of the Linda Jagels APP Professional Travel Fund Award and was able to attend the North American Skull Base Society Meeting. If faculty or staff are interested in contributing to this fund to support APP professional development, they can donate by [clicking here](#).

The Department of Neurological Surgery would like to express our gratitude to **Christi Delemos, NP**. Christi provides care in the Neurological Surgery Clinic and has led the UC Davis Aneurysm Support Group for the past ten years, both on a volunteer basis. We are deeply grateful for her substantial contributions to the care of our patients and their families.



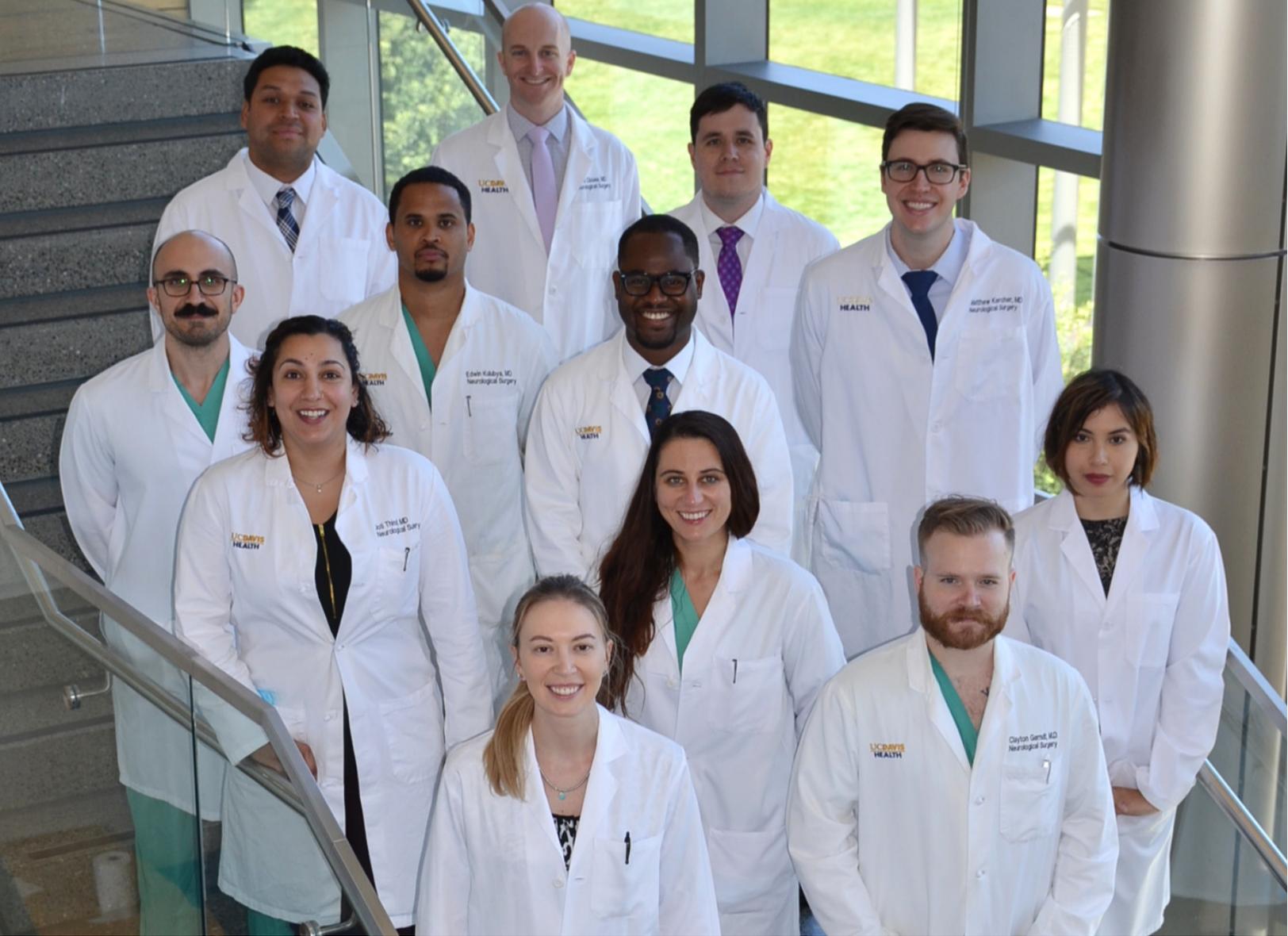
Jasleen Kaur, PA and **Stephanie Hetrea, NP** are the 2020 recipients of the UCD Advanced Practice Scholarship. This award funds education opportunities for APPs at UC Davis. Stephanie has agreed to serve as the department's Sepsis Champion with the goal of improving sepsis bundle compliance and mortality.



Jasleen Kaur, PA



Stephanie Hetrea, NP



RESIDENCY PROGRAM

The past 6 months have been a whirlwind of change in every aspect of the program. From creating teams to round effectively while maintaining physical distancing, to becoming Zoom and Webex experts to ensure our academic program proceeds without interruption, COVID-19 has tested our flexibility. But our residents are tenacious, dedicated, highly adaptable and resilient. Not only have residents adapted to the clinical challenges that accompany a pandemic, but they are also training during a period of societal challenges and civil unrest. They faced these challenges with teamwork, inclusivity and mutual respect. They are setting the bar for what can be accomplished when circumstances are challenging.

For the very first time in the department's history, we held a Virtual Graduation Celebration to honor program graduate and Chief Resident, **Seun Omofoye, M.D.** We plan to bring him back in person to join 2021's graduating residents, but we couldn't let the moment pass without honoring his tremendous accomplishment and effort. You can watch the entire [2020 Neurological Surgery Residency Program Graduation](#) on our Facebook page.

As host of our virtual graduation, Dr. Shahlaie considered several possibilities for the ceremony. His presentation commended the residents for their participation in the West Coast Games which earned them 3rd place, also known as “1st Place Among Programs Without a Beach Nearby”, and for their 5th Tuesday Wellness Days. Dr. Tejas Karnati gave a wonderful Roast of Faculty and Residents from the virtual deck of the Millennium Falcon and won the Golden Laptop Award.

PPE Graduation?



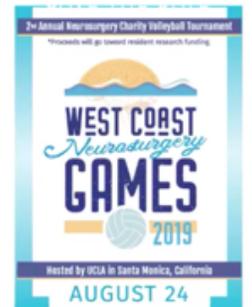
VR Graduation?



Avatar Robot Graduation?



Congrats Seun!!



3rd place!!!



* Among programs without a beach nearby!



Incoming Co-Chief Resident, Dr. Joti Thind, conducted the virtual **White Coat Ceremony** for our incoming interns, **Drs. Irene Falk** and **Jose Castillo**. Dr. Amir Goodarzi, also welcomed the incoming Co-Chief Residents and presented the **Rotating Intern of the Year Award** to **Dr. Gabriel Wilds** from the Department of Physical Medicine and Rehabilitation. Dr. Goodarzi also presented the faculty **Teaching in Excellence Award** to **Dr. Michael Edwards**. The teaching award choice was unanimous among residents. Dr. Goodarzi said in his presentation, “Dr. Mike Edwards has had a tremendous affect on the residents, both in the clinic and in the operating room. He has been so patient with us and imparts wisdom with every word and every movement that he shows us. We want to thank Dr. Edwards for taking the time to teach us.” Dr. Shahlaie presented the **2019-2020 James E. Boggan Resident Scholar Award** to **Dr. Seun Omofoye**, also a unanimous choice. Dr. Omofoye authored 5 manuscripts and 3 abstracts. He gave 6 presentations and completed 398 procedures this year. Dr. Omofoye presented the **Residents’ Staff Recognition Award** to **Sonja Rai** from the operating room and a **Special Recognition Award** was given to **Gene Crumley, Th.D.**, Director of the Emotionally Intelligent Leadership Program and co-director of the Neurological Surgery Leadership Program. Neurological Surgery residents take on leadership positions very early in their career. This course provides them with skills and tools to navigate difficult situations effectively. We were all so glad to have a chance to celebrate Dr. Omofoye and look forward to seeing him in person next year.



Oluwaseun Omofoye, M.D. 2020 Resident Graduate

Dr. Seun Omofoye earned an M.S. in Mechanical Engineering in 2007 from Columbia University. He completed his Medical Degree and first 5 years of neurosurgery residency at the University of North Carolina. He completed a clinical neurosurgery fellowship at Boston Medical Center and joined the UC Davis Neurological Surgery Residency Program in 2018. Dr. Omofoye is heading to Cedars-Sinai Medical Center for a year-long fellowship in neurosurgical oncology.

Dr. Omofoye was an exemplary Chief Resident. He was admired and respected for his surgical skill, medical judgment, leadership, kindness, positivity, humor and thoughtful nature. We know that Dr. Omofoye will make many meaningful contributions to the lives of his patients and our profession. Congratulations, Seun!

Program Director's Corner

by **Kia Shahlaie, M.D., Ph.D.**
Professor & Residency Program Director

The 2019-20 academic year ended in a very exciting and positive way – with the virtual graduation ceremony of our fantastic Chief Resident, Dr. Seun Omofoye! I can't say enough great things about Dr. Omofoye. He joined our program as a senior resident, and quickly and easily became a part of the team and our UCD family. It was an absolute pleasure working with Dr. Omofoye; he is a fantastic doctor, a talented surgeon, a wonderful and caring individual, and a highly effective leader. He was superb as our Chief Resident this year, and I am very excited to watch his career continuing to blossom as moves on to complete a Neurosurgical Oncology Fellowship at Cedars Sinai next year. Congratulations, Dr. Omofoye! You have made a positive mark on UCD Neurological Surgery and will certainly be missed.



The 2019-20 academic year was also highlighted by a major programmatic accomplishment! In December, the ACGME granted our request to *permanently* expand our training program to 2 residents per year! Expanding our resident complement has been a top priority for many years, so receiving this approval from the ACGME was a huge step forward for our residency program and department. As a result of this great news, we were able to recruit two fantastic neurosurgery residents into our program: Dr. Dylan Goodrich (PGY2) and Dr. Katherine Peterson (PGY3). Both are highly skilled and talented residents that have already made a very positive impact! In addition, we were able to offer two spots in the neurosurgery match this year and were thrilled to learn that Dr. Jose Castillo (Virginia Commonwealth University) and Dr. Irene Falk (Medical College of Augusta) will be joining our team in July! As we move towards a full complement of 14 residents, the faculty and I are thrilled about the future of our training program at UCD.

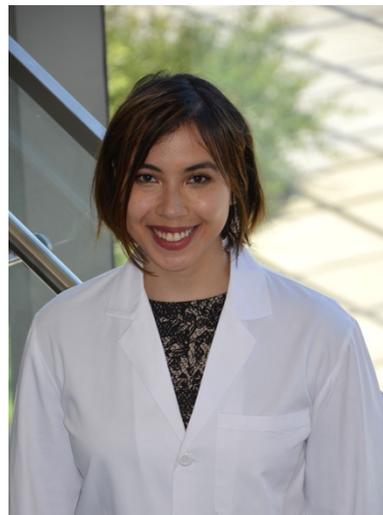
The 2019-20 academic year has also been filled with challenges. The COVID-19 pandemic required us to quickly restructure our entire training program to include distance learning, virtual conferences, and adopt a restricted inpatient team to maximize physical distancing in the workplace. The residents met with me on a weekly basis during the first few months of the pandemic, as we worked together to ensure each team member minimized their exposure risks while continuing to successfully provide world-class care to our patients. This required flexibility and adaptability while maintaining a strong commitment to our patients, and I can't say enough about the great resilience our residents demonstrated during this transition. More recently, our team has supported one another during trying social events, and I have been extremely impressed and proud. As we bid the 2019-20 academic year farewell, we enter the next chapter of our training program with optimism, excitement, and stronger than ever!

Welcome to the Neurological Surgery Team

We are delighted to welcome our new interns, Jose Castillo, M.D., and Irene Falk, M.D. Dr. Castillo graduated from Virginia Commonwealth University and Dr. Falk graduated from the Medical College of Augusta University and they will join us starting July 1, 2020.

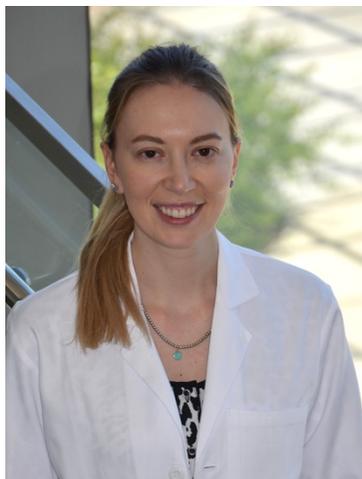


Jose Castillo, M.D.



Irene Falk, M.D.

Catherine (Kate) Peterson, M.D. and Dylan Jake Goodrich, M.D. joined the department in March. Dr. Peterson graduated from Indiana University and is a PGY-6 and Dr. Goodrich graduated from St. George's University and is a PGY-4. We look forward to an exciting and productive year and extend them a warm welcome to California's Capitol City.



Kate Peterson, M.D.



Dylan Jake Goodrich

Resident Academic Productivity January to June 2020

Journal Manuscripts:

Goodarzi A, Clouse J, Capizzano T, Kim KD, Panchal R. [The Optimal Surgical Approach to Intradural Spinal Tumors: Laminectomy or Hemilaminectomy?](#) *Cureus*. 2020 Feb 23;12(2):e7084. doi: 10.7759/cureus.7084.PMID:32226685

Goodarzi A, Toussi A, Garza N, Lechpammer M, Brodie H, Diaz RC, Shahlaie K. [Internal Acoustic Canal Stenosis due to Hyperostosis](#). *J Neurol Surg B Skull Base*. 2020 Jun;81(3):216-222.

Haider G, **Omofoye OA**, Holsapple, JW. [Intracranial Hypertension Following Gunshot Wound to the Torcula: Case Report and Literature review](#). *World Neurosurgery*. 2020 May;137:94-97. doi: 10.1016/j.wneu.2020.01.170. Epub 2020 Jan 29. [PMID: 32006734]

Kolb B, **Peterson C**, Fadel H, Yilmaz E, Waife K, Tubbs RS, Rajah G, Walker B, Diaz V, Moisi M. [The 25 most cited articles on lateral lumbar interbody fusion: short review](#). *Neurosurg Rev*. 2020 Jan 23. Doi:10.1007/s10143-020-01243-0

Riestenberg RA, **Omofoye OA**, Lee D, Shahlaie K. [Subarachnoid fat dissemination secondary to intrathecal pump](#). *J Clin Neurosciences*. 2020 Apr 30. pii: S0967-5868(20)30625-1. doi: 10.1016/j.jocn.2020.04.120. Epub ahead of print. [PMID: 32362469]

Shah M, **Peterson C**, Yilmaz E, Halalmeh DR, Moisi M. [Current advancements in the management of spinal cord injury: A comprehensive review of literature](#). *Surg Neurol Int*. Jan 3;11:2. Doi:10.24259/SNI_568_2019

Zarabi HH, **Omofoye OA**, Girgis F. [Salary Trends Across American Subspecialties in Academic Neurosurgery](#). *World Neurosurgery*. 2020 Apr;136:184-186. doi: 10.1016/j.wneu.2020.01.002. Epub 2020 Jan 7. [PMID: 31917313]

Book Chapters:

Goodarzi A, Nguyen K, Fragoso R, Harsh G. Sellar and Parasellar Tumors. *Stereotactic Radiosurgery (SRS): Procedure, Results and Risks*. ISBN: 978-1-53617-679-7

Published Abstracts:

Alfonso-Garcia A, Noble S, Bec J, Bobinski M, Lechpammer M, **Omofoye O**, Bloch O, Marcu L. [Intraoperative FLIm on brain tumor margins](#). Biophotonics Congress: Biomedical Optics 2020 (Translational, Microscopy, OCT, OTS, BRAIN), OSA Technical Digest (Optical Society of America, 2020), paper TW1B.1.

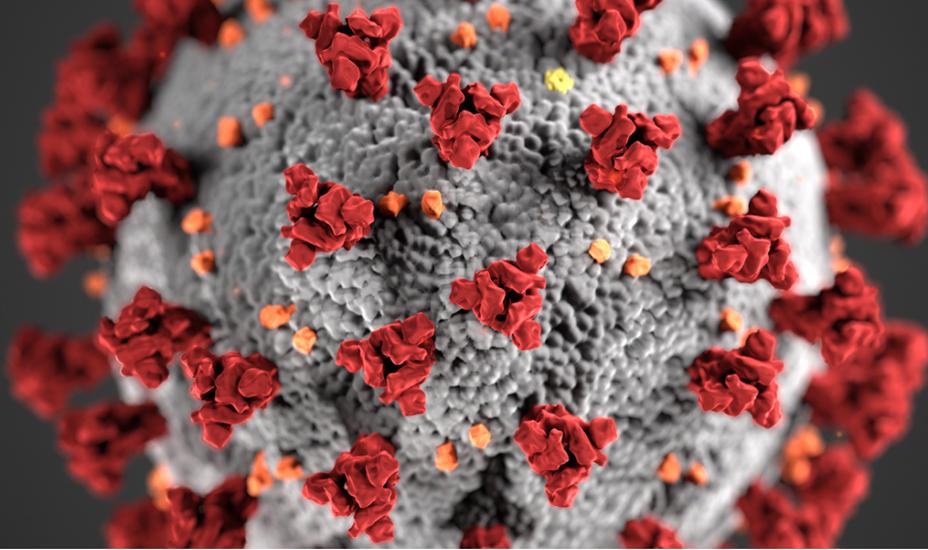
Presentations:

Alfonso-Garcia A, Noble S, Bec J, Bobinski M, Lechpammer M, **Omofoye O**, Bloch O, Marcu L. Intraoperative FLIm on brain tumor margins. 2020 OSA Biophotonics Congress: Biomedical Optics (BioMed 2020), April 2020. Virtual Presentation.

Omofoye O, Harsh G IV. Pituitary Stalk Gangliogliomas. 30th Annual North American Skull Base Society Meeting, San Antonio, TX, February 2020. Poster Presentation.

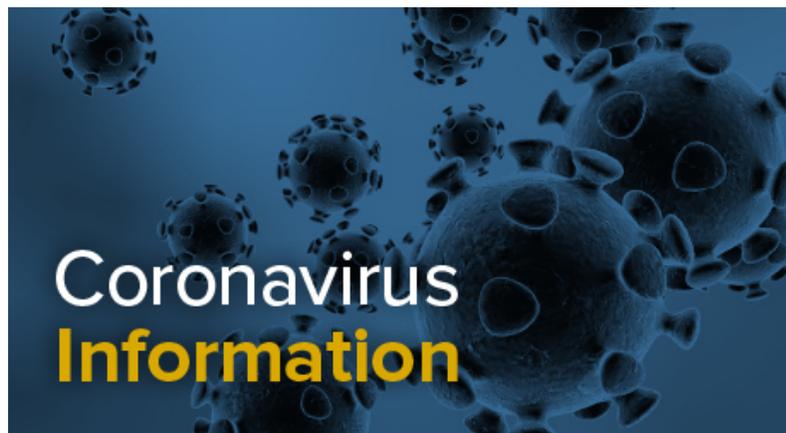
Omofoye O, Lee D, Riestenberg R, Shahlaie K. Intracranial myeloid sarcomas: systematic review. 2020 California Association of Neurological Surgeons Annual Meeting, Sonoma, CA, January 2020. Oral Presentation.





Residency Training During a Pandemic

The arrival of COVID-19 in early March brought unprecedented challenges and changes to every aspect of our training program and care delivery models. It also brought unique opportunities for creative problem solving and primed us to increase awareness of our own behaviors. We are committed to creating a culture of safety for ourselves, our colleagues, our patients and their families. Resident health and wellbeing is one of our highest priorities. We created a [COVID-19 Resident Resource Webpage](#) which provides guidance and links to clinical resources that can be found on our Intranet, wellness resources and workouts, educational and parenting resources, and neurological surgery professional society guidance. We encourage you to visit the page and peruse the links.



We also encourage you to visit the [Intranet COVID-19 Dashboard](#) to get the latest hospital statistics and census information, as well as information on testing and ED volumes. You will also find current patient care and personnel guidelines, and additional lists of resources including patient facing materials.

This year's interview season will look very different. You may have seen Drs. Tejas Karnati and Dylan Goodrich capturing video as they work to build the videos that will feature our department and be used for our virtual interview process. We appreciate their creativity and look forward to seeing our program highlighted in these videos.

We also note the societal unrest evident in the protests in response to the tragic deaths of George Floyd and Breonna Taylor. On our [Wellness Page](#) we have provided links to leadership statements, resources for engaging in anti-racism work and practicing solidarity, support organization information, and resources for preventing and addressing police abuse. We embrace inclusivity and commit to fighting racism. We are beautifully diverse and stronger together.

Support Groups

Supporting our patients is fundamental to our mission. COVID-19 required that we quickly re- envision how we provide support group services. To protect our high-risk population, we ceased in-person group meetings in March and conducted an outreach campaign to reassure patients that our services would continue. All our support group meetings are now on virtual platforms. We remain connected and able to provide resources and information to our patients and their families.

The Deep Brain Stimulation (DBS) Support Group embraced the opportunity to connect with members via email, sharing resources such as virtual lectures, free online exercises and mental health practices offered by local NP's, Physician's and other groups. Jerrod Seiberg, an Ombudsman with the DMV Senior Driver Program, spoke at their May meeting on driver safety and resources, retesting, and addressed other concerns. In June, Angela Drake Ph.D., a neuropsychologist from the Department of Psychiatry presented on stress management and increasing resilience. For their July meeting, representatives from each of the DBS manufacturers will attend to discuss DBS surgery and answer patient questions. UC Davis Health, Sutter Health and Kaiser Permanente work together to provide resources for this support group. Meriah Horton serves as one of the administrators who oversees mass communications and organization. We are very proud of her contributions to this group.

It takes creativity and willingness to embrace change to adapt and thrive, and set the tone for moving forward. This can be especially difficult during a pandemic. We applaud all of the people involved, patients, families, staff, guests, nurses and appreciate the quick thinking and adaptability you have demonstrated to ensure that we have safety and continuity of our support services.

Contact Information:

- **Brain Tumor Support Group** – 1st Wed of every month at 6:30 p.m. Contact Breana Sanchez for Zoom details at bnsanchez@ucdavis.edu
- **Brain Aneurysm Support Group** – 4th Sat of every month at 3pm. Contact Breana Sanchez for Zoom details at bnsanchez@ucdavis.edu
- **DBS Support Group** – Contact Meriah Horton at merhorton@ucdavis.edu for schedule and Zoom details



Administrative

Updates

The administrative teams of the Departments of Neurology and Neurological Surgery have done a remarkable job maintaining high levels of service despite the major shift in how we deliver our services during this pandemic. From setting up a multitude of Zoom and Webex meetings to remotely connecting to the shared drive, both teams demonstrated flexibility and quickly adapted to the challenge at hand. We deeply appreciate our team members and their commitment to getting the job accomplished. When we do return you may notice some changes.

- Staci Leitner's workspace is now situated in the education team area in the Neurology Department, Suite 3700. This move increases our ability to collaborate with our education colleagues in Neurology and create as a centralized education hub for Lightning Bolt scheduling, residency and fellowship needs and all things related to our education programs.
- Gwyn Carnegie is now working with the research team as a Research Administrator and she has also relocated to Suite 3700. Gwyn's background with sponsored programs and the budget process make her an excellent resource for researchers and administrators from both departments.
- Kelly Grady, RN is the new Nurse Manager for the UC Davis Comprehensive Spine Clinic.
- Our new cluster analyst, Heena Jain will start August 10th. Heena will handle new appointments, merits and promotions and serve as the cluster analyst for the Departments of Neurology and Neurological Surgery. Stephanie Celestin will provide in depth training for Heena and assume her new role as cluster supervisor for the School of Medicine.

Your health and safety are top priorities. As we move through the Return To Work plan, we encourage you to communicate with your supervisors to ensure you understand the plans in place for ensuring a safe workplace.

Honoring James E. Boggan, M.D.

Congratulations to **Dr. Jim Boggan** who finalized his retirement on June 30th, 2020. We are grateful for his numerous outstanding contributions to teaching, research, and patient care and value his leadership and support. Dr. Boggan joined the department in 1985 as an Assistant Professor. He was promoted to Associate Professor in 1987 and full Professor in 1993. Dr. Boggan served as the Associate Director, Center for Skull Base Surgery from 1990 to 2017 and Co-Director of the UC Davis Gamma Knife Radiosurgery Program from 2003 to 2017.

Dr. Boggan served as the Acting Chair of the department from 1994 to 1996 and as the Julian R. Youmans Chair of the Department of Neurological Surgery from 2014 to 2018. He returned to clinical service after his initial retirement to assist us in meeting clinical demand and to serve as the Department's Mentoring Director. We wish Jim the very best in his retirement.

