



Fusion

The Bi-Annual Newsletter of the Department of Neurological Surgery

UC DAVIS
HEALTH

Department of
Neurological Surgery

Issue 4: December 2020

Message from the Chair

Welcome to the December 2020 issue of Fusion, the bi-annual newsletter for the Department of Neurological Surgery. Adaptability, resilience and growth are the words that come to mind when I reflect on our team's progress in 2020.

I am very proud of our faculty, residents and staff and deeply appreciate your contributions to our department's success. We are prepared for the path ahead of us and despite the pandemic, we have demonstrated fortitude as we balance demands and create the vision that best serves our community's neurological surgery needs.

Early this year we welcomed several new faculty members, neuro-oncologist Dr. Orwa Aboud, cerebrovascular surgeon Dr. Branden Cord, spine surgeon, Dr. Allan Martin and neurocritical care neurologist, Dr. Jeffrey Vitt. We are thrilled to have them and eager to see the growth and transformation each will bring to his subspecialty program. In January, we will welcome Dr. Patrick Fuller to our research team. Dr. Fuller was a Target of Excellence recruitment and comes to us with an impressive publication and grant record. You can read more about his work further in this issue.

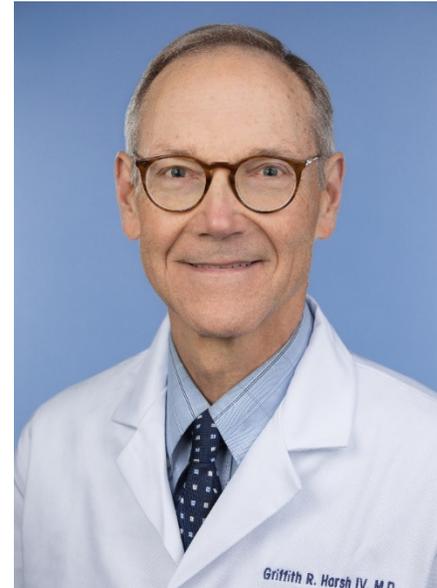
In October, Drs. Michael Edwards, Kia Shahlaie and Marike Zwienenberg joined forces to separate craniopagus conjoined twins Abigail and Micaela Bachinskiy in a marathon 25-hour operation that followed 10 months of preparation and planning. Though these cases are extremely rare, this was Dr. Edwards' third such case; his previous experiences provided critical insight. Dr. Edwards worked closely with colleagues, Dr. Granger Wong, chief of plastic surgery, Dr. Rajvinder Dhamrait, director of pediatric anesthesiology and Aida Benitez, lead nurse in the Children's Surgery Center. Together they carefully planned and prepared for the various stages of this incredibly complex operation. They used 3D printing to develop skull models, conjoined manikin dolls for simulation, and mixed reality goggles to better visualize a 3D model of the skull, brain and vascular anatomy. The separation was a resounding success and the twins are now home and doing well. This particular case is a testament to the skills and abilities of our neurosurgeons and highlights the value of teamwork and a collaboration. I am proud and grateful to the operative and patient care team for their dedicated effort to making this highly complex surgery a resounding success.

Resident interview season brought us another area that required significant planning and preparation. Kally Turner revised the website and Drs. Tejas Karnati and Dylan Goodrich took the lead in creating the residency program video currently featured on the residency page of our website. We held two rounds of virtual resident interviews and a series of subspecialty open houses. I thank Dr. Kia Shahlaie, Staci Leitner and Stacy Miller who prepared for the challenge by organizing several mock interview training sessions.

We continue to grapple with the COVID-19 pandemic, the third wave of which has brought the highest number of cases and has significantly impacted our daily hospital and ER census. All clinicians should have received their first round of the vaccine, which should provide significant protection. Please continue to follow all guidance on masking, social distancing and use of PPE. The health and wellbeing of our team continues to be my highest priority.

Despite the challenges of the year, we continue to grow. We are currently recruiting for functional, pediatric, spine and research faculty members. I am particularly thankful for a recent significant grateful patient donation which will help secure the growth of a neuroprosthetics program for our department. This donation was the result of the provision of excellent patient care directly provided by our neurosurgical teams.

I am very grateful to each and every one of you for another excellent year. Despite the enormous challenges we faced in 2020, you all rose to the challenge and demonstrated your commitment to providing outstanding patient care and building the programs we need to best serve our community.



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

Faculty Recruitments



Patrick M. Fuller, Ph.D., will join the faculty in January of 2021 and we are preparing for his arrival. Dr. Fuller is a UC Davis graduate. He earned his M.S. in Exercise Physiology in 2001 and his Ph.D. in Molecular, Cellular and Integrative Physiology in 2004, both at UC Davis. Dr. Fuller completed a neuroscience fellowship in the Department of Neurology at Beth Israel Deaconess Medical Center in 2007 and has been working in the Division of Sleep Medicine as an Associate Professor of Neurology at Harvard Medical School and Beth Israel Deaconess Medical Center.

Dr. Fuller was recruited to the Department of Neurological Surgery as a Target of Excellence. He has garnered significant extramural funding as the Principal Investigator for 3 R01 grants and Co-Principal Investigator on two additional R01's. His investigative efforts focus on the cellular and synaptic basis of brain regulation of sleep, wakeful consciousness and circadian rhythms. Using transgenic mouse models and optogenetics, Dr. Fuller has made significant contributions to understanding how the specific neural circuits and brain regions regulating sleep onset and timing are controlled. Dr. Fuller's work will complement current department research efforts in electrophysiological approaches to TBI, epilepsy and cognition. We look forward to seeing Dr. Fuller in January.

The Department of Neurological Surgery is currently engaged in the following active faculty searches:

- Functional Neurosurgeon
- Pediatric Neurosurgeon
- Neuromodulation Scientist

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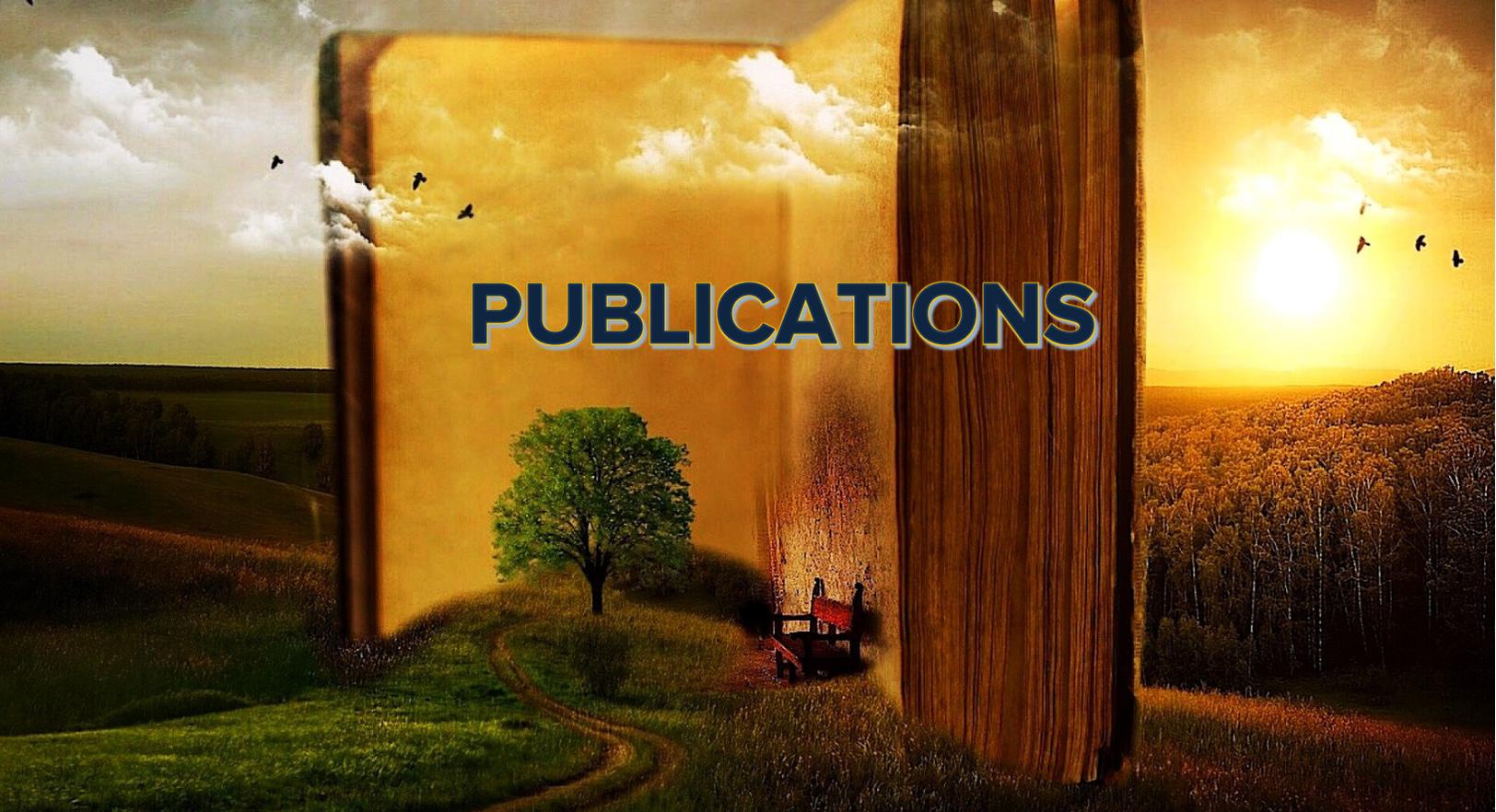


Amy Brooks-Kayal, M.D., Professor and Chair of the UC Davis Department of Neurology

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The Department of Neurological Surgery extends a warm welcome to **Amy Brooks-Kayal, M.D.**, Professor and Chair, and the Andrew John Gabor, M.D., Ph.D. Presidential Endowed Chair of the Department of Neurology. Dr. Brooks-Kayal started in October. Prior to joining UC Davis, Dr. Brooks-Kayal spent 12 years as a Professor of Pediatrics, Neurology and Pharmaceutical Sciences, and Chief and Ponzio Family Chair of Pediatric Neurology at the University of Colorado. Dr. Brooks-Kayal is an internationally recognized neurologist whose research has identified cellular and molecular changes involved in the transition of the brain from normal to epileptic. Her goal is to create therapies that target that transition. She is a leader in neurology research, education and mentoring, and patient care. She is currently a co-director of the national NINDS K12 Child Neurology Career Development Program. You can read more about Dr. Brooks-Kayal in this [press release](#). We are excited to partner with Dr. Brooks-Kayal and look forward to future collaborations with her and our colleagues in the Department of Neurology.



PUBLICATIONS

Cranial

Dr. Orin Bloch with members of his lab, Dennis Lee, Robert Riestenberg and Aden Haskell-Mendoza published, "[Brain metastasis recurrence versus radiation necrosis: evaluation and treatment.](#)" **Dr. Bloch** was one of several authors in "[Intraventricular adult Taenia solium causing hydrocephalus: a case report.](#)" published in the July issue of Surgical Neurology.

Drs. Griff Harsh and **Kia Shahlaie** published, "[Editorial. The financial value of a neurosurgery resident](#)" in the September issue of the Journal of Neurosurgery and **Dr. Harsh** was one of several authors of "[Intracranial autograft fat placement to separate the optic chiasm from tumor to improve stereotactic radiosurgery dosimetry](#)" in the October issue of World Neurosurgery.

Cerebrovascular

"[Mechanical injury and blood are drivers of spatial memory deficits after rapid intraventricular hemorrhage.](#)" published in the November issue of the Neurobiology of Disease and was a group effort involving five of our department members. **Dr. Ben Waldau** was the corresponding author and co-authors include **Drs. Bruce Lyeth** and **Gene Gurkoff**, post-doctoral scholar Ali Izadi, Ph.D. and our former resident, Tamar Binyamin, M.D.

Dr. Waldau was exceptionally productive in the past 6 months, and published 6 articles in addition to the one mentioned above. He collaborated with residents Drs. Karnati and Thind, and radiology colleague Dr. Brian Dahlin on "[Ruptured Fisher grade 3 blister aneurysms have a higher incidence of delayed cerebral ischemia than ruptured Fisher grade 3 saccular aneurysms.](#)" in the June issue of Brain Circulation. He collaborated with resident Kate Peterson, M.D. on "[Transradial access for thrombectomy in acute stroke: a systematic review and meta-analysis](#)" in the September issue of the Journal of Clinical Neurology and Neurosurgery. He was one of multiple authors of, "[mRNA expression profiles from whole blood associated with vasospasm in patients with subarachnoid hemorrhage.](#)" in the August issue of Neurocritical Care. Dr. Waldau collaborated with Dr. Omofoye and Robert Reistenberg, who worked in Dr. Bloch's lab, to publish, "[Impairment of glymphatic flow secondary to large terminal carotid artery aneurysm: case report](#)" in the October issue of Clinical Neurology and Neurosurgery. Dr. Waldau along with colleagues in Radiology published, "[Increased rupture risk in small intracranial aneurysms associated with methamphetamine use](#)" in the September issue of Interventional Neuroradiology. Dr. Waldau worked with resident physicians, Drs. Thachi, Gerndt and Kercher on "[Three dimensional aneurysm volume measurements show no correlation between coil packing density and recurrence](#)", published in the October issue of Heliyon.

Dr. Branden Cord was also very productive in the latter half of 2020 having co-authored four articles. In the July issue of World Neurosurgery, Dr. Cord and his co-authors published, [“Thirty- and 90-day readmissions after treatment of traumatic subdural hematoma: national trend analysis.”](#) In August, Dr. Cord and his collaborators published, [“Direct carotid puncture for mechanical thrombectomy in acute ischemic stroke patients with prohibitive vascular access,”](#) in the Journal of Neurosurgery. Dr. Cord and his collaborators published, [“MRI-guided laser interstitial thermal therapy for radiation necrosis in previously irradiated brain arteriovenous malformations,”](#) in the July/August issue of Practical Radiation Oncology. Additionally, Dr. Cord was a co-author of, [“Predictors of extended length of stay following treatment of unruptured adult cerebral aneurysms: a study of the national inpatient sample,”](#) which appeared in the November issue of the Journal of Stroke and Cerebrovascular Disease.

Neurocritical Care

Drs. Ryan Martin and **Lara Zimmermann** collaborated with Christine Picinich, NP and resident Dr. Joti Thind, to publish, [“Continuous electroencephalographic training for neuroscience intensive care unit nurses: a feasibility study,”](#) in the October issue of the Journal of Neuroscience Nursing.

Dr. Jeffrey Vitt was one of multiple authors of, [“Morphological changes of intracranial pressure quantifies vasodilatory effects of verapamil to treat cerebral vasospasm,”](#) published in the August issue of the Journal of Neurointerventional Surgery.

Pediatrics

Dr. Michael Edwards has been working at the frontier of deep learning in neurological surgery. In September of 2020 he and colleagues published, [“Deep learning for pediatric posterior fossa tumor detection and classification: a multi-institutional study,”](#) in the September issue of the American Journal of Neuroradiology. See more about this article in the spotlight below. **Dr. Edwards** was also one of multiple authors of, [“In reply: early diffusion magnetic resonance imaging changes in normal-appearing brain in pediatric Moyamoya disease,”](#) in the September issue of Neurosurgery.

Research

In October, **Dr. Bruce Lyeth** was one of several authors of, [“Outcome measures from experimental traumatic brain injury in male rats vary with the complete temporal biomechanical profile of the injury event,”](#) in the Journal of Neuroscience Research. Dr. Lyeth also co-authored, [“Intracranial alternating current stimulation facilitates neurogenesis in a mouse model of Alzheimer’s disease,”](#) in the July issue of Alzheimer’s Research Therapy.

Dr. Gene Gurkoff and **Dr. Marike Zwieneberg** collaborated with Drs. Katelynn Ondek and Steve Lucero on [“An implantable helmet for studying repeat TBI”](#) which recently published in the November issue of MethodsX.

Spine

Drs. Kee Kim and **Julius Ebinu** collaborated with Dr. David Copenhaver (who holds a joint appointment in Neurological Surgery) and resident Dr. Joti Thind on, [“Headache relief is maintained 7 years after anterior cervical spine surgery: post hoc analysis from a multicenter randomized clinical trial and cervicogenic headache hypothesis,”](#) which was published in the June issue of Neurospine.

Dr. Kee Kim was one of multiple authors who published, [“Remote virtual spinal evaluation in the era of COVID-19,”](#) in the June issue of the International Journal of Spine Surgery.

Dr. Allan Martin was one of several authors of, [“Primary sarcomas of the spine: population-based demographic and survival data in 107 spinal sarcomas over a 23-year period in Ontario,”](#) in the September issue of The Spine Journal. He also co-authored, [“Multidisciplinary approach to degenerative cervical myelopathy,”](#) in the October issue of Expert Reviews of Neurotherapeutics.



Spotlight on Deep Learning

For his recent publication, “[Deep learning for pediatric posterior fossa tumor detection and classification: a multi-institutional study](#),” in the American Journal of Neuroradiology, **Dr. Michael S. B. Edwards** collaborated with researchers from several institutions, including Stanford, to develop an MR imaging – based deep learning model to detect posterior fossa tumors and classify their pathology.

Dr. Edwards and his colleagues then focused on creating a fully automated, deep learning, artificial intelligence tool to measure the volumes of cerebral ventricles on MRI’s in children. The ability to track ventricular volume is a big step in treating children and adults with hydrocephalus. The article, “[Artificial intelligence for automatic cerebral ventricle segmentation and volume calculation: a clinical tool for the evaluation of pediatric hydrocephalus](#),” was published online ahead of print in December Issue of the Journal of Neurosurgery: Pediatrics.

The JNS identified the work as deserving of a press release. From the press release, “To develop and validate the model, the authors selected sets of T2-weighted MRIs from a group of 200 pediatric patients (22 years of age or younger) who had presented with acute obstructive hydrocephalus... The 400 sets of T2-weighted MRIs were separated for use in various steps of the study: training (266 MRI sets) and optimization (67 MRI sets) of the DL model, and a held-out test (67 MRI sets) for final evaluation of the model’s performance. In a separate study, the authors also studied the generalizability of the DL model and its clinical usefulness using T2-weighted MRIs that were prospectively obtained in nine patients at Utah Primary Children’s Hospital.

The DL model was designed to produce automatic ventricle segmentation (delineation of ventricle borders on imaging) and volume calculation. To examine the efficiency of the model, the authors compared these two processes to the gold standard of manual segmentation and volume calculation and to the use of FreeSurfer research software. The authors used the Dice similarity coefficient (0 to 1) to assess segmentation accuracy and linear regression to assess volume calculation. The authors found a strong correlation between ventricular volume calculations made using the DL model and the manually determined frontal-occipital horn ratio ($r^2 = 0.92$) and Evans’ index, a frontal horn ratio ($r^2 = 0.79$). These calculations were made using T2-weighted MRIs.

The DL model was more accurate and much faster than FreeSurfer software, which “took 8.2 to 207.3 hours (median 20.3 hours) for ventricle segmentation and volume output, compared with 1.48 seconds per patient scan for the DL model.” When asked about the findings of the study, Drs. Edwards and Yeom said, “It has been more than 100 years since Dandy developed ventriculography to visualize the ventricular system. Our goal was to develop a rapid, reliable program using AI Technology that is fast, accurate and deployable across multiple imaging platforms. Having definitive ventricular volumes will remove the labor and inaccuracy in measuring and comparing ventricular size over time and should allow more accurate decisions in managing patients with hydrocephalus and other CSF volume pathologies. Our goal moving forward is to validate our technique clinically in order to move this technique into routine clinical and research use. Our hope is that this technology will provide more accurate and reliable information to allow clinicians to make better management decisions in patients with hydrocephalus and thereby improve patient care and outcomes.” Congratulations to Dr. Edwards and his colleagues!

GRANTS & CLINICAL TRIALS

In September **Dr. Kee D. Kim** and **Dr. David Copenhaver**, who is a joint appointee in neurological surgery and a professor in pain medicine began, “A prospective, multicenter, randomized, double-blind, placebo controlled study to evaluate the efficacy and safety of a single injection of Rexiemestrocel-L alone or combined with Hyaluronic Acid (HA) in subjects with chronic pain.”

Dr. Kee D. Kim also received startup funding from Mitsubishi Tanabe Pharma Corporation for, “A study to investigate the safety, tolerability, pharmacokinetics of a single ascending dose of MT-3921 in subjects with acute spinal cord injury.” In August, Dr. Kim received funding for his Cerapedics study, “An assessment of P-15L bone graft in transforaminal lumbar interbody fusion with instrumentation.” And in October, Dr. Kim began two studies, “A pivotal clinical trial evaluating the safety and effectiveness of Adherus Autospray and Adherus Autospray ET dural sealant when used as a dural sealant in spinal procedures” and “AbbVie Elezanumab in acute traumatic cervical spinal cord injury.”

Dr. Lara Zimmermann has been enrolling subjects in, “Brain Oxygen Optimization in Severe TBI Phase – 3 (BOOST-3)” and **Dr. Ryan Martin** is engaged in an “Avanir Phase 2 AVP-786 in TBI Study.”

Diversity

The Department of Neurological Surgery is committed to embracing a culture of diversity, equity and inclusion. We recently formed a Diversity, Equity and Inclusion (DEI) committee which is chaired by **Dr. Ryan Martin**. Committee members are Floreece Johnson, RN, and Drs. Allan Martin, Gene Gurkoff and Jose Castillo.

Department faculty members and residents will undergo Supporting Educational Excellence in Diversity (SEED) Training the afternoon of January 19th. Online Canvas training module information has been sent to faculty and residents and those modules should be completed prior to the January 19th session. We would like to thank Drs. Martin and Martin and Kulubya for their involvement in the preplanning sessions and extend our appreciation to Rebecca Moncada and Dr. Puja Chadha, from Faculty Development for their guidance in planning and directing this course for our team members.



RECOGNITIONS



Dr. Kia Shahlaie's role as the Bronte Endowed Chair and Director of the Bronte Epilepsy Lab underwent a comprehensive 5-year review which examines his research and teaching productivity and his leadership in epilepsy research. He has been reappointed as the Endowed Chair and Director for another 5-year term. Congratulations Dr. Shahlaie!



Dr. Ignacio Saez is the recipient of the San Francisco Neurological Society's 2020 Young Investigator Boldrey Award for his work on "Dissociable oscillatory networks support gain and loss processing in human orbitofrontal cortex." The Edwin Boldrey Award is intended to recognize a neuroscience research project.

SACRAMENTO TOP DOCTORS



Congratulations to **Drs. Griff Harsh, Kia Shahlaie, Kee D. Kim** and **Marike Zwieneberg** for being amongst the 2020 Top Neurosurgeons in Sacramento. The list is voted on by peers and compiled by Sacramento Magazine.



Griff Harsh, M.D., M.B.A.



Kia Shahlaie, M.D, Ph.D.



Kee D. Kim, M.D.



Marike Zwieneberg, M.D.

Neurological Surgery News

The past 6 months have brought significant growth and notable achievement. Most notable was the team effort involved in separating craniopagus conjoined twins Abigail and Micaela Bachinskiy. We applaud the incredible teamwork demonstrated by all team members who participated in this extremely rare opportunity to separate the twins; however, we are especially proud of our faculty members, **Dr. Michael Edwards**, **Dr. Kia Shahlaie** and **Dr. Marike Zwienenberg**. The 25-hour marathon surgery took place on October 24th and 25th in the Children's Surgery Center in a customized operating room that was built for these types of highly complex cases. The team was comprised of over 30 people and included surgeons, anesthesiologists, nurses and key surgical staff. The surgical team conducted numerous planning sessions which included virtual reality sessions, 3D printing and several dry runs. Read the article: [Rare set of conjoined twins successfully separated in 24-hour surgery at UC Davis Children's Hospital](#) and watch the 5 part video series: [Conjoined Twins Separation](#). We appreciate all of the effort that went into planning and preparing for this complex surgery and applaud Drs. Edwards, Shahlaie and Zwienenberg, and the entire team on this outstanding achievement.



Michael S. B. Edwards, M.D.



Kia Shahlaie, M.D., Ph.D.



Marike Zwienenberg, M.D.





Dr. Kee D. Kim was commended for having the magic surgical touch in [Patient from Hawaii calls his UC Davis Health Surgeon ‘the magician’](#). This particular story highlights both Dr. Kim’s surgical expertise and the impact and value of video visits and telehealth. After several previous surgeries failed to ease his pain, Honolulu police officer John Veneri reached out to Dr. Kim at the recommendation of a family friend. Dr. Kim collaborated with Mr. Veneri’s primary care provider, reviewed his CT and MRI and had several video visits with Mr.

Veneri after which he recommended an additional procedure to remove pressure on the nerves at L3-4 and L4-5 due to stenosis. Mr. Veneri flew from Honolulu, HI and quarantined for two weeks prior to the procedure. He experienced immediate relief and continues to improve and he agreed to stick to a walking exercise regimen.



In August, **Dr. Orin Bloch’s** work was highlighted in [UC Davis surgeon uses lasers to treat brain tumors and ease the stress of surgery](#). Dr. Bloch is one of the first neurosurgeons in the region to treat a brain tumor patient using NeuroBlate, a minimally invasive, MRI guided surgical ablation technique that delivers precisely targeted laser energy to destroy the tumor. The surgery took three hours and the patient was able to return home after a short stay in the hospital. The system can also be used to treat epilepsy.



Dr. Marike Zwienenberg’s involvement in the fetal surgery program was highlighted in the October story and video, [Three-year-old patient with spina bifida walks, runs, thanks to fetal surgery](#). This story shows the progress of Remington MacCullough whose myelomeningocele was treated in utero. Dr. Zwienenberg collaborated with Dr. Shinjiro Hirose to repair the defect and Remington was born on September 4th 2017. Over the past three years Remington has experienced remarkable progress and his parents report that, “you would never know Remington was diagnosed with spina bifida... He is active and likes to run around.”



Advanced Practice Providers

Essential, exceptional care

Advanced Practice Providers are an integral component to our provision of comprehensive patient care. We are pleased to welcome several new providers to our team:

- **Anthony T. Nye, MSN, RNP:** Anthony comes to us having worked as an ICU nurse practitioner at Marin Health Medical Center in Greenbrae, CA. He completed his MSN at the University of South Alabama in Mobile, Alabama.
- **Katherine Chirco, NP:** Katherine completed her MSN-NP at California State University, Fresno and comes to us from BASS Medical Group in Walnut Creek.
- **Nicole Gunadi, NP:** Nicole is our new APP Fellow. She will join the department in January.
- We are actively recruiting for two additional positions, one APP for the NICU, and one NP for the Spine Center.

Congratulations to **Christine Picinich, NP** who was recognized for her numerous contributions to our department. She received a certificate and a pin from Midtown clinic manager Florecee Johnson, RN, who had these remarks: “Christine deserves to be recognized for her dedication to professional governance. She is not only the supervisor to the Advanced Practice team in the Neurosurgery department, a reliable Nurse Practitioner in the intensive care unit, but also is always willing and ready to make herself available in ambulatory clinic or on the floor when needed.

She reorganized our team; implementing the one on one (MD – Advanced provider) approach, and that has been successful. She has efficiently helped train new hires and floor novice APPs. She has developed strong interdisciplinary relationships with MDs, and others.

Christine has gone above and beyond to make sure all surgeons and APPs feel comfortable in the new approach and different roles and to assure that our patient population receives the high-quality care they deserve. Through all of this, Christine has shown exceptional multitasking skills, outstanding NP care, professionalism, a strong sense of teamwork, and camaraderie. She deserves to be recognized for her strong work and dedication to the success of our department.” We couldn’t agree more!



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HARJOT THIND, MD
CHIEF

2020-2021 NEUROLOGICAL SURGERY RESIDENTS



AMIR GOODARZI, MD
CHIEF



BART THACI, MD
PGY-6



EDWIN KULUBYA, MD
PGY-5



CATHERINE PETERSON, MD
PGY-5



TEJAS KARNATI, MD
PGY-4



DYLAN GOODRICH, MD
PGY-4



KRISTIN NOSOVA, MD
PGY-3



CLAYTON GERNDT, MD
PGY-3



JARED CLOUSE, MD
PGY-2



MATTHEW KERCHER, MD
PGY-2



JOSE CASTILLO, MD
PGY-1



IRENE FALK, MD
PGY-1

RESIDENCY PROGRAM

UC Davis Neurological Surgery Residents have demonstrated exemplary teamwork over the past nine months. July marked the start of the second COVID-19 wave and late October brought a record number of cases which stretched resources. Our residents have approached these challenges with enthusiasm and a problem-solving approach. When faced with the obstacle of a workroom that prevented the ability to appropriately distance, they split the morning rounds into two teams and have used Zoom meetings to bridge the gap and bring everyone together to discuss patient strategies.

A tremendous amount of work went into preparing for our recent virtual interviews. Drs. Tejas Karnati and Dylan Goodrich spearheaded creating the department video for the website. They rented a camera, wide angle lens and high-end microphone to record video clips of faculty members in the Center for Health and Technology and provided each faculty member with a series of questions to answer. Dr. Karnati then edited the clips and produced our [applicant video](#). We also increased our presence on social media sites and will continue to expand our social media footprint.



Drs. Goodrich and Karnati interviewing Dr. Cord.

We recently concluded two full days of Zoom interviews for residency program applicants and applaud the flexibility and planning of the entire department that went into preparing for virtual interviews. In addition to the interviews, we hosted multiple subspecialty and program director virtual open houses to provide applicants with additional information about our programs and how we are evolving. It was a remarkable team effort and we're excited about the upcoming match.



Congratulations to **Edwin Kulubya, M.D.**, who was honored by the nursing staff of the Midtown Neurosurgery Clinic for his outstanding contributions. Clinic Manager, Florecee Johnson remarked that, "As a neurosurgery resident, Edwin has gone above and beyond in teaching nursing staff. At the bedside, he is always willing to answer questions and discuss rationale behind clinical decisions. Recently, he took the time to present a case review to the nursing staff on skull base fractures while being on-call. His presentation was engaging and thoughtful. He made sure his presentation was tailored to the NSICU nurses. Everyone who attended said they gained a great deal of knowledge that was highly relevant to current practice. His dedication to the nursing staff is greatly appreciated." Dr. Shahlaie presented Dr. Kulubya with a certificate and a pin.

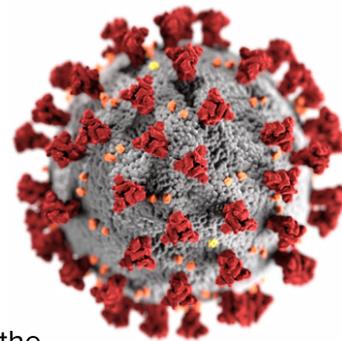
Resident Workroom Redesign



We are pleased to move into the final phase of the workroom reconfiguration led by Kally Turner. We were not able to obtain a larger space in close proximity to both the operating rooms and the ICU's, so we opted for a functional redesign of the workroom to improve room utilization. The furniture has arrived and the workroom will be reconfigured on January 7th, 2021. Residents will need to be out of the workroom on 1/7 at 8 a.m. IT services will be disconnecting all IT and telephone related items and the furniture installation will take place all in one day. IT will return at 8:00 a.m. to install new computers and reconnect the lines. Cubby's are being built to hold personal mail items and loupes. To facilitate the redesign process, residents are asked to please remove all personal belongings by January 6th, 2021.

COVID-19 Vaccinations

COVID-19 vaccine distribution at UC Davis Health is in full swing. All residents should have received the first of their two vaccinations and received an appointment for the second round of the vaccine. Resident health and wellbeing continues to be one of our highest priorities. We encourage you to visit the [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. Though the vaccination program is in full swing, we want to remind residents to continue to follow all social distancing and PPE recommended guidelines.



Program Director's Corner

by **Kia Shahlaie, M.D., Ph.D.**

Professor & Residency Program Director

This has been a very exciting and eventful six months!

In July, we welcomed two new residents to our UCD neurosurgery family: Dr. Irene Falk from the Medical College of Georgia, and Dr. Jose Castillo from the Virginia Commonwealth University. Both have been wonderful additions to our team and have done a fantastic job making the difficult transition from medical student to neurosurgery resident! During their intern year, our new residents will dedicate their time to rotations in neurology, neurocritical care, neuroradiology, neuropathology, and, of course, neurosurgery.

Because of the COVID-19 pandemic, we continue to conduct our resident educational programs using virtual platforms. Conferences, lectures, and workshops have been conducted on Zoom or WebEx for the past nine months, and our faculty and residents have successfully adapted to this “new normal”. Importantly, our residents continue to remain actively engaged in all of these meetings despite the physical distancing! I am so impressed with and proud of the way our resident team continues to successfully navigate these unprecedented and challenging times.

The COVID-19 pandemic also had an impact on resident recruitment this year, requiring us to develop an entirely new approach to the match process! In October, we received over 350 applications for two spots in our intern class of 2021. Since students were not allowed to do multiple away rotations, we significantly enhanced our website and social media resources and two of our residents (Tejas Karnati and Dylan Goodrich) helped us create videos about our program for medical students to review. All faculty and residents also participated in a series of virtual “open house” events to meet with prospective residents. Of course, we were also unable to host in-person interviews this year so we conducted a series of four Zoom sessions over a two-week period to meet with 45 of our top applicants! The entire process was a huge success, thanks to the amazing work done by Staci Leitner, Kally Turner, Stacy Miller, and the rest of our amazing administrative team! It was exciting and humbling to meet some very smart and talented future neurosurgeons, and we are very much looking forward to Match in March of 2021!

Finally, these last six months concluded with a significant and historic moment. In mid-December, our residents were among the first cohort of providers at UC Davis Medical Center to receive the Pfizer COVID-19 vaccine! It is amazing that this vaccine was developed and made available in such a short period of time, and it has brought great excitement and optimism to everyone on our team! We are all excited to see what the next 6 months will bring!

On behalf of everyone involved in our Neurological Surgery Residency Training Program, we wish you and yours a very Happy Holidays and a Happy New Year!





Resident Academic Productivity July to December 2020

Journal Manuscripts:

Chagoya G, Salehani A, Tabibian BE, Laskay NMB, Fox BM, Omar NB, **Thaci B**, Bernstock JD, Elsayed GA, Harrigan MR. [Rapid evolution and rupture of an incidental aneurysm during hyperdynamic therapy for cerebral vasospasm](#). *World Neurosurg*. 2020 Sep 18;145:205-209. doi: 10.1016/j.wneu.2020.09.078. Epub ahead of print. PMID: 32956882.

Karnati T, Kulubya E, Kim KD. [Advances in the management of spinal durotomy](#). *Med Res Archives*. 2020 Sep 28; Volume 8, Issue 9.

Peterson C, Toll SA, Kolb B, Poulik JM, Reyes-Mugica M, Sood S, Haridas A, Wang ZJ, Marupudi NI. A novel finding of copy number gains in GNAS and loss of 10q in a child with malignant transformation of neurocutaneous melanosis syndrome: A case report and review of the literature. *JCO Precision Oncology*. (*in press*)

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Ryan Martin, M.D.
Director, NCC Fellowship



Neurocritical Care Fellowship

The Neurocritical Care Fellowship Program is seeking qualified applicants for the FY23 Match.

The program offers three tracks dependent upon the applicant's educational background:

- 2-year traditional post residency fellowship
- 1-year post critical care fellowship track
- 1-year neurosurgery fellowship track

Applicants interested in starting in July 2023 should contact Dr. Martin.



Administrative Updates

The administrative teams of the Departments of Neurological Surgery and Neurology have gone through substantial changes over the past six months. We have been busy onboarding new faculty members, including the new Chair of the Department of Neurology, Dr. Amy Brooks-Kayal. The education teams of both departments embraced the enormous challenge of moving to a virtual format for residency applicant interviews and we appreciate all of the work that went into making the interviews a success. Part of what makes our team so impactful is our adaptability, and our willingness to rise to the occasion to get things accomplished.

Of note:

- **Meriah Horton** has moved into the Executive Analyst to the Chair of Neurology position and will be providing support to Dr. Amy Brooks-Kayal.
- **Alexis Chagolla** will join the department of Neurological Surgery on December 28th to assist with database management and she will be working closely with the clinical research coordinators under Nancy Rudisill.
- **Ashley Thomas, MSN, MBA, RN, CMSRN** has joined us as the Assistant Nurse Manager of the Midtown Cranial Clinic. She is also serving as the Brain Tumor Program Coordinator.
- Our new cluster analyst is **Heena Jain** and she will be taking over Stephanie Celestin's position as Stephanie moves into a supervisory position in the SOM.
- **Kally Turner** is retiring and heading back east. Her last day is January 14th, 2021. Dr. Harsh, Stacy Miller, and the entire department are extremely indebted to Kally for the wonderful job she has done for us over the last 2 years managing the office of the chair, the website, and departmental communication. Her professionalism, skill, dedication and unfailingly good humor will certainly be missed. We wish her the very best in her future endeavors. **Cirby Hatano** will serve as Dr. Harsh's administrative assistant during the transition to a new executive analyst.
- We are recruiting for several additional administrative positions for both departments. We are seeking an AA3 to handle the front desk for both departments (situated in Suite 3700) and to assist with credentialing and privileging. Neurology is also seeking a Research Administrator 1. We're also hiring for an education program assistant to help manage the Academic Day schedule.

We appreciate the dedication and flexibility the entire team has demonstrated throughout the latter half of this year. Despite the challenges of the pandemic, you continue to get the job done!

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Support Groups

Creating connection and community are central to building a culture of support and wellbeing. Our support group services continue to be on virtual platforms and we remain able to provide valuable resources and information to our patients and their families. We are particularly grateful to Christi Delemos, Claire Basco, Sara Chavez, Breana Sanchez and Meriah Horton for the behind the scenes work they do to ensure that our support groups continue to be a place where our patients can interact, receive important information and feel a sense of connection and mutual support.

Members of the DBS support group participated in a virtual Parkinson's Association of Northern California conference in October. Dignity has also joined the DBS support group which now includes all of our local hospitals, Kaiser, Sutter, Davis and Dignity.

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





Honoring Our Donors

This issue of Fusion is dedicated to our Grateful Patient Donors. Prompted by the outstanding care provided by members of the Department of Neurological Surgery to one of our patients, we have received a very generous donation. This substantial gift will help us expand our functional neurosurgery program.

This is a wonderful reminder that providing high quality comprehensive clinical care to our patients is central to our mission and demonstrates that creating a culture of excellence and collaboration can be rewarded in unexpected ways. We reaffirm our commitment to serving the patients who need us and express our deep appreciation for this generosity.

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