UW Medicine

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The Montlake Cut

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Richard G. Ellenbogen M.D., F.A.C.S.

A View From Puget Sound

One of the great joys for a Residency Program Director, and for the entire faculty as well as the current residents, is to welcome our new first year residents in to the UW. These are young people who have already distinguished themselves in college and have risen to the top of their medical school classes. All three of the new R-1s have proven that they are accomplished. Much will be asked of them over the coming seven years, but the rewards will be great for us all.

This past month, the Alvord Brain Tumor Center at UWMC opened to some fanfare. The older faculty remembers Ellsworth (Buster) Alvord (1923-2010) as a wonderful colleague, a wonderful neuropathologist, and a great civic leader. It is an honor for our department to be thus associated with the memory of this remarkable doctor and philanthropist. It is Buster's vision and generosity that made the center a reality.

Being able to "talk the talk" is a prerequisite for success in modern medicine, but it is much more important to prove that you can "walk the walk." Three of our spectacular younger faculty members have done just that by their promotion to Full Professor at young ages. The many achievements already accomplished, the dozens of papers published, inventions patented, and the honors received by Sam Browd, Louis Kim and Pierre Mourad are a testament to their world class neurological surgery status.

Kim Burchiel, a former resident here, and past Chair of the Department of Neurological Surgery at OHSU, delivered the annual Goodkin Lecture this year. Dr. Burchiel, a leading expert in pain and in Deep Brain Stimulation, discussed the future of DBS, a topic in which he is a recognized world expert. As in years past, Bob Goodkin's wife Sandy and son Jarett were in attendance.

While there are simply not enough female neurosurgeons being trained nationwide, the women neurosurgeons in our department have spectacular talents. One of these, Assistant Professor Amy Lee, attends in pediatric neurosurgery at Children's. Amy is a skilled surgeon and empathetic clinician, and has been a wonderful addition to the faculty. She has been the Director of the UW Neurological Surgery clerkship and runs the resident weekly didactics. Her career as a college volley ball star is a part of her CV.

We also welcomed Amy Anderson, BSN as our new Research Nurse Manager in April, 2016. She will direct us through the labyrinthine maize of compliance issue with several layers of bureaucracy. Diana Jump is our new Department Administrative coordinator, and Cory Kelley has joined the staff as research coordinator for Drs. Louis Kim and Michael Levitt.

Last, Minku Chowdhary continues to Puzzle us.

Richard G. Ellenbogen, MD, FACS Professor & Chairman Department of Neurological Surgery

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Welcome New R-1s

Brie White-Dzuro was born and raised in Toronto, Canada. She is the daughter of two lawyers and the second oldest of four children. She first became interested in medicine as a young child when her wise parents insisted that she pursue any profession except law. She attended Oberlin College where she double majored in Biology and Biochemistry, and competed on the varsity tennis team. It was there that she first got involved in research, specifically on a project looking at the genetic profile of C. elegans. She graduated from Oberlin Phi Beta Kappa in three and a half years.

Brie attended medical school at Vanderbilt University. She developed an interest in neurosurgery during her neurology rotation where she was torn between neuroanatomy and a desire to be in the operating room. She then registered for a

neurosurgical elective where she promptly fell in love. She had the opportunity to do research projects with many of the Vanderbilt faculty and focused the majority of her research elective building tumor databases that focused on perioperative seizures and anti-epileptic drug use.

Throughout medical school, Brie took advantage of her scenic surroundings and spent many weekends hiking mountains and waterfalls. On rainy weekends, she enjoys staying inside and completing puzzles. Brie's other hobbies include running, tennis, and golf.

David Bass was born in Jacksonville, FL where he grew up with two younger brothers. In elementary school, he played baseball and soccer. His father took his three sons skiing out west every year, which is probably how David became interested in outdoor sports. Sadly, he neglected to learn how to water ski despite the Florida upbringing. He began rowing in his freshman year of high school and was recruited to row for Cornell in the lightweight boat.

In college, he became interested in studying the biological mechanisms that define memory, and so majored in psychology with a concentration in biopsychology. David's academic interests, combined with the exposure gained from being raised in a medical family, led him to pursue an MD/PhD program straight from college through the MSTP at Emory. In his free time, he continued

to stay active in crew by coaching the club rowing team at Emory, and he still tries to make an annual ski trip out west with his brothers. He is excited to be moving to Seattle since he climbed Mt. Rainier in 2008, and is thrilled to be joining the neurosurgery department at UW.

In spite of all these accomplishments, he didn't know who Paul Beeson was. Hint: The second Chair of Medicine at Emory, and a nearly perfect human being. This is a board question.







New R-1's Continued..

Michael Meyer was raised in Bakersfield, California. He went to the United States Military Academy at West Point and graduated in 2008 with honors in mechanical engineering. He was commissioned a Second Lieutenant in the United States Army, and served in various positions from 2008 to 2012, most notably as the second in command of approximately 200 soldiers in the 43rd Combat Engineer Company, while deployed to Iraq for one year from summer 2010 to 2011. During this assignment he was promoted to Captain and awarded the Bronze Star Medal. While in Iraq he decided to change career trajectories, applying to medical school intending to become a military surgeon.



In August of 2012 Michael enrolled at the Uniformed Services University. In March of 2013 he discovered neuroanatomy and shortly thereafter first experienced neurosurgery, and he never looked back. While a medical student he cofounded an AANS chapter and served as his class treasurer, helping establish an enduring fund to support future medical student research and educational opportunities. He graduated on May 21st, 2016 as his class co-valedictorian and Board of Regents Award recipient.

His primary academic interest thus far in neurosurgery has been the neurocritical care management of severe traumatic and penetrating brain injuries. Clinically he is drawn to the operative and critical care management of severe traumatic brain and spine injuries. Other interests have varied, but recently he's been interested in cerebrovascular surgery, in part because these patients often share the acuity and complexity of the trauma patients that have held his interest.

Michael is married to the former Danielle Hall of Sacramento, California, who is a CPA specializing in audit and consulting for technology companies. They have two English Springer Spaniels, Cinco (age 6) and Price (age 5). His interests include free-dive spearfishing, upland game bird hunting (with Cinco), cooking, wine, and aerobic exercise. Danielle is a talented kiln-formed glass artist in her free time.

ALVORD Alvord Brain Tumor Center at the BRAIN University of Washington Medical Center

Young residents years ago thought their neurosurgical attendings knew a lot, but when Buster Alvord was Chief was Chief of Neuropath, they were pretty sure he knew everything. The rotation began with Dr. Alvord and Cheng-Mai Shaw giving the neuropath naïve new resident an introduction to stains, terminology, and how to use a good microscope. The lucky one got to build a brain with Dr. Alvord in his special elective after hours and weekends class. This thing was made out of clay, bits of string, pipe-cleaners, chewing gum wrapper aluminum foil, and whatever else happened to be lying around. Those who built it knew neuroanatomy after they finished. And they also knew really, really ugly ties.

It is wonderful that the Alvord Brain Tumor Center remembers this remarkable teacher, pathologist and scientist. The Center, housed on the UWMC 7th floor, officially opened on Wednesday, June 9th at 6:30 with The Hope String Quartet supplying the ambiance. Professors Eric Holland and Rich Ellenbogen provided the substance for the event, also punctuated by a message on behalf of the Alvord family from Buster's son Chap. Guests then toured the facility.

The newly-opened Center offers brain tumor patients a single multidisciplinary Medical Home for consults, on-treatment visits and follow-up care. The staff of physicians and nurse practitioners offers a full range of treatment options – and the pros and cons of each – during a single visit. The staff social worker provides support for patients and families throughout the course of care. The Alvord team provides treatment for all brain and spinal cord cancers, as well as current cutting-edge techniques, technologies and treatments, including:

- Neurosurgery
- Gamma Knife
- Proton and photon radiation therapies
- Chemotherapies (oral and infused)
- Immunotherapies
- Optune

And the Center's participation in the Seattle Cancer Care Alliance gives patients access to clinical research studies that provide therapy not available anywhere else.

Center expertise spans neurological surgery, medical neuro-oncology, radiation oncology, neuro-radiology, neuropathology, rehabilitation medicine, otolaryngology and basic science research. This team of multidisciplinary specialists works with patients to find the right treatment for each one.

UW Medicine, Fred Hutchinson Cancer Research Center and the Seattle Cancer Care Alliance individually and collectively have built national reputations for advancing knowledge of cancer and its treatments.

Three Neurological Surgery Faculty Members Promoted to Professor



Samuel R. Browd, MD, PhD

Sam Browd has been promoted to Full Professor in the Department of Neurological Surgery. He came from the University of Utah to Children's Hospital after he graduated with an M.D., Ph.D. from the University of Florida in 2000, and has the expected pediatric neurosurgeon's interests in CSF diversion. He also has investigated and written about functional MRI

mapping in the treatment of epilepsy, the classification and surgical management of craniopagus twins, and the prophylaxis of DVT in neurosurgical populations. His other clinical interests include pediatric brain and cord tumors, as well as spina bifida. He is an attending neurosurgeon at Seattle Children's Hospital, Harborview Medical Center and the University of Washington Medical Center. At Seattle Children's Dr. Browd is the director of the hydrocephalus program, surgical director of the tone management program, and the medical director of the Seattle Children's Sports Concussion Program. Dr. Browd received his M.D., Ph.D. through the Medical Scientist Training Program at the University of Florida in 2000. He then undertook a seven-year Neurosurgery Residency at the University of Washington/Seattle Children's Hospital. While at the University of Utah, he also completed a research fellowship focusing on functional magnetic resonance imaging.

Dr. Browd is vitally interested in research and innovation. He is co-founder and Chief Medical Officer of Aqueduct Neurosciences, a company working to build better shunts, and Co-Founder, Chief Medical Officer for Aqueduct Critical Care, Inc. making automated EVD/Lumbar drainage system. He is co-founder and Chief Medical Officer of Navisonics, Inc making Ultrasound guided catheter technology, co-founder and CEO of eLoupes, Inc, bringing virtual/augmented reality into the operating room. Last, Sam is Co-Founder and Chief Medical Officer of Vicis, Inc., a company manufacturing a force reducing football helmet that will be worn by some NFL and NCAA players this season.

Sam is the recipient of 16 grants, has published 60+ peer reviewed papers, 19 book chapters, and has authored numerous patents. He reviews for the journals Pediatrics, the Journal of *Pediatric Rehabilitation Medicine* (and sits on the Editorial Board), and *Teaching with Technology*. He is or has been a member of 28 other boards or committees. Sam and his wife Lynn have two children, William and Abigail Elizabeth.

Three Neurological Surgery Faculty Members Promoted to Professor

Louis Kim, MD

Dr. Louis Kim, who is being given more and more responsibility in the department, has been made Full Professor at the age of 44. The product of a liberal arts education at Middlebury, where he graduated *summa cum laude* and *Phi Beta Kappa*, Louis then graduated from Columbia University P & S *Alpha Omega Alpha* in 1999. His star continued to ascend as a resident



and fellow at Barrow. He joined our faculty in 2007, became the Acting Chief of Service at Harborview in 2012, and was confirmed as Chief in 2015. During those years, the Neurological Surgery team won the Top Box Award for service excellence five times. Over that same period, Louis has been named to four different "best doctor" lists. He serves as the Associate Residency Director and the Director of Neurovascular Training at Harborview. He has further international responsibilities as Review Editor for *Frontiers in Neurosurgery* and as an Ad hoc reviewer for *Neurosurgery, Journal of Neuro-Interventional Surgery, Stroke, Surgery, World Neurosurgery, Journal of Neurosurgery, Neurosurgical Reviews, American Journal of Neuroradiology*. Dr. Kim has been awarded twelve grants, two of which remain active. He is currently PI on an RO1 from NIH concerned with aneurysmal flow dynamics, and a Washington Research Fund award investigating the prototyping of microsurgical instruments in neurosurgery that integrates the advantages of endoscopic and bi-manual microsurgical tools to create enhanced visualization through minimal access to the brain and skull base. He has already authored 106 peer reviewed papers and 14 book chapters, and has delivered 25 invited lectures.

Louis Kim is clearly part of the future of Neurological Surgery at UW, nationally, and the world. Highly respected by his peers, deeply valued by the residents and staff, Dr. Kim is adored by his patients. Louis is married to Aylin Tashman Kim, a medical device entrepreneur and CEO of a surgical device startup that includes several UW surgeons and engineers. The center of their lives are their two children, Azalea (6) and Kenan (3).

Three Neurological Surgery Faculty Members Promoted to Professor



Pierre Mourad, PhD

Pierre D. Mourad has been promoted to tenured Full Professor in the Department of Neurological Surgery, joint with the Division of Engineering and Mathematics on UW Bothell campus. Over the years Dr. Mourad has conducted and published basic and applied research in oceanography, atmospheric sciences, sonoluminescence, arctic and ocean acoustics, acoustic holography, and medical acoustics. The latter has been his emphasis for the great part of the last two decades.

Much of Dr. Mourad's research is collaborative in nature, residing as it does at the interface of physics and medicine. Dr. Mourad's research on a novel power toothbrush that uses ultrasound resides in Ultreo, Inc., a company he co-founded. Also co-founded PhysioSonics, Inc. based on his research on monitoring intracranial pressure non-invasively and automating ultrasound Doppler systems. With our own Dr. Browd he co-founded Navisonics, Inc, which is ready to go to clinical trials with a novel means of improving the guidance of intraventricular catheters. He has two new companies under consideration, the first about improving physician's ability to localize deep and painful tissue, the other a means of improving resuscitation outcomes.

These and other translational research efforts lie on a foundation of publications and patents. With regard to the latter, he has had nine patents issued, and 13 more are pending, all having to do with means of diagnosing or treating various diseases and disorders. Professor Mourad has over sixty peer reviewed scientific publications. These most recently include Bonow RH, Silber JR, Enzmann D, Beauchamp N, Ellenbogen RG, Mourad PD. (2016) Towards use of MRI-guided ultrasound for treating cerebral vasospasm. Journal of Therapeutic Ultrasound. 4:6 DOI 10.1186/s40349-016-0050-2 as well as Darvas F, Mehić E, Caler CJ, Ojemann JG, Mourad PD. Towards deep brain monitoring with superficial EEG sensors plus neuromodulatory focused ultrasound. In press at Ultrasound in Medicine and Biology. As is typical of his work, these publications involve rich collaborations with our MD colleagues.

Pierre is a first rate scientist and a splendid colleague.

Congratulations to our new Professors Pierre, Sam and Louis. Due to space limitations, in the next issue of the Newsletter the editors will celebrate the department's new Associate Professors Christine Mac Donald, Andrei Mikheev, and Mikhail Gelfenbeyn.

4th Annual Goodkin Lecture: Dr. Kim Burchiel

Goodkin Lecture 2016 Deep Brain Stimulation: A Brief History and Future Directions Kim J Burchiel, MD., F.A.C.S.

The Goodkin Lecture this year was delivered by Dr. Kim Burchiel, John Raaf Professor and Former Chair of Neurological Surgery at OHSU. Dr. Burchiel's "Deep Brain Stimulation: A Brief History and Future Directions" was informative and appreciated by staff and residents. He focused on current DBS treatment including clinical improvements in imaging and positioning electrodes



developed under his guidance at OHSU, and potential future uses including DBS approaches to Depression, Obsessive Compulsive Disorder, Tinnitus, Drug Addiction and Disorders of Consciousness. He shared speculations also about DBS' possible role in treatment for Alzheimer's Disease and Obesity.

Dr. Burchiel is a long-time friend of the UW Medicine Department of Neurological Surgery. He trained here as a resident from 1977-1982 when Dr. Arthur Ward was Chairman, did research at the VA Hospital on peripheral nerve physiology and imaging and, as a faculty member, effectively rebuilt the VA neuro-surgery service before taking a position as Chairman of Neurosurgery at OHSU in 1988. Dr. Burchiel served there as Chairman for 27 years, stepping down in 2015 to focus on national commitments, patient care, and research. His interests include functional and stereotactic neurosurgery, pain, and epilepsy surgery. Dr. Burchiel's research interests are concerned with the physiology of nociception, neuropathic pain, including trigeminal neuralgia, the neurosurgical treatment of movement disorders, and image-guided neurosurgery.



Dr. Kim Burchiel, Jarett Goodkin, Sandy Goodkin, Dr. Richard Ellenbogen

Faculty Spotlight: Amy Lee, MD Assistant Professor of Neurological Surgery



Amy Lee was born in Seoul, South Korea, moved to the US as a child, and grew up in Austin, TX. She began playing volleyball in middle school, and by high school was captain of her team and the first person from her school to be named All-State. As a senior, she was a member of the Texas State Woman's All Star team. She won an NCAA Division I scholarship to attend the College of William and Mary as an undergraduate majoring in finance, and started on the varsity volleyball team her freshman and sophomore years. But then she was introduced to the OR, first for a rotator cuff tear and then and ACL repair. So she retired early. Thomas Jefferson, James Monroe and John Tyler also attended William and Mary, but none of these US Presidents played intercollegiate volleyball or became neurosurgeons. Amy, who did do these things, graduated from the University of Texas School of Medicine San

Antanio in 2003, and then was an Intern in General Surgery at the Barnes-Jewish Hospital, Washington University School of Medicine. She was a neurosurgical resident at Barnes from 2004 to 2010, with six months as senior registrar at the Beaumont Hospital in Dublin. After finishing her Fellowship in pediatric neurosurgery at St. Louis Children's Hospital, she joined our faculty in 2011.

Dr. Lee attends at Seattle Children's Hospital, where patients and their parents find her not only a technically wonderful neurosurgeon but also a compassionate and reassuring physician. In addition, she is the Director of the required UW SOM clerkship, Neurosurgery 665 and is responsible for the weekly formal resident didactics. Her research interests have included diffusion tensor MR imaging in pediatric patients, as well as deformities and tumors of children.

Amy and her husband, Eliot Fagley, a cardiac anesthesiologist at Virginia Mason, have two children. Kate, who was born when her mother was a Fellow in St. Louis, is now 5, and Andrew is 2.



Staff Profile: Amy Anderson

Amy Anderson, BSN joined Neurological Surgery as our new Research Nurse Manager in April, 2016. She helps manage regulatory matters associated with research studies; IRB applications and IRB training, investigator-initiated studies and industry sponsored clinical trials, compliance issues, and FDA record keeping. Amy works closely with our wider research administrative team on all these matters.

Ms. Anderson earned a Bachelor of Science in Nursing from Point Loma Nazarene University in San Diego, California. Following graduation she worked at Evergreen Hospital in Kirkland, WA, and then took an administrative research position in the Kaiser Permanente system where she opened a satellite clinic in Bellevue where, for 5 years, she ran vaccine trials



for patients at Pediatric Associates. Seattle Children's then recruited her to work for 11 years for research in Surgical Services (Urology and Neurological Surgery). Amy worked directly with Dr. Sam Browd to open the Seattle Children's Hydrocephalus Clinic, one of the earlier sites of the National Hydrocephalus Clinical Research Network. She managed all of the SCH research activities for this important national resource. The HCRN mission is to improve the lives of kids suffering from hydrocephalus by conducting important and field-changing, multi-center clinical research.

A key component of Amy's current job is ongoing responsibility at SCH two days per week where she is continues oversight for both HCRN and neurological surgery research in general. Some of this involves working toward definition of needs for transitional care of hydrocephalus patients who leave Children's due to age. These activities may intersect with our new faculty member Dr. Michael Williams Professor of Neurology and Neurological Surgery and Director of Adult and Transitional Hydrocephalus and CSF Disorders and UW Medicine. Amy was a member of a US Navy family (her dad was Captain of a USN Destroyer) and grew up in San Diego and Hawaii. She is a long time resident of the Northwest and enjoys hiking with her dog amongst the many trails in Newcastle and vegetable gardening. She and her husband have three adult children and are eagerly expecting the first grandchild in September.

Welcome aboard Amy!

Allen Institute NeuroFutures Conference By UW Neurological Surgery Summer Student Audrey DePaepe



On June 19th –21st, the Allen Institute for Brain Science hosted the third annual NeuroFutures conference, the focus of which this year was Circuit Structure and Dynamics. As an undergraduate intern in Dr. Ojemann's lab via the Neurological Surgery Summer Student Program, I attended the event and was introduced to the forefront of neuroscience through its recent innovations in research, engineering, industry, and clinical work. Throughout the conference, the speakers, panel, poster sessions, and discussions centered on novel breakthroughs occurring across the globe. At the same time, NeuroFutures 2016 established a platform for neuroscientists in many domains to share their work, heightening opportunities for collaboration.

Dr. Ojemann made two appearances during the conference, the first on opening night as a Keynote Panelist for "NeuroFutures 2026: How will technology transform our ability to understand the 2026 brain?" and again the next afternoon, where he presented electrocorticographic studies titled "Motor reorganization with brain computer nterface use". In total, four members of Dr. Ojemann's lab submitted and presented posters at the conference: James Wu ("Spatiotemporal localization of direction-distinguishing movement planning electrocorticographic features"), David Caldwell ("Effect of distance on the magnitude and timing of Cortico-cortical Evolved Potentials in oscillation triggered direct electrical stimulation in humans"), Kaitlyn Casimo ("Within-day variation of electrophysiological connectivity in the resting state"), and Jeneva Cronin ("Somatosensory feedback via direct cortical electrical stimulation in humans").

I appreciated the exposure this conference provided to current dimensions and future directions of the field, especially with regards to new imaging techniques and the development of the neural connectome. I am excited to augment this work in Dr. Ojemann's lab this summer, as I join his team in continuing to study the development of closed-loop neuroprosthetics.

Welcome New Staff!

We are also pleased to welcome to the Department **Mr. Cory Kelley** our new Research Coordinator for Dr, Louis Kim and Michael Levitt's NIH R01 award *Predicting Cerebral Aneurysm Recurrence* using Doppler guidewire measurements. This is an exciting study using dual-sensor Doppler guidewire technology to measure blood flow velocity and blood pressure from within cerebral blood vessels harboring intracranial aneurysms during treatment, and then applying these measurements to determine causes of treatment success and failure. The results of this study could be used by physicians to alert them to aneurysms at risk for treatment failure, and allow them to provide either additional treatment or more frequent follow-up to prevent aneurysm regrowth and life-threatening brain hemorrhage. He is also working with medical editing and manuscript preparation and other research support for our residents.



Prior to joining us Cory filled many clinical research roles in UW Medicine's Department of Psychiatry at UWMC. He has substantial research experience including independent publications and presentations. Cory is a 9-year US Army veteran who served in Infantry Long-Range Surveillance. He is an EMT and is presently working on completing his private pilot's license. Cory and his wife Victoria are about to celebrate their 6 month wedding anniversary. Welcome to the Department Cory!





We are pleased to welcome **Diana Jump** as the Department's new Administrative Coordinator. Diana will provide support for the Office of the Chairman and will be responsible for fellowship program coordination, faculty recruitment coordination, the HMC monthly attending on-call calendar, and donor recognition. She recently worked Denali Advanced Integration in Redmond where she was the Logistics Coordinator. Diana has only been in Washington 4 years but loves it and plans to "live here forever". She is learning about the state through hiking expeditions. She and her husband moved to Seattle from Phoenix, Arizona, and will soon relocate to Poulsbo where her husband has taken a job with a craft brewery. Diana is looking forward to the ferry ride as another North West adventure. She is passionate about film, loves to tour craft breweries, is a dedicated David Bowie fan and has named one of her two pugs "Ziggy" after Ziggy Stardust (the other is named Dracula!). Welcome Aboard Diana!



Dr. Minku Chowdhary





Director, Neurosurgery Overlake Hospital

New Puzzler

Q: Instead of being described as a sharp tongue, this presidential wife had a sore tongue, and some peculiar habits. The missing link that will help you solve this puzzle is a famous *Cheers* bartender who couldn't quite jump, and a Baywatch beauty who was famous alongside Hoff (not Christof).

Previous Puzzler

Question: As we get older, this slows down, but the answer also has another meaning. The force used to split an atom, creates destruction, yet this man is symbolic of the opposite. Who is he, and how is this related to the answer in the first part of the question?

Answer: Kenzo Tange

http://www.pritzkerprize.com/1987/bio https://en.wikipedia.org/wiki/Kenz%C5%8D_Tange

We remain eager to publish stories and photos about all aspects and activities of the Department. Please share your memories, ideas and suggestions for stories and news items that expand our common ground. Please contact us at these email addresses:

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