UW Medicine
DEPARTMENT OF NEUROLOGY

FALL 2018

Neurotransmissions

DEPARTMENT OF NEUROLOGY
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SCHOOL OF MEDICINE

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From the Chair

The Fall 2018 issue of *Neurotransmissions*, the UW Department of Neurology's newsletter for colleagues, alumni and friends, encompasses the tremendous breadth of clinical activities in the Department. I am proud to share the latest exciting developments in our department, including news on research, clinical resources, and education.

In this issue we highlight the UW Amyotrophic Lateral Sclerosis (ALS) Clinic, based at UWMC. The Center is co-directed by **Dr. Michael Weiss** from Neurology and Dr. Nassim Rad from Rehabilitation Medicine. Michael has been a standout neuromuscular clinician in our department for many years, valued by his patients and colleagues alike for his compassionate approach to an incurable disease. In the article, you will read about the tremendous team he has assembled to guide those afflicted with ALS through its course. I can imagine no better resource for ALS patients than our program at UWMC.

We also turn the spotlight on one of our rising young faculty in the Department, **Dr. Claire Creutzfeldt**. Trained here as a vascular neurologist, she has found her calling in the nascent field of neuropalliative care, a discipline that seeks to treat the patient and family holistically, not just medically. In her short time as faculty, Claire already has garnered a prestigious NIH K23 award and has co-authored a book, "*Neuropalliative Care: Improving the lives of patients and families affected by neurologic disease*," published this year. You will learn more about her work on page 3.

Bruce R. Ransom, MD, PhD

Speaking of academic productivity, on page 7 you will see some of the many publications our faculty continue to produce in high quality journals. What makes our faculty special is not only their dedication to patient care, but their drive to advance scientific knowledge. You will also read about a novel sleep medicine smartphone app developed in part by **Nate Watson, MD**, that has the potential

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INSIDE THIS ISSUE

The ALS Clinic treats and comforts those with a relentless disorder

By Michael D. Weiss, MD, Professor of Neurology and Nassim Rad, MD, Acting Assistant Professor of Rehabilitation Medicine

While new treatment options have become available, amyotrophic lateral sclerosis (ALS) remains an incurable neurogenerative condition. The rapidly progressive time course and devastating impact on patients and family members require that patients are closely followed by practitioners with expertise in ALS. Multiple studies have shown that optimal care for patients with ALS is provided in a multidisciplinary center, resulting in improved survival and quality of life.

The ALS Clinic, a comprehensive multidisciplinary clinic supported by both the ALS Association and Muscular Dystrophy Association, is led by **Dr. Michael Weiss**, Director of the Neuromuscular Diseases Division, Professor of Neurology, and Adjunct Professor of Rehabilitation Medicine, who brings with him extensive knowledge in the diagnosis and management of ALS. Dr. Weiss co-directs the clinic with the help of Dr. Nassim Rad, Acting Assistant Professor in the Department of Rehabilitation Medicine, who recently joined the University of Washington faculty after extensive neuromuscular fellowship training under Dr. Eva Feldman at the University of Michigan.

Care for those diagnosed with ALS is provided via neuromuscular specialty clinics at the UW with an associated multi-disciplinary clinic focusing on comprehensive treatment from diagnosis through symptom management. In addition to Dr. Weiss, the team is composed of other neurologists with expertise in ALS, including **Leo Wang, MD**, Associate Professor of Neurology, **Jane Distad, MD**, Associate Professor of Neurology, and **Matt Preston, MD**, Acting Assistant Professor of Neurology, as well as a rehabilitation physician, nurse, physical therapist, occupational therapist, speech therapist with expertise in augmented communication, dietician, respiratory therapist, social worker, representatives from the ALS Association and Muscular Dystrophy Association (MDA), and research coordinators. The ALS multidisciplinary clinic at UW has been designated an MDA-ALS Center by the MDA in recognition for excellence in clinical and research services.

Dr. Michael Weiss examines a patient diagnosed with ALS.

The multidisciplinary clinic meets once per month with patients returning for follow-up every three months for close monitoring. Those who are unable to participate in the multidisciplinary clinic are followed by neuromuscular physicians in our Muscular Dystrophy Association (MDA) clinic with nursing and respiratory therapists, and direct referrals are provided for specific needs to providers from the multidisciplinary team above.

Following a diagnosis of ALS, patients are often afraid, uncertain and at a loss of what to do next. With the help of the ALS registered nurse coordinator, Kendra Cutting, RN and newest member of the team, Jocelyn Kuchta, PA-C, patients are provided education sessions on what to expect after diagnosis. Prior to clinic, patients are given validated questionnaires including the revised ALS-Functional Rating Scale to help track progression of disease. The UW ALS practitioners strive to keep patients as functional as possible, provide education about and initiation of non-invasive ventilation and enteral nutrition, as well as take part in sensitive discussions regarding goals of care with patients and family members. The UW ALS practitioners also assist patients in understanding and initiating the only two available FDA-approved treatments, riluzole (Rilutek) and edaravone (Radicava). Combining the educational mission of the neurology department with ALS care, neurology residents are often present at the ALS Clinic, getting first hand instruction by faculty on the presentation and management of this disease. Dr. Weiss co-directs the UW ACGME Neuromuscular Fellowship with Dr. Wang,

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Neuropalliative care: improving the lives of patients and families affected by neurologic disease

By Claire Creutzfeldt, MD
Assistant Professor of Neurology

Did you hear someone talk about the Golden Age of Neurology? Remarkable advances in the prevention, diagnosis, and treatment of neurological illness are revolutionizing our field. Cure, however, remains a rare expectation of clinicians. Instead, neurologists accompany their patients on a journey that can sometimes last years, even decades, often with increasing symptom burden and disability, changing social roles and personhood. As we witness an increasing array of treatment options, we also face a pressing need to support and guide our patients and their families as they consider complex choices involving substantial uncertainty and intensely important outcomes of mind, body and spirit.

The past two decades have also seen a remarkable development of palliative care. What used to be associated only with cancer, hospice, and death has evolved into a wide-reaching concept of high-quality care for patients and families from the time of diagnosis through the advanced stages of most serious and chronic illnesses, including neurological disorders. The aim is to recognize, prevent and alleviate physical, social, psychological and spiritual suffering and to improve communication about end of life and quality of life for patients with serious illness and their families.

Neuropalliative care focuses on the specific needs of patients with neurological illness and their families. A number of observations suggests there are: 1) unique needs specific to patients with neurologic disease and their families, ranging from symptom management to caregiver support, and from communication skills and shared-decision making to neuro-specific hospice care; 2) substantial gaps in our current knowledge regarding how and when to best meet these needs; and 3) inadequate delivery of neuropalliative care. To improve the lives for all patients with neurological illness and their families will therefore require a broad range of clinical, educational, and investigative efforts in this nascent field of neuropalliative care.

After graduating from UW Neurology residency and stroke fellowship, I focused my first five years on clinical work, while developing a particular interest around understanding how we can improve the care that our patients with severe acute brain injury (SABI) and their families receive. SABI includes vascular, traumatic and hypoxic-ischemic brain injury, diseases characterized by sudden acute neurologic devastation. With the help of tremendous mentors including **Will Longstreth, MD**, UW Professor of Neurology, Bob Holloway MD, Professor and Chair of Neurology at University of Rochester, and Randy Curtis, UW Professor of Medicine and Director of the Cambia Palliative Care Center of Excellence at UW, as well as support from the Cambia Health foundation, my preliminary work has revolved around describing the supportive and palliative care needs specific to patients with SABI and their families. To help target care to these needs, we developed and implemented a daily supportive and palliative care needs checklist (the "SuPPOrTT checklist") that is completed by clinicians during daily work rounds in our neuro-ICU. We demonstrated that over half of our patients had clinician-identified palliative care needs and that the use of this checklist increased family meetings in the Neuro-ICU.

The Cambia foundation award also enabled me to pursue postgraduate clinical training in Palliative Care at the UW and a neuropalliative care mini-fellowship at HMC. I have recently been extremely fortunate to receive a mentored career development award (K23) from the National Institutes of Health to continue this work. My current research project aims to use the SuPPOrTT checklist and other methods of identifying supportive and palliative care needs to predict patient and family long-term outcome

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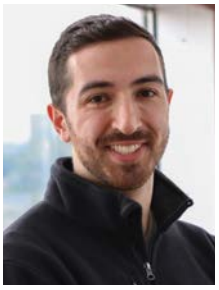
Participants at the 2018 Neuropalliative Care Summit

Adult and Child Neurology
Class of 2021



Sargon Bet-Shlimon, MD

New York Medical College

Sargon is a Seattle native who earned his medical degree from New York Medical College. Before that, he completed a bachelor's degree in Neuroscience at Johns Hopkins University, where he led a student-run tutoring program for Baltimore City Public School elementary students. In his free time he enjoys cooking, hiking, exploring new restaurants, and going on road trips.

C. Patrick Crooks, MD

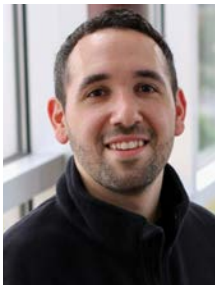
U of Michigan

Patrick grew up in North Florida and graduated with a bachelor's degree in chemical engineering at the University of Florida. After briefly working as a product design engineer at Proctor & Gamble, Patrick went to the University of Michigan Medical School where his research focus was on the role of autonomic nervous system dysregulation in sudden unexpected death in epilepsy. Outside of work, he enjoys guitar, electric bass, bouldering, camping, and very amateur photography.

Amber Ruiz, DO

Touro Univ College of Osteopath Med, CA

Amber obtained her undergraduate degree in Neurobiology from the University of California, Davis. After which, she worked as a research coordinator for the Department of Infectious Diseases at Stanford University. Amber earned both her Master of Science and her medical degree from Touro University, California. She enjoys traveling and exploring the craft beer world with her partner, Ryan, and dog, Duncan. She loves attending baseball games, especially to see the Oakland Athletics and to consume all varieties of fried ballpark foods.



Agnelio Cardentey, MD

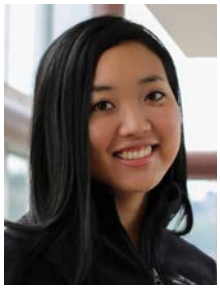
UT Southwestern

Agnelio received his undergraduate degree in biophysics from St. Mary's University, and his medical degree from the University of Texas Southwestern medical center. Prior to his medical education he served in the US Air Force as a crew chief on the F-15E Strike Eagle. In his free time, he enjoys exploring the Pacific Northwest with his wife, Anna, and their new puppy, Leo.

Thuhien Nguyen, MD

UCSF

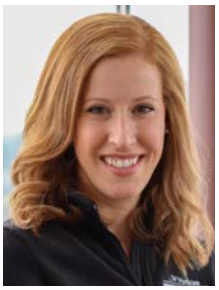
After graduating from Macalester College with a degree in Neurobiology, Thuhien spent 7 years in research before attending medical school. Her research focus was primarily on characterizing the neurogenic potential and profile of the anterior lateral ventricles along with associated neuronal migratory pathways in early postnatal human brains. Thuhien earned her MD from University of California San Francisco School of Medicine. In her spare time, she enjoys discovering Seattle's restaurants and the green landscape of the PNW along with her husband and their young son.



Marissa Sakoda, MD

U of Hawaii

Marissa earned her B.A. in Molecular and Cell Biology with emphasis in Immunology at the University of California, Berkeley. She also minored in music while at UC Berkeley, and volunteered for many years as a violin and viola teacher for underserved students in the East Bay. Marissa returned home to Honolulu, Hawaii and completed her medical studies at the John A. Burns School of Medicine. Her research focus during medical school was primarily on the neurocognitive effects of HIV infection. Marissa's interests include dance, hiking, watching NBA basketball, baking, and going to concerts.



Rachael Schutz, MD

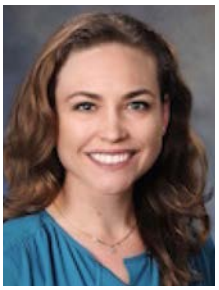
Vanderbilt

Rachael earned her B.A. in Biology as well as her medical degree from Vanderbilt University. While in medical school, her research focused on understanding the supportive care needs of patients with severe acute brain injury in the Neuro-ICU. Prior to medical school, she focused her time on community outreach, including founding a chapter of a national non-profit that organizes a free summer camp for children affected by a parent's cancer. While not working, Rachael's time is spent gardening, painting, and enjoying the outdoors.

Benjamin Dean, MD, PhD

Child Neurology; Vanderbilt

Benjamin started his educational odyssey on the West coast with a BS in biological sciences and an MA in philosophy from Stanford. He then earned his MD and PhD from Vanderbilt with his research focusing on one of the most beautiful structures in the nervous system: the habenula. In addition to these intellectual pursuits, he is an avid gardener and a fearsome ultimate Frisbee player.



Jessica Hauser, MD, PhD

Child Neurology; Baylor

Jess's love of the brain first took shape with undergraduate majors in neuroscience and biology at Oberlin. She then earned her MD from Baylor College of Medicine and her PhD from Harvard studying the developing retinogeniculate synapse. She loves hitting things with a racquet (tennis and squash) and also playing stringed instruments (violin, guitar and piano).

Jennifer Keene, MD

Child Neurology; Case Western

Jen has been tinkering with the nervous system since her BS in at Olin College of Engineering focused on neural engineering. She earned her MD from Case Western Reserve as well as a Masters of Science from that same institution in biomedical engineering concentrating in neural engineering. She also has a Masters of Business Administration from Westminster Gore School of Business. In keeping with her long educational course, she enjoys running marathons and triathalons. She also can dance a mean tango and build stained glass windows.

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after SABI, so that we can develop a multimodal palliative care intervention to improve communication and decision-making and improve long-term outcomes and processes of care for these patients and their families.

The neuropalliative care community is growing. Within our department, **Lynne Taylor, MD**, UW Professor of Neurology, is definitely one of the pioneers in this field. Our residents are receiving communication skills workshops and undertaking research in neuropalliative care. Nationally, the first annual neuropalliative care summit took place during the AAN meeting in 2017 and is summarized in our white paper titled "Neuropalliative Care – Priorities to move the field forward" published this year in *Neurology*. The 2nd summit in 2018 formed the basis for a neuro-specific educational curriculum as part of the national "Education in Palliative and End of Life Care" (EPEC) program. The 3rd summit during the AAN meeting in 2019 will focus on research in this field, and you are warmly invited to participate. This picture from the 2018 summit shows an amazing and growing group of clinicians who have the necessary passion, enthusiasm and perseverance to make this Golden Age shine.

Swanson's History of Neurology
The Bronze Age of UW Neurology: Part 5, 1980-1995

By Phillip D. Swanson, MD, PhD,
Professor of Neurology

In the years following World War II, in many parts of the country neurology was beginning to become independent of departments of medicine. But many programs remained as divisions within medicine (occasionally psychiatry). At the University of Washington, the first Chairman of Medicine, Robert Williams, a very energetic individual, viewed Neurology as part of Medicine, and recruited a strong Neurology Division Head, Fred Plum. As far as we know, there was no discussion of departmental status for Neurology during Fred Plum's tenure. Arthur Ward Jr., first Chairman of Neurosurgery, told me that he and Fred Plum had several conversations about this topic, but that Fred felt he "couldn't get into a battle with Bob Williams." Neither of Plum's immediate successors, Charles Luttrell nor August Swanson, objected to divisional status for Neurology, and successive Medicine Chairs (Bob Petersdorf, Phil Fialkow, Paul Ramsey), were all supportive of the needs of the Neurology Division. Nevertheless, there were some areas where divisional status was clearly disadvantageous.

In September 1979, members of the Division of Neurology petitioned Robert van Citters, Dean of the School of Medicine, to consider Neurology for departmental status. The petition was signed by the 19 full-time members of the Neurology Division. Some points made in the petition were: 1) neurology is different from all other medical subspecialties in its training requirements; 2) Neurology at UW had grown to be larger than several other departments; 3) neurology in most US medical Schools had achieved departmental status: whereas in 1955 there were 15 US departments of neurology, by 1972 there were 60; 4) Pediatric Neurology was administratively a Division of Pediatrics, and the EEG laboratory was part of Laboratory Medicine; 5) insufficient support by the Departments of Medicine and Pediatrics prevented needed increases in the number of Neurology residents and faculty; and 6) the national stature of the UW Neurology Division was greater than that of many neurology departments in the country.

No visible action was taken on the above petition. In May of 1983, I asked the new Dean, Dr. David C. Dale, about the status of our request. It was suggested that we should "sit tight with this idea," as resources were limited and several chairmanship searches were taking place.

In the spring of 1984, Dean Dale asked the Department of Medicine to appoint a committee to deliberate this question. It concluded that Neurology needed strengthening, and that could be done either as a division or as a new department. The Medical School Dean favored departmental status, but it was a difficult time for the University of Washington and Dean Dale told me there was no money available. Three other units with divisional status (Bioengineering, Medical Education and Animal Medicine) also did not achieve departmental status at that time, as the University Provost would not approve any new departments.

In 1986, a new Medical School committee was formed, headed by Gary Tucker, the Chair of Psychiatry and Behavioral Sciences. This committee met to discuss the issue of Neurology departmental status. We communicated to the committee the acute need for additional academic neurologists, especially at HMC and the VA. At that time at Harborview, the Chief, Mark Sumi, had competing commitments to Neurology and to Neuropathology, and Mike Copass was devoting considerable time to the ER and the Medic One program. A number of consultations were never seen by attending neurologists. There were pressing needs for a neurologist devoted to cerebrovascular disease, and another to intensive care. At the VA hospital, in 1983, Wayne Crill had given up his position as Chief of Service, as he had been recruited to become Chairman of the Department of Physiology and Biophysics. Tom Bird became the VA Neurology Chief.

In 1989, the UW Medical School and Hospitals underwent a self-assessment exercise, at a time when the possibility was raised that Harborview Medical Center might have to close for financial reasons. The issue of departmental status for Neurology was again under discussion under a new Dean, Michael Whitcomb, who began his tenure in 1988. We were asked to submit to the Dean a "Self-Assessment of the Division of Neurology". Input was received from Harborview, the VA, Pediatric Neurology, from the EEG lab, and from the Regional Epilepsy Center. The administrative awkwardness of several departments having control over important clinical neurological areas was stressed. It was pointed out that Division Heads in Pediatric Neurology had been appointed by the Department of Pediatrics without the concurrence of the search committee, which had recommended other candidates. Neurologists in the Epilepsy Center had been hired without having appointments in Neurology. By this time, the Department of Medicine headed by Paul Ramsey no longer opposed departmentalization of Neurology and the process moved forward.

By 1995, more than a decade had gone by before the departmental issue was resurrected. At long last, funds were obtained by the School to establish two named professorships, and departmental status was granted. This decision allowed Neurology to assimilate such entities as the Division of Pediatric Neurology, the Regional Epilepsy Center, the EEG laboratories, and to develop electromyography (EMG) within Neurology. During the transition period, we were allowed to appoint Eric Kraus to a faculty position. Finally, we successfully recruited the inaugural Chair of Neurology, Bruce Ransom, who had been on the faculty at Yale. We had at last moved out of the Bronze Age!

Update from the Division of Pediatric Neurology

By Mark Wainwright, MD, PhD,
Division Head

William (Bill) Dobyns, received the Bernard Sachs Award at the 2018 Child Neurology Society Annual Meeting in Chicago in October. The Bernard Sachs Award is given annually by the Child Neurology Society to honor someone of international status who has done leading research in neuroscience with relevance to the care of children with neurological disorders, and who is also recognized as an outstanding teacher. This award is the highest honor the Child Neurology Society can bestow. His acceptance talk was titled "The Names of Things" and comprised a reflection on the importance of mentoring in academic careers, an overview of his seminal contributions to the understanding of developmental brain malformations, and a challenge to the CNS to transform the education and training of child neurologists.

Two recent recruits over the summer to the Division, Drs. Fawn Leigh (Massachussetts General) and Aimee Sato (Children's National) have already begun to establish new clinical programs. Dr. Leigh has created a neuromuscular clinic and initiated a number of new clinical trials. Dr. Sato is creating a multi-disciplinary clinic for patients with neurofibromatosis.

Neurology Faculty News

Suman Jayadev, MD, Associate Professor of Neurology, has been named as the next holder of the Arthur Krause Professorship for Neurogenetics Research in recognition of her research work in Alzheimer's and Huntington's diseases.

Christina Marra, MD, Professor of Neurology, was honored with the UW School of Medicine Mentoring Award for her outstanding efforts in guiding up-and-coming Neurology faculty.

Claire Creutzfeldt, MD, Assistant Professor of Neurology, is the co-author of a new book: Creutzfeldt CJ, Kluger BM, Holloway RG (Editors) *Neuropalliative Care: Improving the Lives of Patients and Families Affected by Neurologic Disease*. Springer Verlag, Berlin, 2018.

Nate Watson, MD, Professor of Neurology, reports: "The SleepScore app is now available on both the iTunes and Android app marketplace. This app turns your phone into an "active sonar" device that can measure fine body movements, such as chest and abdominal movement during respiration, in a contactless manner and thereby quantify sleep duration and stages. This app is based on technology that I helped develop at the UW along with Drs. Shyam Gollokota and Rajalakshmi Nandakumar in Computer Science and Engineering. We licensed the technology to ResMed, who then created the startup SleepScore Labs which released the app in June 2018."

Selected Recent Publications by Neurology Faculty

Adams ME, **Odom GL**, Kim MJ, **Chamberlain JS**, Froehner SC. Syntrophin binds directly to multiple spectrin-like repeats in dystrophin and mediates binding of nNOS to repeats 16-17. *Hum Mol Genet* 2018.

Nelson DM, Lindsay A, Judge LM, Duan D, **Chamberlain JS**, Lowe DA, Ervasti JM. Variable rescue of microtubule and physiological phenotypes in mdx muscle expressing different miniaturized dystrophins. *Hum Mol Genet* 2018.

Filareto A, Maguire-Nguyen K, Gan Q, Aldanondo G, Machado L, **Chamberlain JS**, Rando TA. Monitoring disease activity noninvasively in the mdx model of Duchenne muscular dystrophy. *Proc Natl Acad Sci USA* 2018.

Ho PP, Lahey LJ, Mourkioti F, Kraft PE, Filareto A, Brandt M, Magnusson KEG, Finn EE, **Chamberlain JS**, Robinson WH, Blau HM, Steinman L. Engineered DNA plasmid reduces immunity to dystrophin while improving muscle force in a model of gene therapy of Duchenne dystrophy. *Proc Natl Acad Sci USA* 2018.

Crudele JM, **Chamberlain JS**. Cas9 immunity creates challenges for CRISPR gene editing therapies. *Nat Commun* 2018.

Gospe SM Jr. Developmental outcome in pyridoxine-dependent epilepsy: Better late (onset) than early. *Eur J Paediatr Neurol.* 2018.

Oesch G, Maga AM, Friedman SD, Poliachik SL, Budech CB, Wright JN, Bok LA, **Gospe SM Jr.** Geometric morphometrics reveal altered corpus

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to revolutionize the way sleep studies are conducted.

Finally, do not miss the final installment of Swanson's *History of Neurology*. Here, **Phil Swanson, MD** describes the prolonged birthing of our Department—against some institutional resistance—over prior decades. We are indebted to Phil for being our departmental memory.

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also an ALS Clinic provider. An extensive part of the training of neuromuscular fellows involves their participation in the clinic as well. The UW ALS Clinic also welcomes the opportunity to work with community providers to collaborate in providing comprehensive care to patients with ALS.

In addition to providing comprehensive care of ALS patients, ALS Clinic staff encourage patients to get involved in research opportunities. Research coordinators are available to patients to discuss ongoing trials at the UW investigating pathogenic mechanisms and putative treatments of this disease. Current ALS treatment trials at the University of Washington in various stages of completion include phase 2 studies using the medications mexiletine (ALS Association funding, with Dr. Weiss as the principal investigator), reldesemtiv (Cytokinetics), levosimendan (Orion Pharma), and memantine (University of Kansas). Two biomarker/genetic studies are also available for participation by ALS patients.

For referrals to the ALS Clinic, contact Myla Smith at 206-598-9039.

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callosum shape in pyridoxine-dependent epilepsy. *Neurology* 2018.

Coughlin CR 2nd, Swanson MA, Spector E, Meeks NJL, Kronquist KE, Aslamy M, Wempe MF, van Karnebeek CDM, **Gospe SM Jr**, Aziz VG, Tsai BP, Gao H, Nagy PL, Hyland K, van Dooren SJM, Salomons GS, Van Hove JLK. The genotypic spectrum of ALDH7A1 mutations resulting in pyridoxine dependent epilepsy: a common epileptic encephalopathy. *J Inherit Metab Dis.* 2018.

Kim HM, **Leverenz JB**, Burdick DJ, Srivatsal S, Pate J, Hu SC, Millard SP, **Davis MY**, **Samii A**, **Zabetian CP** (2018). Diagnostic Validation for Participants in the Washington State Parkinson Disease Registry. *Parkinsons Dis* (in press).

Davis AP, Wettstein A, **Swanson PD**, **Longstreth WT Jr.** The Search for the Elusive Bing Sign. *Neurology* 2018.

Zunt, JR. Tuberculosis of the Central Nervous System. *CONTINUUM: Lifelong Learning in Neurology,* 2018.

Schiess N, Saylor D, **Zunt J.** Global Neurology: Navigating Career Possibilities, *Semin Neurol* 2018.

Metcalf T, Soria J, Montano SM, Ticona E, Evans CA, Huaroto L, Kasper M, Ramos ES, Mori N, Jittamala P, Chotivanich K, Chavez IF, Singhasivanon P, Pukrittayakamee S, **Zunt JR.** Evaluation of the GeneXpert MTB/RIF in patients with presumptive tuberculous meningitis. *Plos One*, 2018.

Turk KW, Flanagan ME, Josephson S, Keene CD, **Jayadev S**, **Bird TD**. Psychosis in spinocerebellar ataxias: a case series and study of tyrosine hydroxylase in substantia nigra. *Cerebellum*, 2018.

Selected Recent Grant Awards to Neurology Faculty

GRANT TITLE	SPONSOR	PI
SCA7 neurodegeneration: Molecular epigenetic basis and therapy	Duke University / NIH	**Garden**

HAVE SOME NEWS TO SHARE?

A recent grant, publication, or award? Please send it along to Nadine Waldmann (dine33@uw.edu) so we may include it in the next issue of *Neurotransmissions*.