



# THE MONTLAKE CUT

A PUBLICATION OF THE DEPARTMENT OF NEUROLOGICAL SURGERY

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The Department mourns the death of Professor Richard Morrison, PhD, our friend, colleague and mentor for more than 25 years. Rick died quietly at home with his beloved family on October 25 at the age of 65. His death is a great loss to both and his and his UW Neurological Surgery Family.

R-7 Lynn McGrath has won the **Innovator of the Year Award** presented by the Congress of Neurological Surgeons **CNS**. Dr. McGrath developed a smart phone-based app pupilometer for the rapid evaluation of TBI in the field. It has been trial tested at Harborview Medical Center with great success to date.

R-5 Abdullah Feroze writes about his experiences at the Research Update in neuroscience for Neurosurgeons (RUNN) held at Woods Hole, and Christine MacDonald collected yet more notice by participating in an expert White House panel looking for ways to decrease suicide among US military service members, a subject that has been a subject of her extramural federal funding.

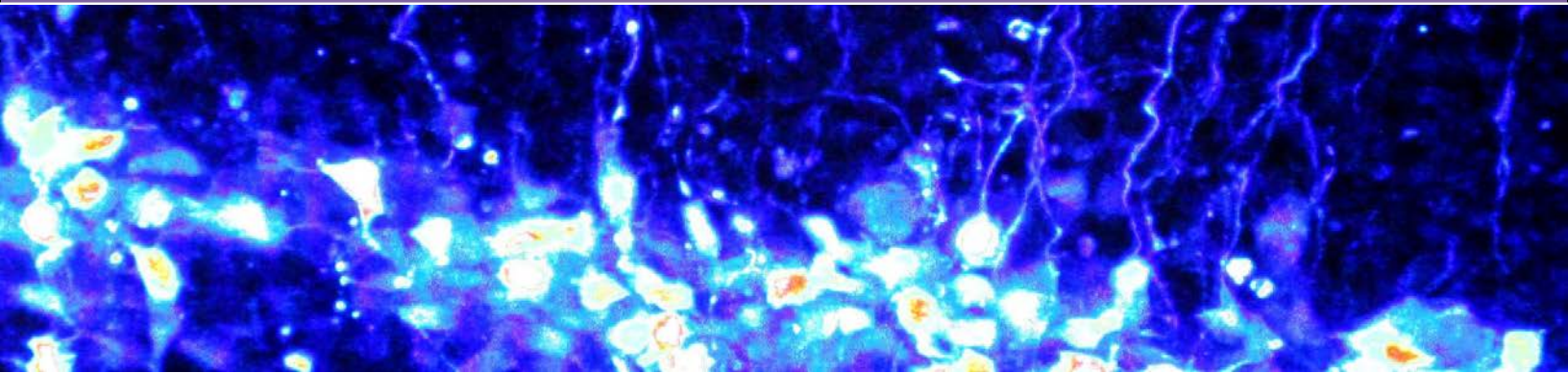
The 12th Annual NIH funded (R-25) Neurosurgical Summer Student Program for Underrepresented minority students was again a huge success, attracting hundreds of applicants for the 12 positions and inspiring them to pursue a science and/or medical career.

The Sports Institute at UW Medicine has expanded its research efforts into sports safety with a very robust approach to health through exercise and safe play during sports activity. Clinical Professor David Primrose has retired.

Stanford Neurosurgery Professor, Dr. John Adler, a brilliant inventor, was a visiting professor at UW Neurological Surgery Grand Rounds in July to talk about innovation, and how to survive creating and nurturing a successful “start-up” company.

And finally, we also celebrate the retirement of long-time department administrative stalwart Rosemary Kimmel, at the same time that we welcome Anoop and Monica Patel's new daughter.

**Richard G. Ellenbogen, M.D., F.A.C.S.**  
Professor & Chairman  
Department of Neurological Surgery



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# Lynn McGrath, MD named 2019 Innovator of the Year by the Congress of Neurological Surgeons



Congratulations to Dr. McGrath whose presentation "Mobile Digital Pupillometry for Rapid Triage of Patients with Severe Traumatic Brain Injury" earned him the prestigious Innovator of the Year award at this year's Congress of Neurological Surgeons (CNS) meeting.

Traumatic brain injury (TBI) is the leading cause of mortality in people under age 45 and accounts for 2.5 million ED visits and \$75 billion in healthcare costs each year in the United States. The key to ensuring the best possible clinical outcome for TBI patients is to facilitate their care at a designated trauma center. Unfortunately, up to 60% of severe TBI patients are under triaged and admitted to non-trauma hospitals, a systemic problem which the National Study on the Costs and Outcomes of Trauma has demonstrated results in an excess mortality of 25%. Evaluation of the pupillary light reflex (PLR) is a crucial factor in triaging TBI patients, but penlight-based manual pupillometry is known to be inaccurate and digital infrared pupillometry impractical for field use. PupilScreen, a pupillometry technology developed for

smartphones, integrates the convenience of manual pupillometry with the accuracy of a digital infrared pupillometer and may represent a practical way to improve the triage of severe TBI patients.

A smartphone-based pupillometer, PupilScreen, was developed utilizing a fully convolutional neural network (FCNN) and the flash and camera from a typical iPhone. The FCNN was trained for 175,000 iterations on a database consisting of 4410 pupil image samples from 42 healthy volunteers and 7 TBI patients. Once sufficient accuracy in generating PLR curves was achieved (0.3mm mean error in diameter estimation), the trained network analyzed  $n=48$  new samples ( $n=24$  from healthy patients and  $n=24$  from patients with severe TBI [GCS  $<8$ ]). PLR curves were generated for each cohort and presented to two blinded clinicians to assess each pupil as either 'responsive' or 'non-responsive'.

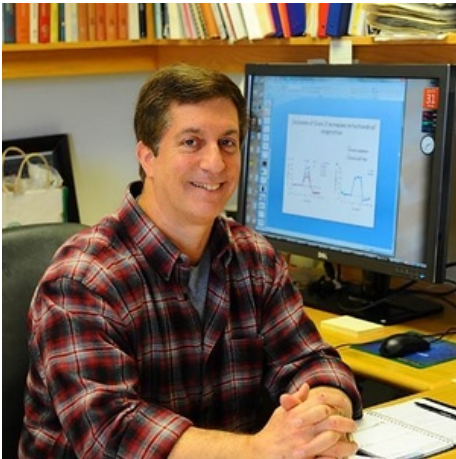
When presented with PLR curves, one blinded clinician was able to correctly classify a patient as demonstrating 'responsive' or 'non-responsive' pupils with 100% accuracy, and the other with 99% accuracy (one 'non-responsive' curve was misclassified as 'responsive'). While limited in scope, these results demonstrate substantial improvement over manual pupillometry).



A smartphone-based pupillometer can provide PLR assessments accurate and intuitive enough for clinicians to identify one of the clinical hallmarks of TBI, and may be useful for patient triage.



# Passing of Professor Emeritus Richard Morrison



On October 25, 2019, Professor Emeritus Richard Morrison, our beloved friend and colleague for over 25 years passed away from complications from esophageal cancer at age 65. Our heartfelt sympathy and condolences go out to his family at this difficult time.

Rick was a highly-respected neuroscientist with a 25+ year history in our department. He gained international respect as a superb and highly productive neuroscientist and outstanding collaborator and colleague. He published 70 peer-reviewed articles, many of which appeared in prestigious and highly influential journals and he made major contributions to the field as an Editorial Board Member of 5 leading journals, and also as a permanent member of one NIH study section and ad hoc member of 17 others in addition to membership on Special

Emphasis Review Panels and as a consultant to internationally based science foundations. While Faculty at UW Neurological Surgery, he received over \$19 million dollars of NIH support including a center grant and was often named amongst the top-50 individual investigator recipients of NIH funding.

Rick was also integral to our training mission and was especially proud of his students and his role as an educator of neurological surgeons, students and neuroscientists. He mentored 15 post-doctoral fellows, 20 undergraduate students and served as a faculty mentor for 4 Clinician Scientists. Three of his undergraduate students were recipients of a Mary Gates Endowment research training grant and one student was accepted into and completed the MD/PhD NIH/Oxford/Cambridge Biomedical Research Scholar program while attending Mount Sinai Medical School. One of his clinician scientist mentees became a department chair. In addition, he hosted many of our Neurological Surgery Summer Neuroscience Program students and this participation helped support our successful NIH NINDS R25 application. Rick was especially proud that he was awarded the Staatz Endowed Professorship by the Department, and SOM and of being selected to give a UW School of Medicine Science in Medicine Lecture for Distinguished Faculty.

Most importantly Rick was passionate and deeply committed to the things he cared about most – his family and friends, his colleagues, his Department, neuroscience, photography, and sport. He was totally dedicated to his wife Martha and their two girls, a good friend to all of us, a great scientist, and a talented artist who became a team photographer for the Seattle Sounders. He would be equally proud to show you one of his many terrific sports photographs or one of his over-powering martial arts moves. He was a one of a kind, a true original in the best sense of that phrase, someone who enriched us with his deep knowledge, enthusiasm, and creativity, as well as his wit. He was kind and funny and serious, all at the same time, and someone whom we will all miss. We will miss you. Godspeed Rick!

## Dr. Mac Donald Invited to the White House



On September 23rd, 2019, Dr. Christine Mac Donald participated as an expert panel member at a White House summit, which brought together leading clinicians, researchers, innovators, and decision-makers to inform public health policy solutions to end service member and veteran suicide.

Read more about The President's Roadmap to Empower Veterans and End the National Tragedy of Suicide (PREVENTS) [here](#).

# Harborview Staff Reflect on Veterans Day

In honor of Veterans Day, the UW Medicine Media Relations team directed by Susan Gregg created a video featuring Dr. Ellenbogen and other surgical staff at Harborview speaking to their service in the military and how it impacts their work. You can view the video [here](#).

## Research Update in Neuroscience for Neurosurgeons (RUNN)

By Abdullah H. Feroze, M.D.



In 1984, Dr. Henry Schmidek began the Research Update in Neuroscience for Neurosurgeons (RUNN) course at the Marine Biological Laboratory in Woods Hole, Massachusetts. The course was initially conceived in response to the rapid expansion in the neurosciences and to combat “illiteracy” in basic neurobiology that Dr. Schmidek feared would weaken the specialty of neurosurgery and its surgeon-scientists. Despite significant changes to the course since its inception, its overarching mission remains the same: to provide an introduction and update on the latest concepts, hypotheses, and methods in the fields of neurobiology and neuroscience with particular relevance to the practice of neurosurgery today.

In 1999, the course was shortened from two weeks to one. This year, the 36th rendition of the RUNN course was held from October 27, 2019 through November 2, 2019. In that one week, at the invitation of course coordinators Drs. Nino Chiocca and Alan Friedman, distinguished guests from around the country and Canada were invited to provide 90-minute lectures on their research subspecialties with additional time for stimulating interactions between the lecturer and participants. With five such lectures per day over the course of a week, the expanse of neuroscience discussed was grand, from items covering the spectrum from stem cell biology, biological and artificial microprocessor systems, and evidence-based medicine to data science, molecular genetics, and cost-efficacy analysis. While a number of lecturers were basic scientists well-established within their fields, a significant number were active neurosurgical physician scientists, such as Henry Brem, Issam Awad, and Ziv Williams. Science aside, a number of sessions also addressed topics germane to academic career development, grantsmanship, and the history and philosophy of science and scientific method as well.



Selected lecturers and topics this year from a distinguished list of over 30 included:

- Ed Benzel, “Spine, Biomechanics, Clinical Practice, and the Quest of Academic Excellence”
- Edward Boyden, “Tools for Understanding and Repairing the Brain”
- Robert Dempsey, “Inspiration and Neurosurgical Research: How to Start a Project, Grant, or Paper”
- Robert Harbaugh, “Issues in Neurosurgical Clinical Research”
- Jeremy Schmähmann, “Systems Neuroscience of Cerebral White Matter Tracts and Cerebellar Cognition”

As a resident able to attend this year through departmental generosity, the depth and breadth of science discussed was simply astounding and enough to rival that of any national scientific meeting. It was a privilege to hear from multiple thought leaders, not only on the state of neuroscience today, but also on the trials, tribulations, and joys that come with advancing the fields of neurobiology and neuroscience in this era. In the setting of Cape Cod and the famous Marine Biological Laboratory (home to 58 Nobel Prize laureates since 1929!), one could not help but be humbled and inspired by the intellectual power and excitement that permeated the venue. In an era where an increased emphasis is being placed on physician burnout, it was refreshing to see the passion that exuded from lecturers and attendees alike on the practice of medicine, the scientific process, and the bounds of scientific advancement that can come from the pursuit of the advancement of neurosurgery from benchside to bedside. The RUNN course deservedly remains one of the greatest centerpieces in American neurological surgery and it guarantees the continued grooming of future neurosurgical scholars.



## Dr. Primrose Retires



On December 2, Clinical Professor David Primrose retired. Dave has been an important member of the faculty at Harborview for the last 5 years, helping to manage the Practitioner service and the clinic. Dave was an undergrad at Macalester College in St. Paul and went to medical school at the University of Minnesota. He trained in neurological surgery at SUNY-Syracuse, and then was an Epilepsy Fellow first in Montreal and then with George Ojemann at UW. He worked at Group Health, and then in practice first in Bellevue and later at Virginia Mason. For the past five years, he has been on-service at HMC for half the year.

Dave and his wife have three children, including a daughter who is a pathologist at the University of Michigan and a son who is a dentist in Issaquah. He intends to spend much of the winters now skiing on his titanium knee in Jackson Hole. Dr. Primrose will be missed by the department and the hospital.



# 2019 Neurological Surgery Summer Student Program



The Neurological Surgery Summer Student Program began in 2008, so this year celebrates its 12th anniversary and fourth year of NIH sponsorship. Our Program Mission is to inspire young underrepresented minority students in following their interests into neuro-STEM careers by gaining direct experience with clinical and translational neuroscience.

Since its inception, the program has grown from an initial class of 4 self-referred local students to a national enterprise with over 1000 students to date interested in applying for one of 12 spaces available in our labs. Their experiences include working with a wide range of clinicians, researchers and laboratories at Harborview, UWMC, SCH, The Allen Institute, Fred Hutch and Seattle Children's Research Institute. Substantial numbers of faculty and staff support the 8-week lab placement along with OR shadowing and HMC Rounds, Grand Rounds, Friday Seminars, social events and graduation presentations where students share their research accomplishments from the summer. Simply reviewing the applications involves a team of 14 program mentors and supporters selecting finalists and alternates from amongst hundreds of highly qualified national applicants.

By the numbers, in 2019 we had applicants from 159 schools in 44 states and Puerto Rico. This program has attracted women and underrepresented minority students from around the country. Over the past 12 years we have hosted 143 students from 92 different schools including 10 Rainier Scholars. Students have had 26 different faculty mentors, 30 different summer Friday Seminar speakers and 17 clinical faculty have been involved with OR shadowing and rounds. Here are some comments from this year's students:

- "From participation in this program, I have improved my critical thinking, research, communication, presentation, and networking skills"
- "The experiences that I have had in this program were truly life changing and will continue to assist me throughout my life."
- "I have seen and experienced some amazing things during the last 8 weeks..."
- "Because of this program, I now have a better understanding of medical school and residency, of the job requirements for neurosurgeons and other OR workers, as well as the advances and opportunities in neuromedicine."

Recordings of the 2019 student's graduation presentations can be viewed [here](#).

Applications for the class of 2020 closed January 2, 2020 – details are posted on the Neurological Surgery Summer Student Program website [here](#).

*The Neurological Surgery Summer Student Program Class of 2019  
was supported by generous Private Donors and  
NIH R25 NS095377 – R.G. Ellenbogen, MD, FACS, PI  
NIH NINDS Summer Research Experience in Translational  
Neuroscience and Neurological Surgery*

# Updates at the Sports Institute at UW Medicine

It was a big year for The Sports Institute at UW Medicine! Led by Dr. Samuel Browd, the Institute increased its scope of programmatic work to reach more people and have an impact in more areas of sports safety. It launched a new website that features its work in the community, a revamped Learning Center and their team's research portfolio. The Institute teamed up with former Seattle Seahawk Cliff Avril and medical professionals from throughout King County to film a vital teaching video for athlete care teams. And partnered with public school districts to launch and research a program to help kids be more active during the school day.

The Institute is serious about getting more people moving in this country, and is more motivated than ever to make the sports and activities we love as safe as possible!

## 2019 Sports Institute Highlight Reel:

- Keeping tabs on new legislation – On the shoulders of previous education and advocacy efforts like the Lystedt Law, the Institute built a first-of-its-kind Sports Legislation Tracker to empower individuals with up-to-date information on national and statewide sports safety policies.
- Bridging the gap between movement and medicine by developing Exercise Rx, a clinical innovation platform to better incorporate physical activity in clinical settings. Phase 1, a tool for UW Medicine healthcare providers and the Greater Seattle area public to quickly find free and low-cost exercise resources, launched in April. In November, the Institute added Exercise Anywhere, easy to access videos and apps of our favorite ways to exercise at the office, at home, on vacation, or anywhere.
- Increasing physical activity during the school day – With The Daily Mile™ Foundation (UK), the Institute is implementing and researching The Daily Mile in elementary schools in the Seattle and Houston-areas and convening international partners to bring the program to communities around the country. The goal is to better understand the connections between physical activity and positive academic, behavioral and health outcomes and to find the most effective way to introduce more movement in our schools.
- Evolving training tactics in youth soccer – The Institute teamed up with former Seattle Sounders star Roger Levesque and VICIS to build and begin studying AERIAL – a training program that teaches kids to head the ball properly and learn how to compete in the air. The ultimate goal is to reduce player-to-player collisions and the incidence of head injuries in youth soccer.
- Building a blueprint for youth sports and physical activity – Earlier this year, the American College of Sports Medicine ranked Seattle second in the 2019 American Fitness Index of healthiest cities. But, as we learned from the 2019 State of Play: Seattle-King County report, our most important residents are being left behind. We can do better.
  - Read More in Dr. Browd's Seattle Times OpEd [here](#).
- Creating meaningful internship experiences for college athletes – In partnership with UW Athletics, The Sports Institute launched the Husky Fellowship, a new internship program that provides a unique and diverse professional experience to undergraduate student-athletes interested in sports safety and physical activity. Meet their 2019 Husky Fellow, [Taylor Sekyra](#).

You can visit the new website at [www.thesportsinstitute.com](http://www.thesportsinstitute.com)



# Grand Rounds Visiting Professor



On July 31, 2019, the Department welcomed John R. Adler Jr., MD, (The Dorothy and The King Chan Professor in Neurosurgery, Emeritus; Department of Neurological Surgery, Stanford University Medical Center; Stanford, CA) as a visiting professor. Dr. Adler presented on the topic of '*Living the Dream: Life in a Neurological Start-Up.*' He was invited by our Chair, Rich Ellenbogen who was a co-resident with Dr. Adler at the Brigham in Boston. He attested to Dr. Adler's disruptive intellect.

Dr. Adler is the CEO of both Zap Surgical Systems and Cureus Inc. Dr. Adler is world-renowned for inventing the CyberKnife and the related field of image-guided therapeutic radiation. He entertained the UW grand rounds audience on the challenges, failures and successes of creating and nurturing a "startup" company.

Dr. Adler has been on the faculty of Stanford University since 1987, and was appointed the Dorothy and TK Chan Professor of Neurosurgery and Radiation Oncology in 2007. His entire medical and neurosurgical education took place at Harvard, excepting a one-year fellowship at the Karolinska Institute with Lars Leksell, the "father of radiosurgery". As an academician, John is the author or co-author on more than 300 peer-reviewed articles and book chapters and serves or has served on the editorial boards of 8 different peer-reviewed journals. He is also a named inventor on more than 20 patents.

While creating the CyberKnife, Dr. Adler founded Accuray Inc (NASDAQ: ARAY) in 1992 to commercialize his invention. Up until 2009, he served in varying roles at Accuray including CEO, Chief Medical Officer and Chairman. To date Accuray technology has been used to treat more than one million patients and most modern radiation equipment now incorporates John's basic idea for image-guided targeting. In 2002, Dr. Adler founded the CyberKnife Society, later (2012) renamed the Radiosurgical Society. He also serves or has served on the scientific advisory boards of 7 different medical device or pharmaceutical companies.

In 2014, Dr. Adler founded Zap Surgical Systems in Silicon Valley with a mission to "Advance Cancer Treatment for All Humanity." His invention, the Zap-X received US FDA clearance in September 2018.

Dr. Adler also founded and serves as the Co-Editor-in-Chief of Cureus.com, the world's largest multi-disciplinary open access medical journal, which publishes more than 3000 peer-reviewed articles per year.

## Department of New Babies



Drs. Anoop and Monica Patel welcomed Elina Avni Patel into the world on Sunday, December 1<sup>st</sup>, 2019 at 6:22pm. Elina weighed a healthy 6 pounds and 11 ounces upon arrival. Anoop reports that both mom and baby are healthy and happy! We welcome the newest member of our department.

## Welcome New Staff



Dana Alexander will be filling the position that was open upon Rosemary Kimmel's retirement. In this role, she will be providing administrative support to faculty and interfacing with PIs and the School of Medicine's Administrative Business Center (ABC) for pre-award functions. Dana graduated from the UW in 2018 with a degree in Psychology. She has held a variety of administrative positions including office manager of an independent chiropractic office, the counseling office at Shoreline Community College and most recently was the sole administrator for the UW Classics Department. She continues to run assessments in a Psychology lab and is very interested in the department's research mission.

Our department moved the pre-award function to the ABC (Administrative Business Center) shared service in November 2019 as Rosemary Kimmel recently retired. Michel Gauthier from the ABC team has taken over this responsibility. Michel came with both grants management experience in both pre-award and post-award area. He had worked in the Department of Medicine at the College of Medicine in the Bronx as well as Grant Manager for the Department of Pathology at Duke University in Durham and the Business Officer for the Department of Family Medicine at the University of North Carolina at Chapel Hill.



## Retiring Staff



Rosemary Kimmel retired from the Department of Neurological Surgery on December 16th after 17 years of exceptional support to the department.

During her tenure at UW, Rosemary provided superior administrative support to our faculty, staff, and labs. With her phenomenal organizational and writing skills, she expertly guided our faculty in navigating the complexities of the grant submission process. She ensured deadlines were never missed even if it meant running to the FedEx truck before it pulled out of the loading dock. Rosemary knew the answer to every question, where to find the missing key to open a locked door, and the perfect response to finish the crossword puzzle. Rosemary was also responsible for starting the Potato Feast that marked every St. Patrick's Day. She has a wonderful

sense of humor and was always willing to try anything.

On November 20th, the department celebrated Rosemary's work and legacy. Dr. Ellenbogen, Dr. Ojemann, Jana Pettit and Tram Tran shared formal remarks followed by many, many faculty and staff thanking Rosemary and praising her exemplary work. Remarks included:

"Everyone knows the magic that Rosemary delivers at the end of every grant submission"

"Rosemary was always willing to jump in and help"

"If there was a last-minute request, she's like, 'I got it!', and when Rosemary said, 'I'll take care of it,' you knew it would get done"

"You have been the rock of this department"

"Rosemary was my safe person coming into the department as a newbie in Neurosurgery"

"She cared about all of us every day when she came to work"

Dr. Ellenbogen summed up the feelings of everyone present with these words of appreciation:

"There isn't anyone who comes close to what Rosemary did for us and the department. I can't imagine how many countless careers would have been altered had it not been for Rosemary's expertise.

"Rosemary, you are part of our culture, of our department, of our success. Our success was because of your success. We will always be grateful and thankful."

Rosemary will be greatly missed and we wish her the best in this new chapter.

### **Rosemary's Reflection:**

As I reflect on the past 17 years, I am, uncharacteristically, at a loss for words how best to summarize it.

Do I do it in numbers? Chairmen: 1; Directors, 3; the residents ('the baby docs') I have witnessed become Departmental faculty, 7 (Zhang, Levitt, Gelfenbeyn, Ko, Cecchini, Ravanpay, Karandikar). Faculty supported, 6. Faculty unofficially supported, lost count (you know who you are). Grants submitted, 673 (who's counting). Number of times I said yes, but I really wanted to say, "you're kidding, right?" (weekly). The 41 residents I have seen graduate - they all have something to be proud of – having been trained by the best.

Or, the whereabouts of: birthday candles; a screwdriver; a safety pin; where the bodies are buried; nap couches; a notary; Tylenol; the passwords you lost. My sanity. Your sanity.

Or the good: Faculty who entrusted me with their proposals and editing their work (even DLS). The countless friends I have made – you know who you are!

Or the not so good: unpredictable technology; the bifold door and duct-taped carpet in RR738. Losing the view of the Montlake Cut; those who perished before their time (Rick, may you rest in peace); my messy desk – my profuse apologies.

Or my proudest moments: Assisting G. Ojemann and Loeser on the now published Departmental History; seeing Tim finally graduate; managing JDLs book publications; my 2004 nomination for Distinguished Staff Award; brainstorming with the Office of Research; funded grants; often 'doing it right' the first time; surviving reorgs; not making a total fool of myself.

But mostly, it has been an honor to work with the dedicated and talented faculty in this department. I am awed by our faculty's dogged determination to further science on behalf of humankind. I am especially grateful to have worked with Jeff Ojemann on the parent R25, and with each resident as they slogged their way through the supplement applications. I wish all of them well as they find their passion in the neurosciences. I hope to never need anyone's clinical expertise!

My tenure in the department is basically summed up by my daughter-in-law's two latest novels: "I Am Still Alive", followed by, "Rules for Vanishing". I remain forever grateful for being part of our department's trajectory, and, now, I bid everyone a fond "til we meet again", as I know I cannot really vanish. (I can run, but I can't hide!) With gratitude, Rosemary Kimmel (2003-2019).





# PUZZLER



**Dr. Minku Chowdhary**  
Director, Neurosurgery  
Overlake Hospital

## SUMMER EDITION ANSWER

Pliny the Elder. <https://www.artsy.net/article/artsy-editorial-history-living-coral-pantones-color-year>

## FALL EDITION QUESTION

Question: This famous cricketer used an effect of Bernoulli's equation to spin a ball at an axis perpendicular to the line of flight to make old cricket balls achieve spin. Who is he and what effect is he utilizing to achieve this?

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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