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Message from the Chair



In the midst of the challenges and uncertainties that we faced in 2020, it is easy to forget the positive impacts that we have jointly achieved. During this pandemic, we transformed our care, implementing creative solutions as daily norms. In doing so, we brought smiles to the weary faces of our patients and comforted families during their most vulnerable moments. With our every successful neurosurgical effort, there is one less orphan, one less widow...one less tear in our world (see p. 2). This will be our legacy — as we someday reflect on our contribution during this trying time.

The Floyd tragedy and the ensuing events forced introspection of our collective amnesia about current and past injustices. Together, we bear witness to this fleeting moment and shoulder the responsibility of its transformation into a lasting history, a history that began with a tragedy but continues with an unwavering commitment towards sanctity and dignity for all. Under the leadership of our newly appointed Director of Diversity, Equity, and Inclusion, Dr. Carolina Sandoval Garcia (see p. 4), our department will advance this commitment, to remedy disparity and ensure inclusion as we educate the next generation of leaders in neurosurgery.

As COVID-19 is now the number one cause of death in the U.S., it is understandable to overlook the ailments that previously plagued our human condition. Cancer, however, continues to kill and devastate. Despite constraints imposed by social distancing, our research faculty and residents have continued their strides toward cures that many patients so desperately deserve (see pp. 6-10). These works have garnered notable accolades, including the Forbeck Scholar Award (Dr. Andrew Venteicher), the Sontag Foundation Distinguished Scientist Award (Dr. Andrew Venteicher, see p. 2), and the American Academy of Neurological Surgery Emerging Investigator Award (Drs. David Darrow and Robert McGovern).

To me, the most precious and profound gifts are those delivered during the tipping points of fate, when the fallen is seemingly forgotten. Throughout this pandemic, members of this department have so generously delivered this gift, to our patients, to their friends, and to their families – often at a cost to themselves. And while shouldering this seemingly unbearable burden, we have continued to support one another through our solidarity. I cannot express in words my pride and gratitude about being a member of this Department.

I know that your service and dedication during this pandemic took a toll. Please take time to care for yourselves, drawing on Departmental as well as University resources. Know that your wellbeing is our top priority, and the Department will make every effort to support you. As there is comfort in revisiting memories of how we supported one another, the Department has sponsored a video of the images from this past year. We are grateful to Larry Gunderson, Sean Moen, and Chris Morgan for leading this project. I hope that you will enjoy this heartwarming video (coming soon).

With admiration,
Clark



Spine surgeon Dr. Stephan Kim joined the department this past summer. See more staff additions on p. 4



Dr. Michael Park took on an important new role in 2020 as Director of the Residency Program.

Cerebrovascular Program Update

Cerebrovascular Program lead Dr. Ramu Tummala

(pictured at right), is

working with Dr. Andy Grande (pictured below) to shape a more unified approach to cerebrovascular patients across M Health Fairview.

“We want to maximize outcomes while minimizing cost and redundancy,” said Andy. “For instance, some things should be done at one or two hospitals, while other procedures should be done throughout the system.”

Standardized protocols

To achieve those goals, the program team is developing standardized protocols for cerebrovascular conditions such as ischemic stroke, arteriovenous malformations, aneurysm, intracranial hemorrhage, subdural or epidural hematoma, and carotid artery disease.

“Right now, we’re doing a good job with ischemic stroke, but we need to build our expertise in hemorrhagic stroke, which involves more neurosurgery,” said Andy.

Care pathways

He noted that care pathways for cerebrovascular conditions are being developed. “The questions we’re trying to answer with system leadership,” says Andy, “include who is responsible for the pathways, who implements them, and who ensures compliance?”



Advocacy, teamwork and innovative approach lead to successful outcome for patient

“I woke up and there was no paralysis. I couldn’t believe it,” said 77-year-old Owatonna, MN, resident Don Matejcek.

Don had just come out of two days of surgery for a problem that began in November 2019. He noticed some numbness in his left arm and leg that eventually turned into paralysis. After a February 22 MRI showed a mass where the brain stem joins the spinal cord, Don was referred to our department and into the care of skull base specialist, Dr. Andy Venteicher.

Multiple challenges

“The mass was in one of the most challenging areas to get to in terms of surgery,” said Andy. “Don’s symptoms were so severe and had progressed so quickly that we knew he needed surgery right away but there were COVID-19-related restrictions on such procedures.”

Staged surgeries

After clearing Don’s surgeries with M Health leadership, Andy had to first remove the golf ball-sized mass and then stabilize the vertebrae in Don’s neck. He worked with Dr. Matthew Tyler from the Department of Otolaryngology, Head and Neck Surgery, on the first procedure. They decided to use a unique approach, going in through Don’s nose, rather than through his mouth.

The surgery also took advantage of the University’s state-of-the-art T-suite, where the surgeons could use intraoperative MRI to guide the removal of the mass.

The next day, Andy performed a cervical fusion on Don, which solved the root problem. He went in through the back of Don’s neck to place small rods and screws that would stabilize his spine.

Kept family informed

Don’s family couldn’t be in the hospital with him because of COVID restrictions so Andy called them several times during the surgeries.

Don regained movement on his left side when he was recovering in the hospital. “When I removed the sutures two weeks after his discharge, he could walk without a walker,” said Andy. “Don had a very quick, dramatic recovery and I anticipate it will just get better.”



Don Matejcek

Successfully managing a case like this during a pandemic requires excellent leadership and teamwork. “All those people came together despite COVID-19. It was so inspiring – everyone realized how much Don needed the surgery,” said Andy.

Congratulations, Dr. Venteicher!

Andy Venteicher was recently notified that he is one of four Sontag Foundation Distinguished Scientist Award (DSA) winners for 2020. The award, which comes with substantial funding over a four-year period, is designed to help junior researchers gather the initial data they need to apply for the kind of research grants that can keep their labs going.

Inspired individuals

The Sontag Foundation notes that DSA winners are, “inspired individuals with projects that show potential to generate new knowledge relating to causes, cure or treatment of primary brain tumors/brain cancer.”

The Venteicher Lab captured the Foundation’s attention with its work on developing experimental and computational approaches to study how reversible changes in DNA structure drive cell fate decisions both in neurodevelopment and in brain cancer. [Learn more.](#)



Community neurosurgeons extending the practice's regional reach

Fairview Southdale-based Dr. Anthony Bottini (pictured at right), leads a group of seven community neurosurgeons affiliated with our department. They provide patient care across a large swath of the regional area including and surrounding the Twin Cities. Department Head Dr. Clark Chen introduced and provides leadership for the community neurosurgeon program, in addition to the support that Dr. Dan Guillaume provides from M Health's Neuroscience Service Line.



Easily accessed colleagues

The community neurosurgeons, according to Dr. Bottini are like those in private practice. "We have individual practices and work in partnership with each other and with the University," he said. "For complex cases, whose needs go beyond what the community-based hospital can provide, we're on a first-name basis with our cohorts at the University. I can access any of the academic neurosurgeons with a specialty in an area required by a patient. That's not as easily done in other neurosurgery practices."

The program began in October 2019 and its members see almost every kind of neurosurgical patient. "We practice high-volume, high-quality neurosurgery," said Dr. Bottini. "Our neurosurgeons support Fairview's primary care clinics and are the first line of referral for neurosurgery patients."

Inherently flexible

The program is inherently flexible and was able to pivot in response to the recent closure of St. Joseph's Hospital in St. Paul. "We realigned our practice to suit the system's as well as the community's needs," said Dr. Bottini. "As facilities alter their capabilities, such as St. John's increasing their neurosurgery practice while St. Joseph's eliminating theirs, we have the resources to move neurosurgeons into the appropriate physical and clinical locations the community needs and the system can support."

In addition to Dr. Bottini, Southdale providers include Dr. Matt Hunt and Dr. Rohan Lall, as well as a team of six physician assistants and nurse practitioners. The eastern metro area is covered by legacy HealthEast neurosurgeons, Dr. Mayson Kebrai, Dr. Angelique Ruff, Dr. Elizabeth Bennett, and Dr. Richard Gregory, plus three nurse practitioners.

2020 Chou Nursing Award winner

The winner of the 2020 Jolene and Shelley Chou Excellence in Neuroscience Nursing Award was Deb Quigley, BSN, CNRN®. At the time of the award, Deb (pictured below holding the award) was getting ready



to retire from 34 years of service with the Neuroscience Unit (6A). She had been managing the unit for five years.

Deb actually worked with Dr. Chou early in her career. "He was such a good teacher and felt that staff deserved education," she said. "That affected me a lot."

She loved the neuroscience field and felt there was always so much to learn. "One cool thing about working in a university setting is the opportunity to help teach," Deb said. "The learning curve in neurosurgery is pretty steep and it's rewarding to have new residents and nurses come in and watch their confidence build."

2020 Top Doctors

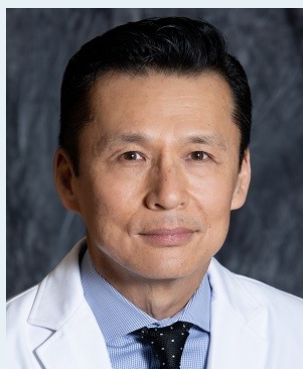


Congratulations to (l-r, top-bottom) Dr. Clark Chen, Dr. Stephen Haines, Dr. Ramu Tummala, Dr. Dan Guillaume and Dr. Andy Grande, for being chosen by their peers to be part of the 2020 MplsStPaul Magazine Top Doctors list.

Welcome, new faculty/ staff members!

Since our last communication, we have added some faculty and staff members. They include:

- Functional neurosurgeon/neuroscientist (and former resident) **Dr. David Darrow**
- Spine surgeon **Dr. Stefan Kim**, and
- Nurse practitioner **Mia Phan**.



New DEI Officer sees “so many areas worth examining”

In response to major social changes that have occurred in the U.S. over many decades, and in the wake of recent political and social unrest about disparities that have become even more evident during the COVID-19 pandemic, the department created the role of a Diversity, Equity and Inclusion (DEI) officer as part of its leadership team. Dr. Carolina Sandoval is the first to hold the role.

“Our work environment is stronger when we have an inclusive community, one that is diverse in terms of gender, race, sexual orientation, and ability,” said Dr. Sandoval. She sees her new role as, “an opportunity to contribute to something tangible during a time when it’s easy to feel helpless about everything that is going on,” she said.

Dr. Sandoval added that existing research shows health care providers’ diversity enhances patient satisfaction, adherence to treatment plans, and effective communication.

Some of the strategies Dr. Sandoval wants to promote include modifying resident and faculty curriculum, enhancing recruitment strategies, and reviewing criteria and processes for faculty promotions. “Our actions could

even change our daily interactions with patient staff and researchers,” said Dr. Sandoval. “There are so many areas worth examining.”

Dr. Sandoval’s first step, following advice from the department’s Vice Chairs, was to assemble a DEI committee. “It’s not a job I can do on my own,” she said. “Faculty, APPs, residents, medical students, and our staff have been very vocal about participating.”

Dr. Sandoval believes there is enough momentum now to yield good cross-disciplinary work that will endure after recent events disappear from the news cycle. “I really like the response I’ve seen from the department and the amount of work being done by the Medical School and M Health Fairview,” she said. “There will be a robust network of people doing this work, so we don’t have to invent everything ourselves. We can benefit from what everyone is doing.”



Dr. Carolina Sandoval

It’s a new world out there

The crew from 6A, the neuroscience unit at University of Minnesota Medical Center, demonstrates how they’ve adapted to the new COVID-19 reality. Front row (l-r): Angela Larson and Mia Phan. Back row (l-r): Mary Speake, Lea Rodgers, Sara Vickery, Taylor Mann, Phil Wills, Sarah Heinle, and Sophia Schwartz.



A delicate balancing act: managing residency and family demands

Having two babies – four-month-old William and two-year-old Gabby – while in the midst of a neurosurgery residency is “interesting,” according to Dr. Lauren Sand. “I feel blessed to have a wonderful family with a supportive husband,” she said.

Lauren believes that being a neurosurgeon has made her a better mother, and likewise, motherhood has made her a better neurosurgeon. “Life is so very precious,” she added.



L-R: Lauren & William, Gabby & Bill

Quality vs. quantity

Lauren has learned something else since she became a mother: quality vs. quantity. “I don’t get to see my kids as much as I’d like but we make sure that if I come home late from a surgery one day, I try to come home early the next so we can do something fun and memorable with them,” she said.

In her sixth year of residency, Lauren is beginning to figure out what she wants to do after graduation. “They recommend that we start working on the cases that you see yourself doing in whatever kind of practice you go into,” she said. “You also need to build your comfort level with all kinds of neurosurgical cases.” Lauren completed a NeuroICU Enfolded Fellowship through the Neurology Department that could help guide her decision.

Neurosurgery is changing

As she looks forward to her future, Lauren noted that, “Neurosurgery is changing. There are more women going into the specialty. The stigma of having a family during residency is gone. And our department is super supportive. As long as you do your job and can manage both those things – raising a family and taking care of patients – it shouldn’t preclude you from being a neurosurgeon.”

Yearend message from Larry Gunderson

I have now been with the Department for a year and a half. I continue to be impressed with all that we do.

In what could have been one of our toughest years, we were able to accomplish so much. We were able to quickly transition to an offsite video visit model for seeing patients, ramp down and back up our research labs, move all of our admin functions offsite and continue our residents’ education with online sessions.

All this was done without compromising patient, provider, or employee safety.

During the year, we also added two physicians and two nurse practitioners and plan to add more next year to keep growing our services.

Thank you for all of your hard work, persistence and patience this year. I am proud to be part of this team.



New family arrivals 2020

Ryland, son of nurse practitioner Mia Phan and plastic surgeon Dr. Sun Hsieh



Elijah, son of Dr. Andrew Venteicher and nurse practitioner Emma Venteicher



Lana, daughter of resident Dr. Huy Do



Keylani, daughter of Dr. Dan Guillaume



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- Clark Chen, NIH 1R01 CA240953-01, Development of Quantitative Deuterium MRS Imaging for Human Brain Tumor Application at Ultrahigh Field, 2019-24
- Clark Chen, NIH 1R01NS097649-01, Targeting mechanisms of acquired temozolomide resistance in glioblastoma, 2017-2022
- Clark Chen, Ferris Foundation Research Fund, Natural Killer (NK) cells as a platform for glioblastoma therapy. 2019-22.
- Clark, Chen, Masonic Cancer Center, Resident memory T cell (Trm) activation for brain tumor treatment, 2019-22
- David Darrow, Minnesota Spinal Cord Injury and Traumatic Brain Injury Research Grant Number: 159800, ES-TAND 2.0 - Bridge to clinical approval of eSCS for SCI, 2019-2022
- Andrew Grande, Mayo Clinic Jacksonville/Columbia University Medical Center (NIH Prime), I-Corps: Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial – Hemodynamics (CREST-H), 2018-2020
- Andrew Grande, NSF Innovation Corps (NSF 18-515), I-Corps: A steerable microcatheter that utilizes a miniaturized actuator to achieve a maximum range of motion, 2020
- Andrew Grande, Biomedical Research Awards for Interdisciplinary New Science, Analysis of Stem Cell-derived Extracellular Vesicle Targeting to Sites of Tissue Damage and Cancer, 2019-2020
- Andrew Grande, Minnesota Office of Higher Education, Characterizing the Neuroinflammation Associated with Sequential TBI in a Rodent Model, 2019-2021
- Andrew Grande, NIH-NIDDK, A Novel Stem-based Approach for Generating Non-Human Primate Livers in Pigs, 2018-2022
- Andrew Grande, Minnesota Office of Higher Education, Therapeutic application of non-hematopoietic umbilical cord blood stem cells (nh-UCBSCs) in traumatic brain injury: immune modulation with acute and long-term benefits, 2017-2020
- Andrew Grande, Minnetronix Medical, Inc., Extracorporeal Filtration of Subarachnoid Hemorrhage via Spinal Catheter (PILLAR), 2018-2020
- Andrew Grande, Minnetronix Medical, Inc / NIH (Prime), Extracorporeal Filtration of Subarachnoid Hemorrhage Via Spinal Catheter (PILLAR), 2019-2022
- Institute for Engineering and Medicine, Brain Aneurysm Research Consortium, 2019-2020
- Institute for Engineering and Medicine, Neurorobotics Research Consortium, 2019-2020
- Daniel Guillaume, NIH-NIDCD, Hearing loss after ventriculoperitoneal shunt placement: incidence mechanism and potential treatment, 2019-2024
- Ann Parr, University of Minnesota Foundation, Autologous Oligodendrocyte Progenitor Cells for Transplantation in Spinal Cord Injury, 2011-present
- Ann Parr, Spinal Cord Society, funding for two researchers, equipment and expertise, 2016-present
- Ann Parr, Minnesota Spinal Cord Injury and Traumatic Brain Injury Research Grant Number: 159877, 3D Bioprinted Spinal Neural Progenitor Cell (sNPC) Scaffolds Accelerate Functional Neuronal Network Formation both in vitro and in vivo after Spinal Cord Injury, 2019-2021
- Ann Parr, Minnesota Spinal Cord Injury and Traumatic Brain Injury Research, iOptimize: Optimization of Epidural Stimulation for Spinal Cord Injury, 2018-2021
- Carolina Sandoval, NIH/Cerovations, LLC, Cerebral Spinal Fluid Shunt System with Dual Lumen Distal Catheter Redundancy to Minimize Revision Surgery, 2019-2020
- Ramu Tummala, Institute for Engineering and Medicine, Neurorobotics Research Consortium, 2019-2020
- Ramu Tummala, Biomedical Research Awards for Interdisciplinary New Science, Analysis of Stem Cell-derived Extracellular Vesicle Targeting to Sites of Tissue Damage and Cancer, 2019-2020
- Walter Low, Minnesota Spinal Cord Injury and Traumatic Brain Injury Research Grant, Spinal Cord Regeneration by Cell Reprogramming in Chronic Spinal Cord Injury, 2019-2021
- Walter Low, Minnesota Spinal Cord Injury and Traumatic Brain Injury Research Grant, iRehab: Discovering Outpatient Rehabilitative Measures for Epidural Stimulation Assisted Movement, 2018-2020