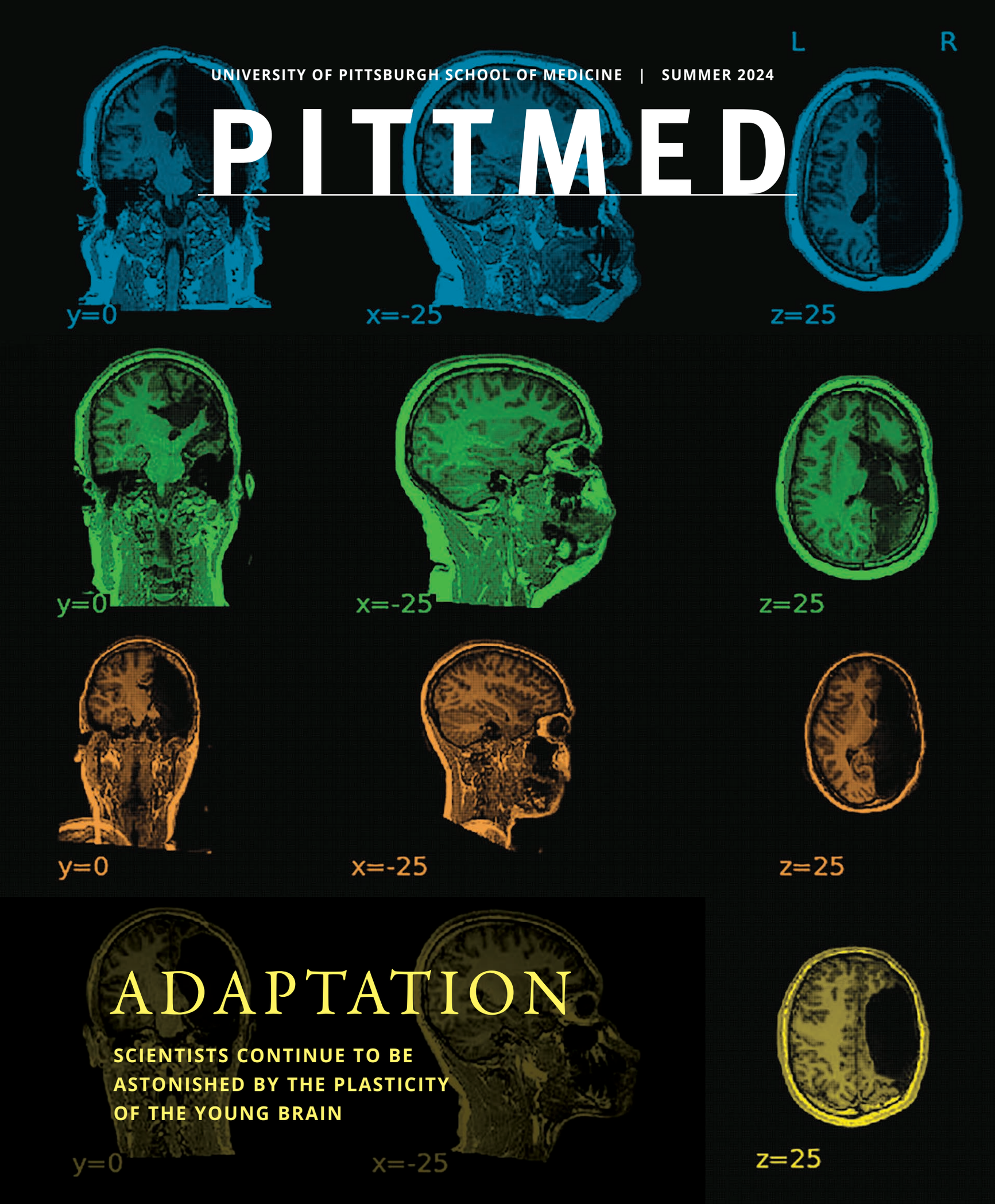
UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE | SUMMER 2024

PITTMED



ADAPTATION

SCIENTISTS CONTINUE TO BE ASTONISHED BY THE PLASTICITY OF THE YOUNG BRAIN

FORWARD THINKING

In 1963, 102 students began medical school in my class at Pitt, of whom only seven were women. How fortunate that times have since changed considerably! But even way back then, the faculty was innovative when it came to considerations of the curriculum—just as has apparently continued to be the case more recently with the new three-year accelerated primary care physician program. [See "1, 2, 3, then an MD" in our Winter 2023/24 issue.]

Good luck to those who pursue the accelerated program. My advice is to make the best of it.

During the 1966-67 school year, I was among a total of seven Pitt Med students who spent our senior year pursuing the academic activities of our choice, rather than in clinical clerkships. We made the best of it. I don't recall the names of everyone who participated, but some of the other students were Mark B. Orringer, MD, Christine Lundberg Williams, MD, MPH, and Louis W. Catalano, MD—they all went on to distinguished careers.

Nicholas J. Feduska, MD '67
San Francisco, California

EXCELLENT EXAMPLE

The back cover of the Winter 2023-24 issue brought back memories. I spent my first rotation as an M4 with Paul Rogers at the VA. I appreciated how he immediately made me a full member of the care team. Beginning with the first patient on rounds, he handed me each blood gas result and asked how I would adjust the ventilator settings. He asked me to review data and for my recommendations. Most of my answers were incorrect. But he gently corrected me and discussed his reasoning. When I went home in the evenings, I read voraciously to be better prepared.

Dr. Rogers increased my responsibilities until I was performing—without direct supervision—line changes, new central and arterial lines and intubations. I reflect on the trust that Dr. Rogers and other faculty displayed and how they fostered my professional growth. I have tried to pay it forward.

Timothy E. Klatt, MD '92
Milwaukee, Wisconsin

HEALTHY BIAS

"A hospital is born" [published in Spring 2003, and posted on social media during Women's History Month] is a fascinating article on the origin of UPMC Presbyterian, which was founded by Louise Lyle, an MD. As a biased pediatrician, I feel compelled to point out UPMC Children's Hospital of Pittsburgh is older, was established with a gift bequeathed by Jane Holmes, and is ranked in the top 10 by U.S. News & World Report.

John V. Williams, MD
Pittsburgh, Pennsylvania

RECENT MAGAZINE HONORS

Winner, 2023 Graphic Design USA Health + Wellness Design Awards, Publication in Print, Website, Mobile, Digital (Summer 2023 Issue)

Finalist, 2024 Press Club of Western Pennsylvania Golden Quill, Excellence in Written Journalism, Medical/Health
(M. Aubele, "A moving story")

Finalist, 2024 Press Club of Western Pennsylvania Golden Quill, Excellence in Written Journalism, Medical/Health
(A. Doerfler, "Outside influences")

Finalist, 2024 Press Club of Western Pennsylvania Golden Quill, Excellence in Written Journalism, Medical/Health
(E. Lloyd, "Cultivating equanimity")

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Brain and brain-to-brain plasticity

"Inter-brain plasticity underlies empathic learning in social interactions."

—Simone G. Shamay-Tsoory, Frontiers in Psychology (2022)



AIMEE OBIDZINSKI/UNIVERSITY OF PITTSBURGH

Dear Pitt Med Readers,

We have all heard about the adaptability and plasticity of the human brain—the tremendous capacity of this organ to expand its functional capabilities with training, build new connections for acquisition of skills and adapt new areas for necessary functions when a traditional region of the brain is damaged. Our own Marlene Behrmann, a renowned neuroscientist, has been able to visually and functionally demonstrate this plasticity over time in her masterful imaging studies of pediatric patients with severe epilepsy. These young people relearned how to do word- and face-recognition tasks after parts of their brains associated with those functions had been removed. I encourage you to read this issue's cover story, "Adaptation," to learn more about the astonishing plasticity of the brain, particularly during childhood and adolescence.

There's an "interpersonal" brain plasticity that can happen, as well. I'll explain: During the tumultuous spring and summer of 2020, as COVID-19 raged across the globe and the murders of George Floyd, Breonna Taylor and Ahmaud Arbery laid bare inequities in our society, our students demanded that we take notice of the injustices around us. They inspired us to consider how we at the medical school could address inequities in education and care.

Guided by our faculty, the School of Medicine mobilized, making profound changes in how we approach medical education in the future. At the suggestion of Chenits Pettigrew, associate dean and mentor to many, among our first steps was to give incoming students a novel assignment: When they arrived that summer, they were charged with writing an Oath of Professionalism to explore and recognize their responsibilities as modern physicians. Every class since has also gone through this exercise. Now, as they begin their studies, our medical students recite both the time-honored Hippocratic Oath as well as their own class oath.

Such group activities that focus on identifying and alleviating other people's distress can be at the core of developing the skills of empathy and compassion. As we begin to understand the effects of social interactions on the human brain, it turns out that a concept termed "inter-brain" plasticity, the ability of interacting brains to modify the coupling between brains in reaction to repeated interactions, underlies learning in social interactions and the development of empathy.

In this issue, you also hear from the members of that first oath-writing committee, members of the graduating Class of 2024, as they reflect on their pledge and share how they're living up to the promises they made (see "More than words"). The passion and commitment of our new graduates continue to inspire me. I hope you'll join me in applauding them as they step out to make their mark in the world.

Anantha Shekhar, MD, PhD
Senior Vice Chancellor for the Health Sciences
John and Gertrude Petersen Dean, School of Medicine

PITTMED

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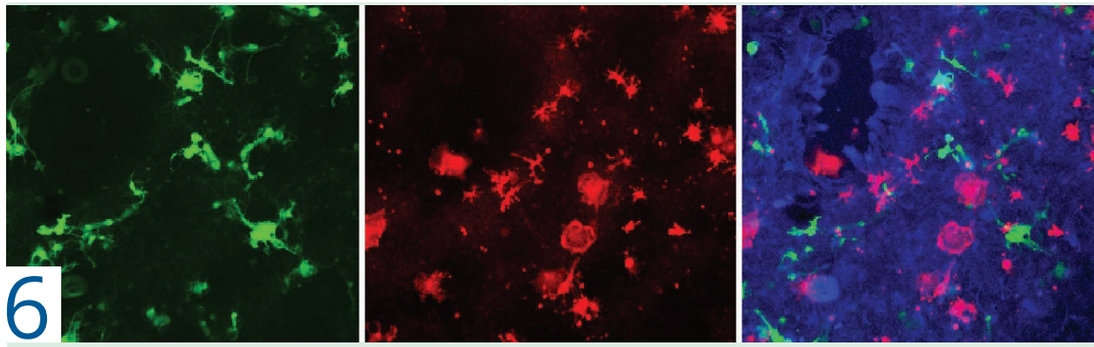
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Trying out synthetic RNA as a new strategy for treating dementia.

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Add new films to your watch list.
Pitt Med salutes Vice Dean Ann Thompson on her retirement.
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Hey kids! Chew on some toothy wisdom.

Editor’s note: School of Medicine faculty with clinical duties often have joint appointments with UPMC or the VA Pittsburgh Healthcare System, the University’s clinical partners.

ABOUT THE COVER Even after large portions of their brains are removed, young people are often able to regain significant brain function. Scans courtesy Behrmann Lab. Photo colorization E. Cerri/University of Pittsburgh, © 2024.

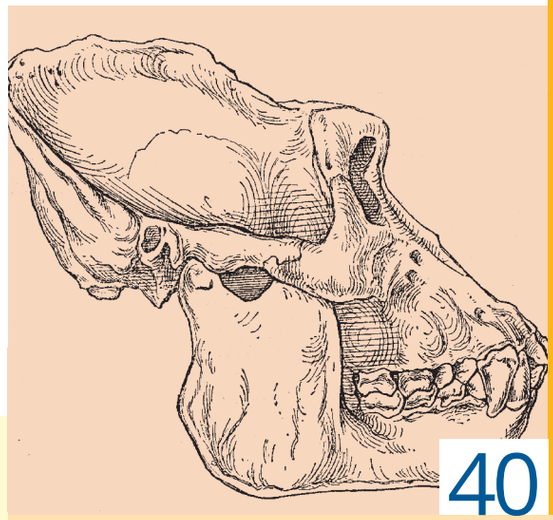
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"The first time the pain hit, and it took that pain away, I just cried. It was like you really had something there to help."



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Young people have an astonishing ability to regain brain function, even after surgical removal of entire hemispheres. An unprecedented approach by Marlene Behrmann shows this plasticity happening.

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Lee Fisher's team tests a new use for spinal cord stimulation—offering relief for amputees.

BY MICHAEL AUBELE

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Hippocrates would be proud. By writing its own oath, the Class of 2024 made headlines. How are the new graduates upholding those promises?

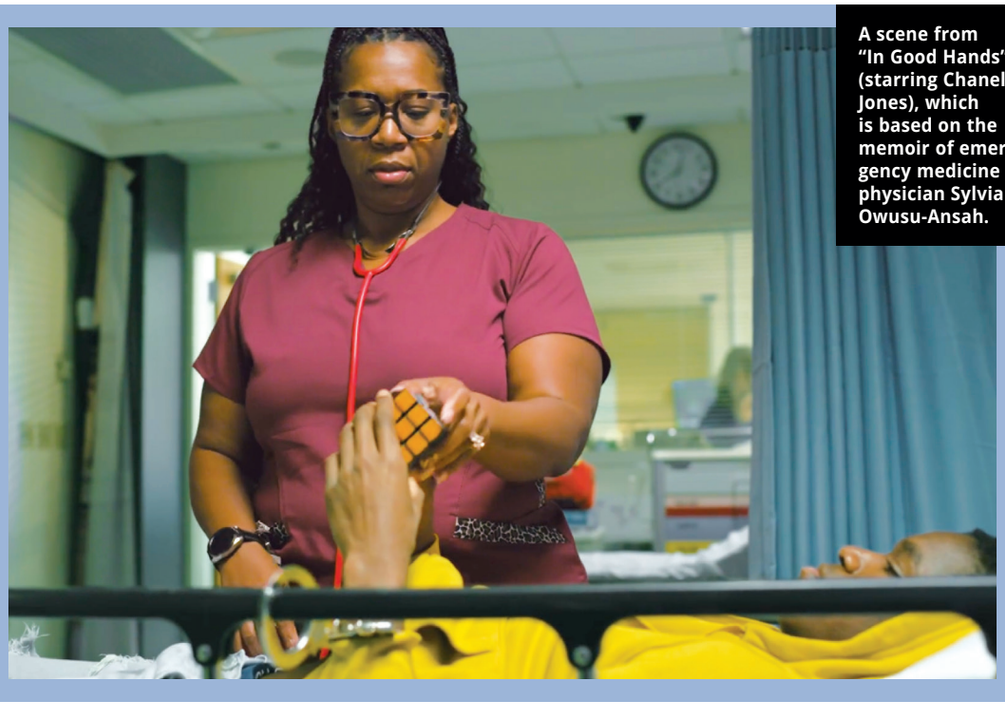
BY ANDREW DOERFLER WITH ELVIRA HOFF

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ANASTASIA GORELOVA ("Sounds promising") is a senior manager of science writing covering the health sciences, especially "all things brains." Originally from Russia, Gorelova (PhD '20) came to Pitt Med for her graduate research in molecular pharmacology. She became interested in science communication and completed an American Association for the Advancement of Science media fellowship, bringing expertise in science to the business desk at the St. Louis Post-Dispatch. Since returning to Pittsburgh, Gorelova tells the stories of researchers like Thanos Tzounopoulos, whose work she describes as "such exciting research that people can easily connect to."

A self-proclaimed lifelong learner, **AIMEE OBIDZINSKI** ("Greening the med school" and "Adaptation" photography) finds fulfillment in her work as the assistant director of visual services for Pitt's Office of University Communications and Marketing. The Ohio University photojournalism alum and Pittsburgh native values the opportunity to meet not only the leading researchers at Pitt but also the people who benefit from their work. Of Breanna Boyer, who had three procedures in her youth to treat epilepsy, Obidzinski says, "Her story is really remarkable. If she didn't tell you that she was missing part of her brain, it would never occur to you."





A scene from "In Good Hands" (starring Chanel Jones), which is based on the memoir of emergency medicine physician Sylvia Owusu-Ansah.

COURTESY "IN GOOD HANDS"

PITT PHYSICIANS ON THE BIG SCREEN

Dante, a teenager, suffers from abdominal pain in the emergency room. He has just been arrested. While everyone dismisses his symptoms, thinking that he is faking them to avoid going to jail, he plays with a Rubik's Cube.

This scene comes from "In Good Hands," a short film based on the memoir of Sylvia Owusu-Ansah, an MD, MPH Pitt associate professor of pediatrics and emergency medicine and EMS medical director at UPMC Children's Hospital of Pittsburgh. The script was written by Pitt alum Yasmine Crawley and produced under the direction of her one-time instructor Carl Kurlander, teaching professor of English. Crawley had previously worked as a psychiatric technician but always wanted to break into entertainment. So when Kurlander called to tell her that Owusu-Ansah wanted to connect, it was an opportunity she couldn't pass up.

"In Good Hands" portrays fictional pediatric emergency physician Diana Asante's experiences with her last patients of the day, based on short stories from Owusu-Ansah's memoir, which elucidates the professional challenges Black women face. "No matter how many degrees you have, no matter how accomplished you are, you're still not insulated from racial violence or microaggressions, and you have to keep your cool in the workplace," Crawley says.

Crawley had pulled the detail of Dante playing with the Rubik's Cube from one of her own patients. "Everyone was viewing him as a criminal," she says. Yet, "he's just a kid."

Another Pitt Med story was destined for the silver screen. "The Pitch: Patient Safety's Next Generation" premiered at the Cleveland International Film Festival in April. Among the innovations it features is a collaboration between Pitt infectious disease specialist Lee Harrison, an MD, and Carnegie Mellon intelligent systems expert Artur Dubrawksi that resulted in a platform that uses machine learning, AI and genetic sequencing to rapidly detect infections acquired in hospitals. Harrison, professor of medicine and epidemiology, says, "Hospitals were using over 100-year-old methods to detect infections." The documentary was coproduced by the Jewish Healthcare Foundation.

Watch for "In Good Hands" and "The Pitch" at a film festival near you.

—Sarah Lindley and Erica Lloyd

FOOTNOTE

Scientists far and wide are drawing on findings from Pitt Med: The Clarivate 2023 Highly Cited Researchers list features 13 current School of Medicine faculty. Each has multiple publications that ranked in the top 1% of citations for their field and publication year over the past decade, according to the Web of Science database platform. They're among 17 current faculty from Pitt Health Sciences and 19 from the University as a whole to make the 2023 list, which also features three recent departures from Pitt Med who conducted highly cited research while here. Clarivate says that of the world's population of scientists, Highly Cited Researchers are 1 in 1,000.



JOSH FRANZOS

Ann Thompson, the vice dean, has retired.

THOMPSON HAS GIVEN MUCH TO PITT MED AND CRITICAL CARE

Just one year out of fellowship in pediatric critical care medicine, Ann Thompson put herself forward for the division chief position at Children's Hospital of Pittsburgh. "My grandmother would have said, 'That's uppity,'" says Thompson.

It was the early '80s, she was applying from Children's Hospital of Philadelphia and there was no heir apparent to her new home division, which represented a fledgling subspecialty. Thompson landed the job and served in that role for nearly three decades, building one of the finest pediatric critical care units in the country.

"It was considered monumental at the time for a woman to hold such an appointment, never mind that she was still a junior faculty member," notes Anantha Shekhar, an MD, PhD, senior vice chancellor for the health sciences and John and Gertrude Petersen Dean of the School of Medicine.

Thompson, an MD and MCCM, has been a trusted leader at Pitt Med and in global critical care medicine circles for decades. In February, she retired as the School of Medicine's vice dean and Distinguished Service Professor of Critical Care Medicine.

She took the reins of the division at Children's in 1981. "This was the same year [transplant giant] Tom Starzl arrived," says Thompson. "Our patient census went through the roof."

No matter the patient situation, says Melinda Hamilton, an MD, MS professor of critical care medicine and pediatrics, staff throughout the hospital "knew that the ICU was there for them if they needed it. Ann wanted everyone to know we don't say 'no' to helping a child."

"She's widely regarded as one of the most important figures in the development of pediatric critical care medicine," says Shekhar.

For Thompson, an especially rewarding aspect of her specialty was being there for profound moments in the lives of patients and their families. "If you are able to listen, they'll tell you what matters most to them," she notes.

Her colleagues often speak of Thompson's generosity of spirit. She has mentored countless physicians and students. Although Thompson no longer practices, she continues to host fellows for regular board review sessions at her home, during which she serves highly anticipated homemade dinners.

Thompson served as president of the Society of Critical Care Medicine. Her long list of honors includes membership in the International Women's Forum.

In 2000, Steven Kanter, an MD who was then vice dean of the school, asked her to serve as associate dean for faculty affairs. "I needed someone with the maturity and equanimity and sense of fairness to deal with this very accomplished faculty," Kanter says. "That was very much Ann."

In 2014, Thompson stepped into the vice dean position under Arthur S. Levine, an MD who is now dean emeritus and a Distinguished University Professor. She says she was drawn to the role, because, just as intensivists care for every system in the body, "a medical school involves multiple systems—admissions, medical education, finance, faculty affairs, etc."

Levine recalls how well Thompson worked with her team to identify students who seemed to be headed into academic trouble and rescue them. "She was not only sensitive, but effective."

During her tenure as vice dean, Thompson worked closely with Dean Levine and then Dean Shekhar as the school built on its medical education and learning environment initiatives, revamped the curriculum and continued to ascend in the rankings.

She's particularly proud of the school's commitment to diversity and health equity. In 2022, she endowed a new professorship for social justice in medicine. *—Erica Lloyd*

DNA and dreams

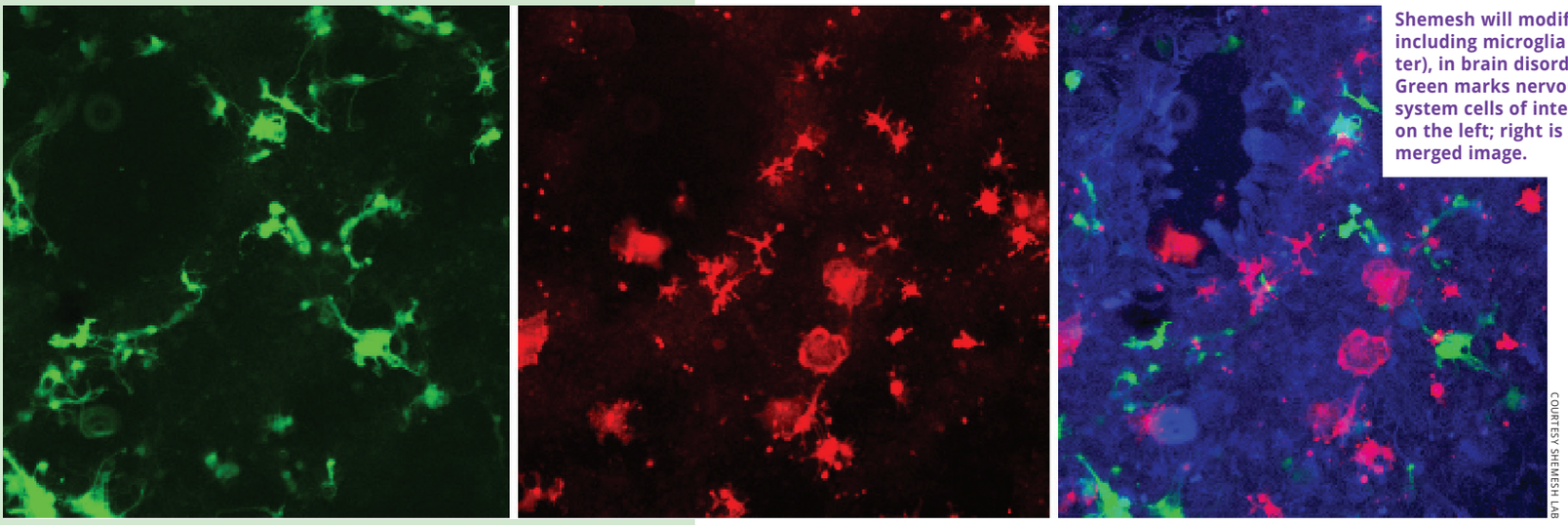
On a snowy February morning, Pitt's Greater Hazelwood Kaleidoscope Summit brought together residents, nonprofit leaders and University representatives to explore the role life sciences could play in uplifting the neighborhood.

The daylong summit took place at Hazelwood Green, the 178-acre former Jones and Laughlin Steel site that's now home to multiple technology institutions. There, the University of Pittsburgh is building Pitt BioForge, a facility that will accelerate innovations in biomanufacturing and help create a life sciences corridor. Pitt is also working to establish its third Community Engagement Center in Hazelwood.

Andrea Coleman-Betts, 65, a fifth-generation Hazelwood resident, attended to learn how younger generations might benefit: "I want my grandchildren and great-grandchildren to have better opportunities in workforce development, economic development and social development, especially in education."

The 130 attendees didn't only talk science at the summit. They also got to see it firsthand, extracting DNA from strawberries and exploring how T cells attack infections by playing a matching game.

In the coming months, Pitt's Office of Engagement and Community Affairs will conduct follow-up discussions informed by attendee feedback and draw up actionable next steps. *—Nichole Faina*



Shemesh will modify glia, including microglia (center), in brain disorders. Green marks nervous system cells of interest on the left; right is a merged image.

COURTESY SHEMESH LAB

CAN MODIFIED RNA HEAL NEURODEGENERATION?

Pitt neurobiologist Or Shemesh has been awarded a three-year, $400,000 National Institutes of Health Trailblazer Award from the National Institute of Biomedical Imaging and Bioengineering to develop a platform that could pave the way for healing neurodegeneration and other brain disorders.

The project aims to genetically modify different types of glia, a class of cells that supports and protects the brain's neurons. "Glia cells are pivotal to the development of brain disease, so approaches that alter their activity could lead to new treatments," says Shemesh, a PhD assistant professor of neurobiology.

Scientists have made progress using traditional virus-based vectors to deliver genes to neurons. But that viral approach hasn't been ideal in glia, which includes astrocytes, oligodendrocytes, microglia and other cell types, says Shemesh.

Shemesh's approach uses bioengineering-modified RNAs, or modRNAs. These synthetic RNAs are directly translated into proteins by cellular machinery, circumventing the possibility of triggering an immune response when a virus is used to transport genes into the cell.

To show the concept works, Shemesh's team will use their glia RNA-vector technology to increase or decrease the activity of disease-relevant genes in either astrocytes or microglia in the brains of mice.

"We are seeing more research, including from Pitt, that indicates astrocytes and other glia play an important role in the development of Alzheimer's disease," Shemesh says. "So our new platform could one day provide a unique strategy to treat dementia." *—Anita Srikameswaran*

Faculty snapshots



Billiar

Timothy R. Billiar, the George Vance Foster Professor and Chair, Distinguished Professor of Surgery and associate senior vice chancellor for clinical academics, received the 2023 Society of University Surgeons (SUS) Lifetime Achievement Award. The surgeon-scientist has a portfolio that includes over 900 peer-reviewed papers and 35 years of National Institutes of Health funding. He's served as chair of surgery for 25 years.



Chu

Danny Chu, an MD professor of cardiothoracic surgery, has been elected the 2025–2026 president of the SUS. Chu is a nationally recognized expert in the Ozaki procedure for aortic valve replacement and previously served as SUS secretary.



Rogal

Shari Rogal, an MD, MPH associate professor of medicine, surgery and clinical and translational science, has been awarded a $6.5 million grant from the Patient-Centered Outcomes Research Institute to study implementation strategies for improving cancer screening for veterans. Alongside Andrew Gawron of the University of Utah, Rogal will investigate how to choose among evidence-based approaches to improve liver and colon cancer screening at 48 Veterans Health Administration sites. The study looks to increase both the number and the diversity of veterans who receive lifesaving screenings and provide useful information to optimize screening.



Sahel

José-Alain Sahel, an MD, Distinguished Professor, Eye and Ear Foundation Professor and the chair of ophthalmology, has been named a fellow of the U.S. National Academy of Inventors. Sahel directs the UPMC Vision Institute and is known worldwide for his work on vision restoration; he is a co-inventor on more than 90 patents.

Sahel was also recently appointed to French President Emmanuel Macron's Presidential Council for Science. A member of the French Academy of Sciences since 2007 and the German National Academy of Sciences Leopoldina since 2018, he is one of 12 researchers selected to advise Macron on science and public policy.



Visweswaran

Shyam Visweswaran was appointed to a committee of the National Academies of Sciences, Engineering and Medicine to assess how social constructs of race and ethnicity are being used in biomedical research and to provide recommendations for best practices. Visweswaran, an MD, PhD professor of biomedical informatics and vice chair of clinical informatics, currently researches machine learning-driven clinical decision support. He is also developing computational methods for understanding how race and ethnicity can contribute to model bias. *—Sarah Lindley*



Jessica Merlin says the health care system puts patients with pain and addiction in a bind.

COURTESY J.MERLIN

Overheard

Caught between systems of care

During her training, **Jessica Merlin** treated patients with HIV suffering with severe pain. In many cases, the prescribed opioids they received were leading to side effects and even addiction.

"I came to realize that a lot of very well-trained physicians, including myself, receive very little training in how to manage opioid addiction," says Merlin, an MD, PhD professor of medicine and the founding director of Pitt's Challenges in Managing and Preventing Pain (CHAMPP) Clinical Research Center. She's spent much of her career bridging gaps for patients shouldering both severe pain and addiction.

In a perspective paper published in the New England Journal of Medicine in 2023, she and colleagues drew attention to barriers faced by patients receiving both cancer care and methadone treatment for opioid use disorder, comparing the situation to "juggling two full-time jobs." She spoke with us about the ways patients suffering from opioid use disorder are challenged by the health care system more generally.

What are some challenges for the patients your paper highlighted?

The biggest challenge is really that they lack a genuine home in the health care system, and they also lack people with expertise to properly address their needs.

Who is going to manage their pain and how? Often these patients get referred to palliative care, which is a reasonable place to refer somebody with pain and cancer. But most palliative care clinicians aren't trained to manage substance use disorders. They're caught in limbo.

We run a clinic called the Palliative Recovery Engagement Program where we manage folks like this, but there are very few of those around the country. What we really need are models of care that allow for better integration of addiction and pain treatment into oncologic care, which is what Dr. Julie Childers [an MD professor of medicine] and I are trying to provide at the clinic we co-direct.

You've studied expert consensus on how to help patients in this bind—what did you learn?

Opioid use disorder is its own chronic serious illness. And the last thing you want to do, when somebody is facing a diagnosis of cancer—which is a really stressful time—is destabilize their substance-use treatment. To the degree possible, continuing their buprenorphine or methadone is favored.

Methadone is a great medication to treat opioid use disorder. But in the United States, it's delivered in a totally parallel system, where you're required to have a special license—you can't do it in a typical office-based setting. It can make it very difficult for anybody to access methadone, let alone somebody who is going to radiation multiple times a week or going to the cancer center for infusions.

So palliative care clinicians who don't have a methadone license were saying, "I'm taking it over myself. If you write the prescription for pain [instead of addiction], it's legal." I'm not a lawyer, but that is a legal gray area. This really highlights some of the stigma around methadone and the need for better policy solutions and more research.

What policy solutions are in the works?

The MOTA [Modernizing Opioid Treatment Access Act, being considered by Congress] would allow addiction clinician specialists to prescribe methadone in office-based treatment settings, which is great.

But one thing it doesn't do is it doesn't allow nurse practitioners to do this. They're a very large part of the opioid treatment workforce. And limiting it to addiction specialists is unnecessary. You don't have to be an addiction specialist to run a methadone clinic. Anybody with DEA registration can. You ask yourself, what is the reason for this [restriction in the MOTA]? Methadone clinics have been highly privatized, and there's a major methadone lobby. It's all about profit and money.

Paul Joudrey [an MD, MPH assistant professor of medicine] wrote a paper in Health Affairs Scholar and found [the MOTA] will not improve access very much.

—Interview by Andrew Doerfler. The conversation was condensed and edited for clarity.



ANDREW DOERFLER

Applicants to the new Oncology Graduate Program gathered at the Assembly building in February.

New training ground for cancer researchers

In fall 2024, the University of Pittsburgh School of Medicine and UPMC Hillman Cancer Center will introduce a pathway for the next generation of cancer experts with the launch of the Oncology Graduate Program (OGP). An inaugural class of 17 aspiring PhDs will learn from top scientists across the spectrum of cancer subdisciplines.

The program will train a crop of researchers immersed in labs at Hillman—one the country's 56 National Cancer Institute–designated Comprehensive Cancer Centers—while they also benefit from the center's clinical footprint and the School of Medicine's educators.

In February, 41 applicants to the program gathered at the Assembly, the eight-story facility that opened in 2022. There, Hillman and Pitt researchers are developing and refining treatments for cancer. Katherine Aird, one of the OGP's leaders and a PhD associate professor of pharmacology and chemical biology, told prospective students that their studies will take them from "the bench to the bedside and back" in their efforts to answer pressing questions in cancer care. Robert Ferris, Hillman Professor of Oncology at Pitt and director of UPMC Hillman Cancer Center, spoke of the center's range of expertise and its integration of research and clinical facilities.

The curriculum spans cancer biology, therapeutics and clinical oncology, along with School of Medicine courses in biostatistics and biomedical ethics. The program will also introduce three elective courses in women's cancers, cancer immunology and big data. While OGP students will have priority enrollment in those courses, they're also open to other students in the School of Medicine. In turn, OGP students can gain insight into areas of medicine beyond oncology through other School of Medicine electives.

The bulk of their learning, though, will take place in labs, through mentoring from leading cancer researchers across Hillman's programs. On the second day of the overview, applicants got a firsthand look at some of the work they might soon undertake during a daylong symposium. *—AD*

AN ABSORBING EXPERIENCE

Kelvin Kamzenga is a medical student at Kamuzu University of Health Sciences in Blantyre, Malawi—but in December 2023, he was effectively a Pitt Med student during a four-week rotation in pulmonology. He was determined to make the most of the brief stint. "My goal was to absorb as much as I can," he says.

The training in pulmonology especially appealed to him, as many patients he sees in Blantyre suffer from pneumonia because of tuberculosis. In Pittsburgh, he was interested to learn how many patients had troubles that instead stemmed from nontransmissible conditions, such as obesity and hypertension, which he had less experience with. "I got to build some muscle memory with these things, instead of just studying and memorizing," he says. He also valued seeing transplants and other interventions that are rare at his home institution.

The visit was supported by a fund established by Bill and Mary Markle that expands international opportunities for Pitt Med students. It also works in the other direction, supporting students like Kamzenga to travel to and train in the Steel City.

"I spent time overseas as a medical student, and it made a big impression on me and my career," says Bill Markle, an MD and former family medicine professor. "I think it's the same for people coming to Pittsburgh—they get to make some contacts here and work alongside physicians in another setting. It broadens their horizons."

The opportunity, Kamzenga expects, will continue to benefit his medical journey through the connections he has made. Beyond his pulmonology rotation, he made a point of spending time with cardiologists and Peter Veldkamp, an MD professor of medicine and associate dean for global health education, who specializes in HIV.



Kamzenga (center) with the Markles.

Kamzenga appreciated seeing some of Veldkamp's elderly patients who are healthy and have been living with well-controlled HIV for over three decades, Veldkamp says. "Most of Kelvin's experiences during his training in Malawi are with newly diagnosed AIDS patients who are very ill."

For now, Kamzenga expects he'll practice in Malawi, which he feels he owes to a community that has supported him. But he also heard from international med students about the process of earning medical licensing in the United States, should he consider that route in the future. (They also bonded over meals, indoor rock climbing and a visit to the Pittsburgh Zoo and Aquarium.)

Throughout his Pittsburgh experience, he received guidance from fellows, residents and Thuy Bui, an MD professor of medicine who once worked in Malawi and maintains connections to Kamuzu Central Hospital. Bui got him a winter jacket that was especially appreciated during a snowfall—the first Kamzenga had ever seen.

"People joked that it was as if it came just for me," he says. *—AD*

Selective

At the School of Medicine, the admissions process involves an awful lot of winnowing. Here's what that looked like in 2023:

MD program

8,782 Applications received

271 Admitted

148 Incoming class

Graduate programs

1,470 PhD applications received

215 Admitted

69* Incoming PhD students

*66 matriculated into the School of Medicine. Includes applicants to three joint programs with Carnegie Mellon University and the Kenneth P. Dietrich School of Arts and Sciences.

Final numbers for 2024 admitted students will not be available until after we go to print, but here's what we know so far:

MD program

8,259 Applications received

Graduate programs

1,894 PhD applications received







ABOVE: The Rehab Neural Engineering Labs use reusable materials in their robotic arm testing rigs. RNEL's Michael Boninger (left in top right photo) leads sustainability initiatives for Pitt Health Sciences. LEFT AND BELOW: Students, including Divya Natesan (center in bottom photo), take part in a sustainable cooking class at Phipps Conservatory with Noe Woods (right in photo on left), assistant dean for sustainability, and Melissa Bilec (left of Woods), from the Office of the Provost.



In the med school's planetary health elective, students learn about the carbon footprint of food, what makes food sustainable, how purchasing and eating sustainable food can help farmers and farmland and, best of all, how to cook it.

GREENING THE MED SCHOOL

A NEW OFFICE BRINGS SUSTAINABILITY TO THE FOREFRONT, WITH HELP FROM STUDENTS. | BY ROBERTA ZEFF

Education at a university typically flows from professor to student. But when it comes to environmental health, the model is sometimes flipped, says Michael Boninger, an MD Distinguished Professor in the Department of Physical Medicine and Rehabilitation at the University of Pittsburgh.

In a recent example, a student became interested in disposable stethoscopes "and in a way that only students can do at times," Boninger says, "reached out to a leader at [Pitt's clinical partner] UPMC and said, 'I want to get rid of disposable stethoscopes, can you help?'

"It really opened up a further dialogue between the University of Pittsburgh and UPMC on infection control and sustainability, on how we can all work together to move the agenda forward."

Boninger, who is also chief medical sustainability officer for UPMC, was recently named associate dean for the new Office for Sustainability in the Health Sciences.

He says that when Anantha Shekhar, John and Gertrude Petersen Dean of the School of Medicine and senior vice chancellor for the health sciences, decided to create the office, his vision was for the "School of Medicine to be a national leader not only in educating our students about the impact of climate change on health, but in innovating ways to decrease the impact of climate change on health and our own footprint."

Health care and associated research are responsible for approximately 10% of U.S. greenhouse gas emissions and represent the second-largest industry contributing to landfill waste worldwide.

"The School of Medicine, through its research operations, has a surprisingly large carbon footprint of its own," Boninger says. Among his goals is making sure Pitt Med is on track with the University's sustainability plan that includes achieving carbon neutrality by 2037.

For Noe Woods, an MD assistant professor of obstetrics, gynecology and reproductive sciences and assistant dean for sustainability, education is the key to that change. It will span students' foundational learning, clinical work and electives.

"Every student graduating should be able to tell you the effects of climate change on their patients. It is going to be, according to the WHO, the greatest health threat of the 21st century."

Current medical students have a different understanding of climate than the previous generation, Woods says. They tend to think about its effects in their daily lives, she notes, while it wasn't a consideration during training for many faculty members.

"Every student graduating should be able to tell you the effects of climate change on their patients."

An elective Woods already offers on sustainability in medicine had a deep impact on Divya Natesan, a student in the Physician Scientist Training Program at Pitt Med. She finished her second med school year and is currently in a research year, studying ovarian cancer: "That class really inspired me to continue to find ways to contribute to sustainability in medicine."

She became involved with Pitt Students for One Health, part of a larger organization aimed at balancing the health of people, animals and ecosystems.

"I learned about an initiative out of the University of California, San Francisco, called the Planetary Health Report Card," which offers a rubric for medical schools to evaluate their curriculum, she says. She brought it to Pitt Med last year and has since become the program's regional lead, expanding the efforts to all medical school groups in the Northeast.

Natesan also works with the Climate Resources for Health Education Initiative out of Columbia University, developing an open-access, free repository of learning exercises and slide decks related to planetary health.

"Med schools don't have to reinvent the wheel or create new content for their students," she says. "All they have to do is pull from this website."

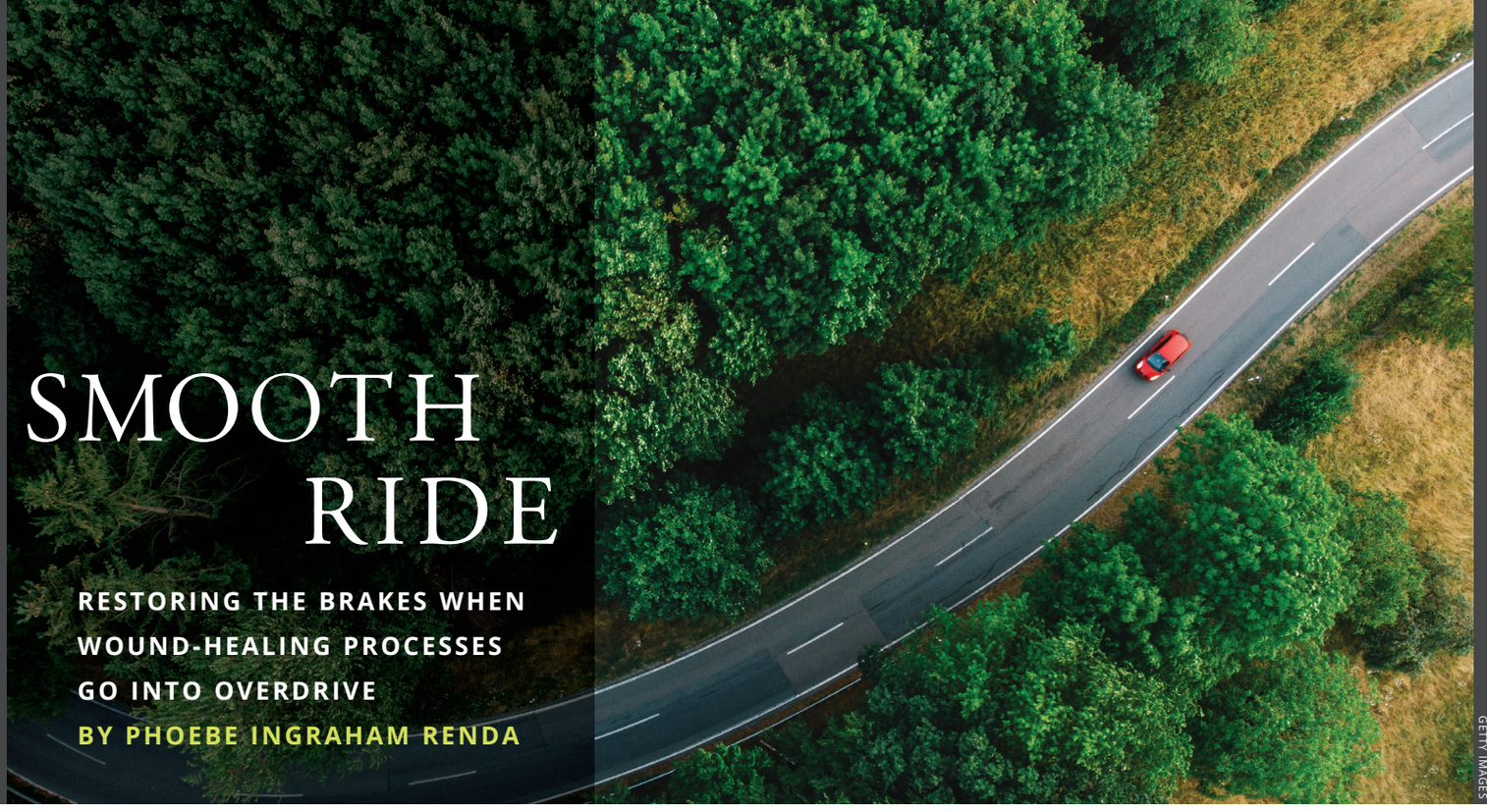
Natesan sees opportunities in existing courses for discussions like how environmental factors such as air pollution often have a higher impact on people of color.

Although the sustainability office for the health sciences is new, Natesan says she learned that the University already has a wide-reaching sustainability plan in place, with dozens of triumphs and goals.

Likewise, according to Boninger, the wheels are turning on several projects at UPMC: Leaders are weighing more sustainable approaches to scrubbing for surgery and considering reusable blood pressure cuffs versus disposable blood pressure cuffs. Similar discussions continue about the stethoscopes that the student highlighted.

"This drive toward disposability ignores the impact on the planet," Boninger says. "And we do that at our own peril." ■

PHOTOS OF BONINGER LAB BY TOM ALTANY. COOKING PHOTOS BY AIMEE OBIDZINSKI/UNIVERSITY OF PITTSBURGH.



SMOOTH RIDE

RESTORING THE BRAKES WHEN WOUND-HEALING PROCESSES GO INTO OVERDRIVE

BY PHOEBE INGRAHAM RENDA

GETTY IMAGES

Aspects of the body's wound-healing process operate like a car. There's a gas pedal to move forward, a brake to stop when tissue is rebuilt and a reverse gear to clear extra tissue and structures put in place during the healing process.



Wells



Yates

"You wouldn't drive a car without a brake and hope that by taking your foot off the gas you would stop," says Alan Wells, an MD, DMSc and the Thomas J. Gill III Professor of Pathology, "or without a reverse to get back to where you were." However, that's the situation for people with chronic conditions that disrupt wound healing; they can end up with inflammation, too many blood vessels and excessive connective tissue.

Wells, who also holds appointments in bioengineering and in computational and systems biology, has a solution in the works with Cecelia Yates, a PhD associate professor of health promotion and development in the School of Nursing with additional appointments in bioengineering and in clinical and translational science. (Wells is also executive vice chair of laboratory medicine at Pitt Med and medical director of UPMC Clinical Laboratories. Yates directs the PittEI^3 equity program for underrepresented faculty in innovation.)

Over a 20-year collaboration, the researchers developed a technology that acts as a mechanic to restore dysfunctional cars. It's now in a phase I clinical trial for treatment of wet age-related macular degeneration (wet-AMD)—which leads to blurred vision and blind spots after an aberrant wound response.

Their intervention uses a fragment of a molecule Wells began studying in 1997. The molecule, a naturally occurring chemokine called IP-10, signals the transition from tissue replacement to wound resolution—when the body clears extra blood vessels and structures that were put in place to heal the injury.

"That reverse also acts like a reset button," says Yates. "When the tissue is reset to its normal healthy state, the car naturally turns off."

However, Wells explains, IP-10 was unstable and difficult to make. It has other biological roles—posing a risk for off-target effects. "The real discovery was being able to fragment this naturally occurring molecule to target its use for one particular function," says Yates.

Their collaboration began in 2004, when Yates was Wells' graduate student. Yates and collaborators at Tuskegee University identified which fragments performed each of IP-10's biological functions. They synthesized the piece that reversed angiogenesis (formation of new blood vessels) and fibrosis (excessive accumulation of connective tissue). That synthesized peptide, called IP-10p, was able to perform IP-10's natural role in resolving wound healing.

Initially, Wells and Yates focused on therapeutic applications in skin. But during Pitt's McGowan Institute for Regenerative Medicine Retreat in 2012, they met with Joel Schuman, an MD and former chair of ophthalmology, and began to consider the peptide's value for taking on vision loss.

Schuman brought in mentee Ian Conner, an MD, PhD and UPMC surgical fellow in glaucoma at the time, to test the peptide's therapeutic potential in a rabbit model. Those studies showed that rabbits treated with IP-10p had reduced fibrosis and inflammation and healthy levels of blood vessels. The peptide also reduced the side effects of mitomycin-C, an agent used to reduce surgical scarring.

"Those results inspired use in other eye diseases," says Conner, now a Pitt assistant professor of ophthalmology.

"There's a huge need in age-related macular degeneration."

As ocular experiments continued to show promise, Wells, Yates, Schuman and Conner formed a company called Ocugenix in 2014 with support from Pitt's Innovation Institute.

Last fall, their first patient received the treatment. So far it looks safe, and the team is looking forward to the trial's second phase, where they'll learn its effectiveness in treating and reversing wet-AMD.

"We've been very fortunate to be at the University of Pittsburgh," says Yates. "Using the broad resources of the Innovation Institute allowed us to start the company and move forward, which is not an easy pathway." ■



Zinc is a culprit in hearing loss, Pitt researchers revealed.

GETTY IMAGES

SOUNDS PROMISING

PREVENTING NOISE-INDUCED HEARING LOSS

BY ANASTASIA GORELOVA

Anyone who has been to a loud concert knows the feeling of ringing ears. Some people experience temporary or even permanent hearing loss or drastic changes in their perception of sound after the loud noises stop.

In a paper published in February 2024 in the Proceedings of the National Academy of Sciences, a team of University of Pittsburgh researchers announced the discovery of a molecular mechanism for this kind of hearing loss and showed that it could be mitigated with medication.

The team found that noise-induced hearing loss, which afflicts millions of Americans, stems from cellular damage in the inner ear that is associated with an excess of free-floating zinc—a mineral that's essential for proper cellular function and hearing. Experiments in mice showed drugs that sponge up excess zinc can help restore lost hearing or, if administered before an expected exposure to loud sounds, can protect from hearing loss.

"Noise-induced hearing loss impairs millions of lives but, because the biology of hearing loss is not fully understood, preventing hearing loss has been an ongoing challenge," says senior author Thanos Tzounopoulos, a PhD and the director of the Pittsburgh Hearing Research Center at the School of Medicine.

While some experience noise-induced hearing loss from an acute traumatic injury to the ear, others notice a sudden hearing impairment after being continuously exposed to loud noise, in a battlefield or at a construction site, for example. Others notice their hearing deteriorating after attending a rock concert or other loud show.

Noise-induced hearing loss can be debilitating. Some people start hearing sounds that aren't there, a condition called tinnitus, which can severely affect their quality of life.

Tzounopoulos, who is also the Professor of Auditory Physiology and vice chair of research in the Department of Otolaryngology, has focused his scientific career on investigating how hearing works and developing ways to treat tinnitus and hearing loss. He sought to determine the mechanism behind the condition to lay the groundwork for effective and minimally invasive treatments.

By performing experiments in mice and on isolated cells of the inner ear, the team found that zinc levels in the inner ear spike hours after exposure to a loud noise. The exposure, they found, causes a robust release of zinc into spaces within and between cells, which ultimately leads to cellular damage and disrupts normal cell-to-cell communication.



Tzounopoulos

This discovery opens the doors to a possible solution. Experiments showed mice treated with a slow-releasing compound that traps excess free zinc were less prone to hearing loss and were protected from noise-induced damage.

"This exciting discovery was only possible thanks to the collaboration and complementary scientific expertise of our colleagues in the School of Medicine," says Tzounopoulos. Amantha Thathiah, a PhD assistant professor of neurobiology, offered expertise in the mechanisms by which cells degenerate, and Chris Cunningham, a PhD assistant professor of otolaryngology, brought insight into the biology of cochlear cells. Other authors of the study are School of Medicine postdoc Brandon Bizup and Pitt undergraduate Sofie Brutsaert.

The researchers are now developing a treatment to be tested in preclinical safety studies, with the goal of making it available as a simple, over-the-counter option for hearing loss prevention. ■



GETTY IMAGES

CAN CHURCH BASEMENT CARD GAMES KEEP SENIORS OUT OF HOSPITALS?

SPENDING TIME WITH SENIOR CITIZENS AS A MEDICAL STUDENT TAUGHT ME ABOUT HEALTH AND WELLNESS IN WAYS THAT CLASSROOMS NEVER COULD. | **BY CYNTHIA McMAHAN**

This article was originally published by PublicSource, a nonprofit newsroom serving the Pittsburgh region. For more of its journalism, visit www.publicsource.org.

In the basement of a Methodist church, I met a woman named Marie, who's there every weekday to spend time at Allentown's senior center. I asked her what brought her there.

"My old lady friends!" she replied, gesturing to the other three women at the table, all of them laughing.

They complemented each other in the way you'd expect long-time friends to and nodded in agreement when Marie described the way that they had "become like family." The joy in these connections was palpable and a part of why I want to celebrate these centers for helping people thrive in later life.

This summer, as part of my medical training, I set out to learn about the role of social spaces in health and wellness, especially in the lives of older folks. Over the month of July, I visited four Pittsburgh-area senior centers—in Mount Washington, Allentown, the Hill District and Penn Hills.

I imagined senior centers as quiet places for older people to spend their days when they had little else to do. Instead, I found thriving hubs of activity and community, where seniors connect with friends, make art, participate in high-energy exercise classes, sports and much more.

Each had its own charms, with variations in funding and resources, but the social atmospheres were similar. The staff knew their patrons well. It was apparent that there's no way to work at a senior center without really getting to know the people who show up every day.

I heard passing check-ins about children, grandchildren and travels that demonstrated a connection much deeper than surface level.

At one center, a dedicated woman named Michelle coordinates and attends weekly dinner outings at a curated rotation of well-loved restaurants. Just prior to my visit, a group of 19 seniors joined her at Hofbräuhaus and several spoke fondly of the food and togetherness they experienced there. One woman told me, "I would never be going to these places on my own."

I mainly talked with patrons in the large room where they ate lunch. Overwhelmingly, their reason for visiting the center was to socialize. During my visits, I saw seniors connect with each other over heated card games, group exercise classes, pottery painting and simple conversation.

Apart from the opportunity to chat with friends, senior centers offer resources for health maintenance, including monthly blood pressure screenings and informational visits about relevant clinical trials. They're also a reliable place to eat nutritious and affordable meals, which can be difficult to find for seniors on a budget. Herb-roasted salmon with scalloped potatoes, roasted Brussels sprouts and chocolate pudding are hard to turn down—especially for the suggested donation of $0.50.

ISOLATION IS AS HARMFUL AS SMOKING

While I was learning from people, like Marie, who are well connected socially and have developed a network of friends through their senior centers, I thought about the seniors that I didn't get a chance to talk to, who aren't able to access the centers. I've met many older hospital patients in this category who, due to health problems, have trouble getting around on their own and as a result, have very little contact with peers.

A commonly cited psychology study found that social isolation has the same effect on longevity as smoking 15 cigarettes per day. Retired seniors, having lost their connection to a workplace, are especially vulnerable to isolation. Many older folks are also unable to drive and are more likely to use mobility aids like canes, walkers or wheelchairs.

While I've been learning about physiology and disease, I've also been thinking about how we can improve people's health upstream of clinics and hospitals.

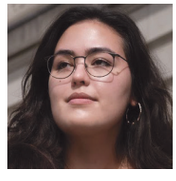
MAINTAINING SOCIAL INFRASTRUCTURE

After seeing the benefits of senior centers first-hand, I've become interested in advocating for equitable access to "social infrastructure," which includes senior centers, but also other community centers, parks, places of worship and libraries.

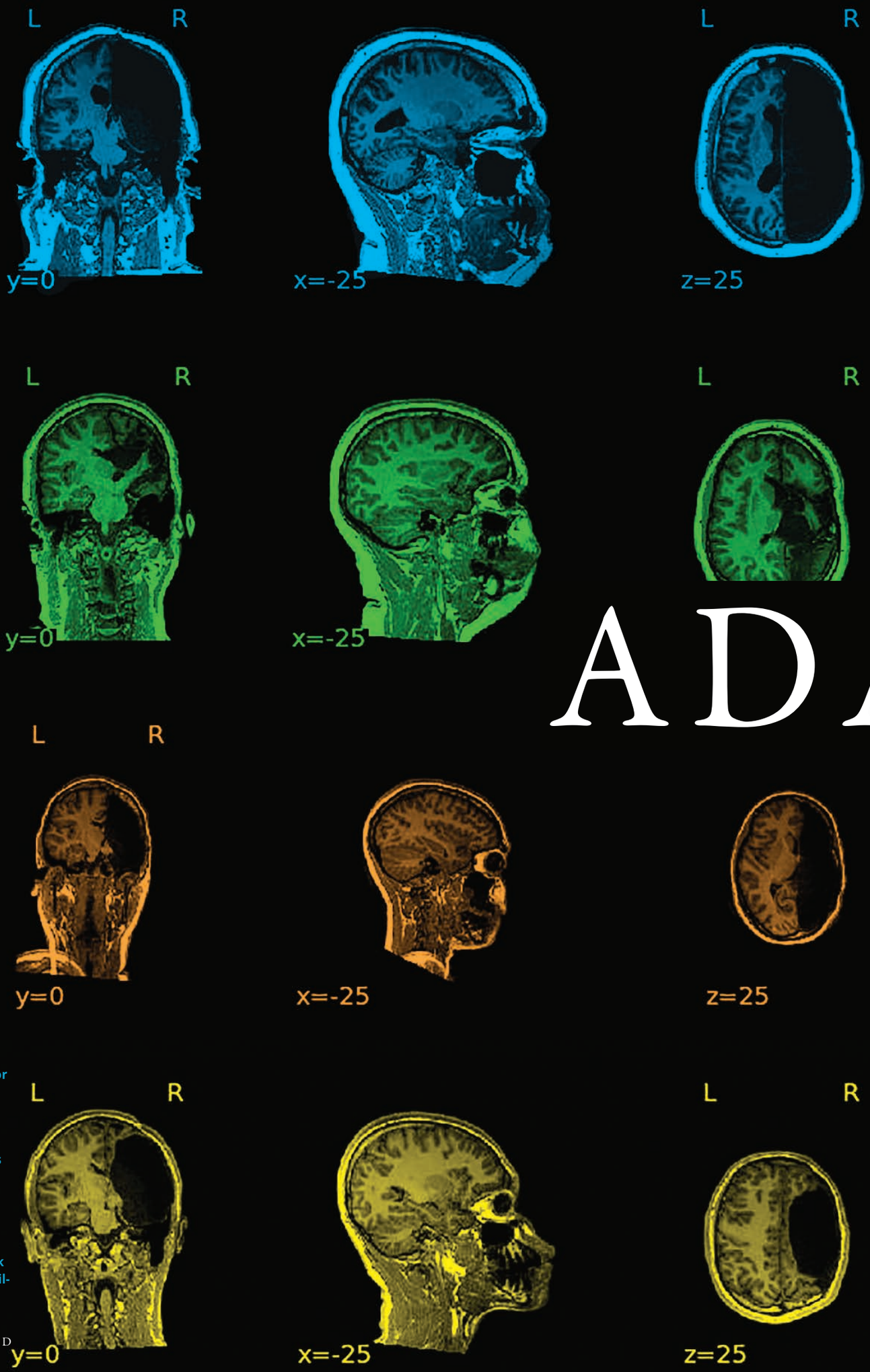
I first heard the term "social infrastructure" from sociologist Eric Klinenberg's book "Palaces for the People," which emphasizes the importance of accessible social spaces in reducing inequality and isolation. The title is borrowed from Pittsburgh's Andrew Carnegie, who sought to create beautiful, opulent libraries all over the country, open for the public to use to read, meet and learn—free of charge.

Klinenberg writes about a powerful relationship between social infrastructure and public health, for people of all ages, not just seniors. In one example, he describes how neighborhoods with well-developed social infrastructure fared better in a record Chicago heat wave, regardless of race or income status. By creating the conditions where social support systems can be built, social infrastructure makes our communities healthier and more resilient.

In a time when social divides have deepened and health disparities persist, our society benefits when we maintain and develop shared social spaces. As I continue learning about medicine from as many angles as I can, the lessons I learned from Pittsburgh seniors this summer will stay with me, spurring me to advocate for policies that promote health both in and outside the hospital. ■

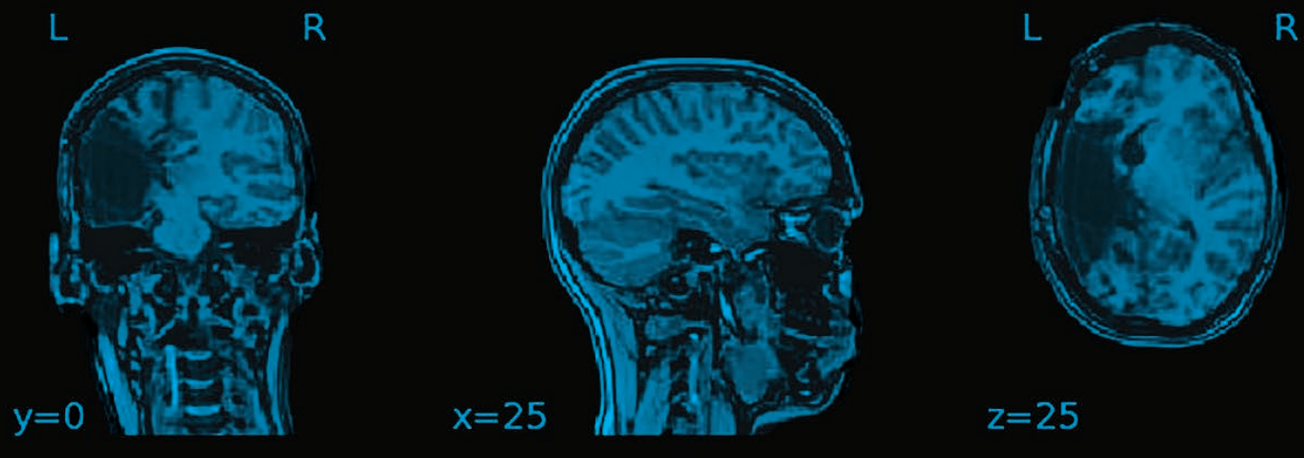


Cynthia McMahan is a second-year medical student at the University of Pittsburgh interested in community-partnered research, health policy and advocacy.



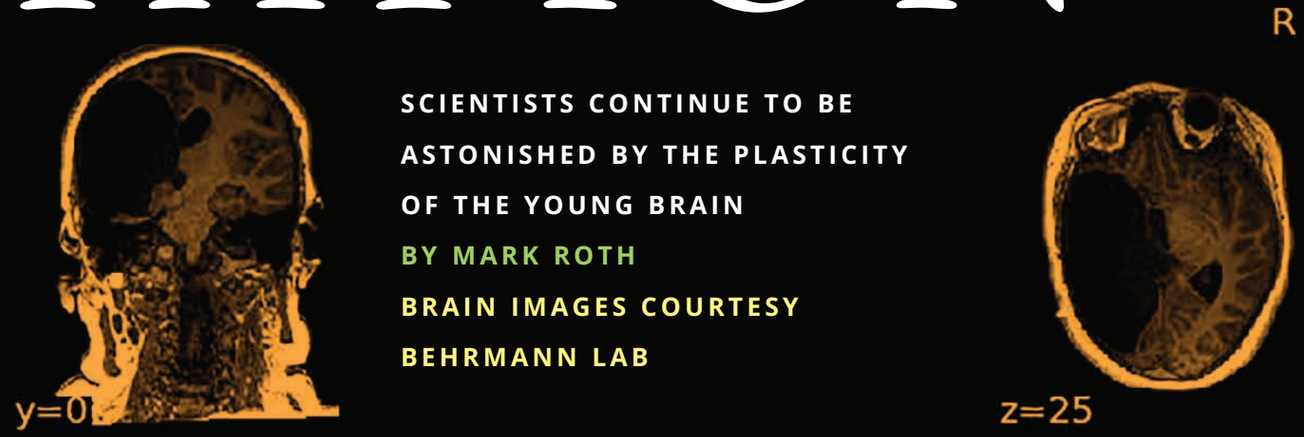
ADA

Marlene Behrmann has been able to document how the brain reorganizes itself after injury or surgery—scientists had only inferred plasticity before. SHOWN HERE: **Scans from eight patients who had parts of their brains removed to treat epilepsy between the ages of 1 and 13. Even when entire hemispheres are removed, young people may be able to gain back substantial cognitive abilities related to vision.**





PTATION



SCIENTISTS CONTINUE TO BE ASTONISHED BY THE PLASTICITY OF THE YOUNG BRAIN

BY MARK ROTH

BRAIN IMAGES COURTESY BEHRMANN LAB



Nicholas Sepcic is remarkably upbeat and articulate for a young man who is missing a sizable part of his brain.

Sepcic is a 24-year-old geotechnical engineer in Salt Lake City, Utah. When he was 13, he underwent brain surgery at UPMC Children's Hospital of Pittsburgh to put a stop to his increasingly serious seizures from epilepsy.

"There were no aftereffects, which I was super grateful for," Sepcic says. "I have a scar and a little dent in my head, but I haven't had a seizure since.

"It's a scary decision to make," Sepcic says, thinking back to the daylong surgery in 2013 that removed a quarter of the left side of his brain. "My parents were super stressed, and it was definitely a big decision for them, but I'm grateful to all the doctors and staff at Children's Hospital."

While Sepcic's story is astonishing, he is one of scores of patients who have bounced back from major childhood brain surgery, retaining or relearning many of their cognitive skills, says Marlene Behrmann, a renowned vision researcher and a PhD professor of ophthalmology at the University of Pittsburgh.



Behrmann

Throughout the past eight years, Behrmann has tested 116 patients who had surgery for epilepsy as children or teens. She has done functional magnetic resonance imaging on more than 50 of those patients who were able to complete simple matching exercises. In kids who were able to meet that cognitive baseline, and also tolerate imaging, Behrmann has found dramatic examples of plasticity.

In her studies, she has been able to show in vivid detail how cognitive abilities that were centered in the part of the brain that was taken out have shifted to a corresponding area on the other side of the brain.

Just a handful of scientists around the world are studying this ability of children's brains to adapt after major surgery, and Behrmann's database of children who had brain surgery to treat their epilepsy is unprecedented.

People just inferred plasticity before, notes Behrmann. Her team has been able to show them how it's happening.

Sepcic is one of the participants in Behrmann's study. While his surgery removed 25% of his left hemisphere, nearly half of the study group had an entire half of their brain removed, a procedure known as a hemispherectomy. Behrmann, who has done pioneering brain studies as a faculty member first at Carnegie Mellon University and now at the University of Pittsburgh, is the first scientist in the world to show how well some of these patients are able to identify words and faces, even after losing major portions of their brains.

Those two functions are normally seated on different sides of the brain—face identification on the right, word recognition on the left.

In patient after patient, her imaging studies have shown that both functions can share space on the unaffected side of the brain, which spontaneously reorganizes after surgery.

Scientists once thought that the window for the brain to reorganize slammed shut in the early teen years. Her work demonstrates that this reorganization can happen years later.

"I want to illustrate that plasticity does not close so early. We have kids who have had surgery in their teens who are showing much better performance than you might have predicted. They are showing roughly 85% accuracy in word and face identification with 50% of the brain. Typically matched controls score roughly 95%."

Those results were published in the Proceedings of the National Academy of Sciences in 2022. Her studies are part of a growing body of evidence that the brain can adapt to surgery, strokes and other injuries much later in life than once believed.

"I do not know whether there are specific age limits," Behrmann says, "or what those would even be. We know two things: There is much more plasticity even in adults' brains than was previously considered possible, and we see plasticity in teenagers even when they go into surgery at age 15 or 16."

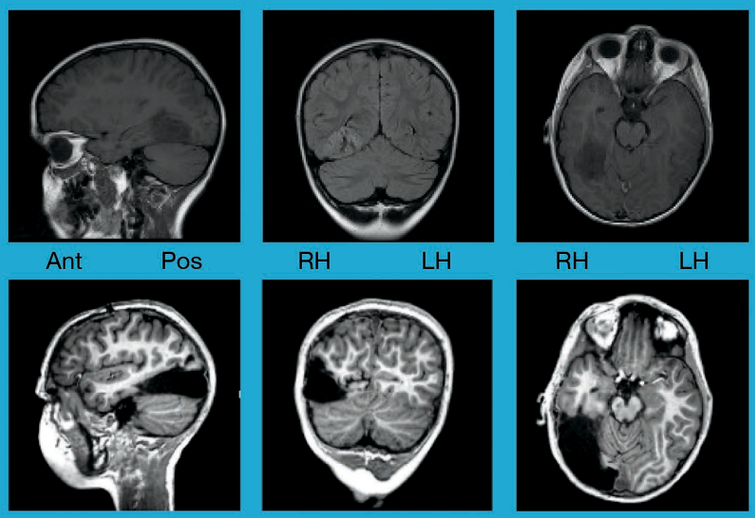
In her imaging studies, Behrmann's team had patients lie in a functional MRI scanner and showed them pictures of words and faces; the researchers then asked them to identify whether they had seen the images before.

In one remarkable 2018 paper in Cell Reports, Behrmann detailed the case of a boy who lost part of the right hemisphere of his brain (the occipital lobe, considered the vision center, and temporal lobe, associated with understanding language among other things). The boy was able to shift his face identification area to the left side of his brain. At first, the boy's face and word identification areas were nestled against each other in the left hemisphere, and then, over time, the two functions shifted into their own territories in the remaining half of the brain.

"It's like the two areas have jostled for real estate to develop a cluster that is face selective and a cluster that is word selective," she says.

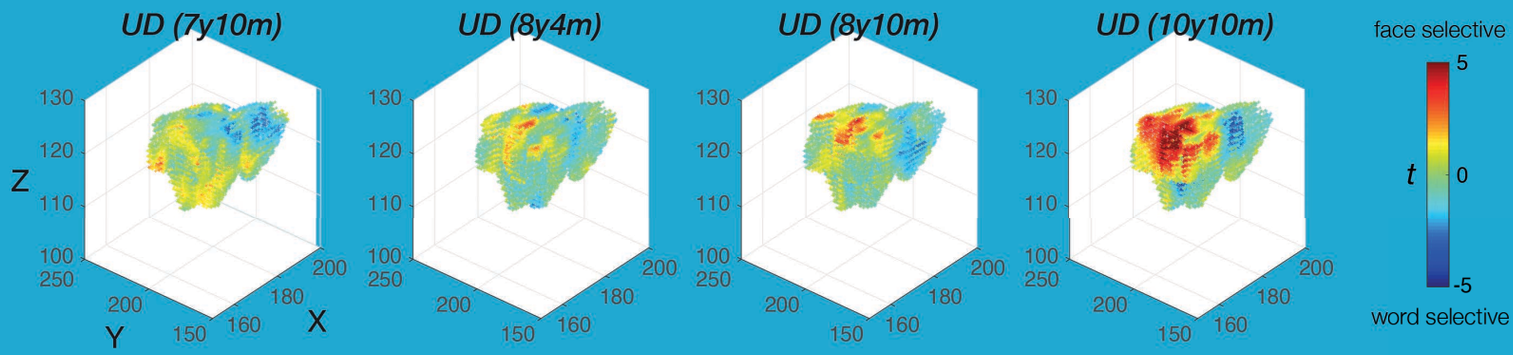
The brain plasticity she sees in her young patients is in marked contrast to what happens when older adults have a stroke or major brain

COURTESY BEHRMANN LAB.





A team led by Behrmann studied a boy who had a tumor in the right rear part of his brain removed. (The shadow in the top row of MRI scans is the tumor; the bottow row shows his brain after surgery.) Functions of the face-recognition center of his brain, which was resected, shifted to the left half of his brain within his word-recognition center. The colored 3D images below show how face recognition (red) and word recognition (blue) became stronger (represented as darker colors) in neighboring portions of that area over the next few years.



surgery. They often lose the ability to speak or read or move one side of their bodies after such brain lesions.

Behrmann said the reasons why young brains can adapt to such insults better than older brains are still somewhat mysterious, but she sees it as part of an arc, in which our brains move from being less organized but full of potential, to later in life, when our brains have become highly organized but are less flexible.

One good example of that change is how we acquire language, she says.

"Very young babies, when they start to babble, can make sounds that are in many different languages around the world. As they become more and more exposed to their native language, those other sounds fall away."

William Gaillard, an MD who trained at Children's Hospital of Pittsburgh (Res '87), is now chief of neurology at Children's National Hospital in Washington, D.C. He sees the same flexibility in children who've had strokes.

Gaillard has been impressed by Behrmann's research on plasticity: "The work is very clever, thoughtful and well executed in a unique population where one can examine several levels of plasticity."

A SOUTH AFRICAN BEGINNING

When Behrmann was a senior in high school in South Africa in 1976, the conflicts over apartheid had become so tumultuous that she wanted to leave the country as soon as she graduated.

She'd wanted to become an MD, but when her parents talked her into staying in South Africa until she got a college diploma, she picked a degree she could acquire more quickly. She followed the lead of her older sister and majored in speech pathology, "knowing full well I was never really going to be a therapist." After getting her master's in that field, she won a scholarship to study in London, which convinced her she wanted to pursue a career in research and focus on the brain.

She then moved to Canada, where she studied what today would be called cognitive neuroscience at the University of Toronto, combining courses in experimental psychology, biology and computer science. After working for two years at a Toronto research institute, she was recruited by Carnegie Mellon University.

When she arrived in Pittsburgh in 1993, it was the early days of brain imaging, which has become a touchstone of her research. She remembered going with her colleagues to an MRI facility at midnight, where they would order pizza and conduct experiments at the only time the scanner was available.

Her research career has grown alongside increasingly powerful brain scanners. Throughout the last decade, she says, the resolution of functional MRIs has become much sharper, so that scientists today have unprecedented access to what is going on in the brain.

Behrmann has explored a number of brain conditions over the past 30 years.

She analyzed how the brains of people with autism differ from those of "neurotypicals."

She became a leading expert on prosopagnosia, or face blindness, in which people cannot recognize others by their facial appearance, sometimes including their spouses and children.

She's exploring mysteries of people who are walking around with empty space in their skulls.

And since coming to Pitt two years ago, she also has started studying the brains of those who are blind.

As different as these investigations seem, they are linked by two common themes.





As a teenager, Breanna Boyer, now 22, had three operations to treat epilepsy. One procedure removed her left occipital lobe, considered the vision center, and part of her temporal lobe. She works in Erie, helping people who are homeless find housing. (Photo by Aimee Obidzinski/University of Pittsburgh.)


Abel


Patterson


Welch

First, she is trying to figure out how a "normal" brain works by studying brains that depart from the norm. By studying a visual system that is dramatically different—one that is blind, or can't recognize faces, or is missing big chunks of visual cortex—she can learn better how a conventional brain functions.

A second theme in her work is to understand how her basic research can help patients live fuller lives. That is where her new position with the med school has been a blessing.

"Even though I'd always studied patients, I studied them as a kind of model system," she says. "Then along comes this opportunity to transition to a clinical department in Pitt where I got many more opportunities to be in touch with patients whose deficits need to be addressed. It was almost too good to be true, and it is an incredible opportunity and even better than I had imagined."

Because of her research at Pitt, she can now tell parents that not only can surgery often help address a child's seizures from epilepsy, but "the surgery may permit development and recovery of [some] function."

She points out that those who have epilepsy from a well-defined lesion, such as a tumor, are likely to have a better recovery than those with major anatomical brain abnormalities—resection cannot "fix" the abnormality though it might alleviate seizures, she says.

Behrmann has compiled an impressive list of honors. In 1999, she received the Presidential Early Career Award in Science and Engineering. She is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. In 2020, she received the Fred Kavli Distinguished Career Contributions Award from the Cognitive Neuroscience Society, as well as the Vision Sciences Society's Davida Teller Award for exceptional scientific achievements, commitment to equity and a strong history of mentoring.

ON BALANCE

Pitt's Taylor Abel, an MD associate professor of neurological surgery, is chief of pediatric epilepsy surgery and of pediatric neurosurgery at Children's. He performs hemispherectomies to alleviate children's seizures. Families come from throughout the Mid-Atlantic, as well as from the South, the Midwest and internationally, for this care. And while Abel agrees that kids are amazingly resilient, he reminds that some of these patients would not qualify for Behrmann's studies because their cognitive abilities are not at her baseline.

Further, he says, there are some side effects that are unavoidable.

If children have half the brain removed, they often contend with weakness and mobility problems on the opposite side of the body. They will also experience a visual field deficit, leaving them without the ability to see what is opposite the side where brain tissue was removed.

But Abel also knows those deficits have to be balanced against the devastation from suffering debilitating seizures, sometimes dozens per day.

Even as children are left with side effects from these major operations, Abel says, "very few of their families regret having gone ahead with the surgery" because epilepsy had made their children's lives miserable.

Neurologist Christina Patterson, an MD associate professor of pediatrics, and William Welch, an MD assistant professor of pediatrics, are among Behrmann's clinical colleagues who work with young epilepsy patients.

Many children are very good at compensating for the losses from surgery, Patterson says.

When they lose their vision on one side, she says, they will subtly shift their heads or eyes to see what's in front of them. After a while, the brain learns to stitch the panned images together so well that the patient might hardly notice the vision loss. "The brain knows there is damage there, but the brain works itself around that," says Patterson.

She knows how scary it can be for families to hear their children might need brain surgery. "Yes, we are taking a piece of your child's brain away," she tells parents, "but we know that that piece of the brain is bad, and it's making everything worse for the rest of the brain. Think about what happens when you have a malfunctioning circuit in a computer system—it poisons everything else."

And, she reminds them, their children's capacity for growth "is practically exponential. Kids are still making those connections, and their brains are able to rewire."

Like others in her field, she believes not enough children are being offered surgery when their anti-seizure medications fail.

About a third of all children with epilepsy are resistant to drug treatment, Patterson says—or more than 150,000 children under the age of 14 nationwide.

And each year, 10,000 more children are diagnosed with drug resistant epilepsy. Within that group, about 2,000 children a year could benefit from surgery to remove the part of their brain that generates the seizures, according to Monika Jones, executive director of the Pediatric Epilepsy Surgery Alliance, a nonprofit advocacy group based in California.

Nicholas Sepcic's parents, Bob and Rachael Sepcic, are intimately familiar with the risks and tradeoffs of brain surgery.

When Sepcic began to have seizures in middle school, he didn't drop to the ground or convulse. Instead, he blanked out briefly.

Medication seemed to help but didn't make the seizures go away. When Sepcic's parents took him to Children's Hospital of Pittsburgh for presurgical tests, doctors put an electrical grid on his left temporal lobe and then stopped his medications to trigger a seizure and detect where it was originating.

When they did that, Bob Sepcic says, "the seizures were shockingly violent. We could see he was getting worse, but it had been hidden by the medication."

Sepcic was sent home just 48 hours after his surgery. "I started watching him like a hawk," his father recalls, "and there was this constant stress where I wondered, 'Is he different?'"

As time went on, the Sepcics realized how fortunate they were. Their son's seizures never returned, and the biggest challenge they faced was telling him he couldn't play soccer anymore because of the risk of head injury.

Patterson says children who get epilepsy surgery continue to exceed her expectations.

"Kids continually surprise me in a joyful way. Kids who once had devastating epilepsy are leading functional, productive lives."

Breanna Boyer, 22, has had three brain surgeries since she was 12 to treat epilepsy caused by tumors on the left side of her brain.

In the second operation, completed when she was 15, doctors removed all of her left occipital lobe, as well as part of her temporal lobe.

Her road has not been easy; but today, Boyer works in Erie finding housing for homeless people. She is able to live independently with the help of her human safety net.

"I have a pretty good group of friends who have supported me. I've known them since I was diagnosed. Also, my mom, dad and stepmom are there 100% of the time. If I can't handle something, they've got me. My entire family is super supportive."

Gaillard, the Washington neurologist, remembers a young patient who had the left half of his brain removed at age 9 and immediately lost all his speech. Four months later, he could say just a few words.

Then Gaillard lost touch.

"Two years ago," he says, "I got an email from him. It was a three-page email with paragraphs and subclauses. It turned out he had majored in English literature at college. So somehow, something happened on the right side of his brain" that completely restored his language abilities, which are normally on the left side of the brain.

HOW DO KIDS DO IT?

Behrmann's goal is to crack the code of why children's brains are as adaptable as they are.

In a new study, she and her colleagues have shown that when children have part of their brains removed, the remaining tissue is "looser" than in typical children—more ready to make new connections and reorganize itself.

"Ultimately," she says, "we would want to have an explanation of exactly how the brain changes [after surgery]. And if we are able to deeply understand this, we might be able to both help to promote this change in these children's brains and perhaps even use the same principles to promote change in individuals with other disorders." ■

NEURONAL MIGRATIONS AND CHILD DEVELOPMENT

Humans don't seem to develop new neurons as we age, but some of our neurons may act younger than they are.

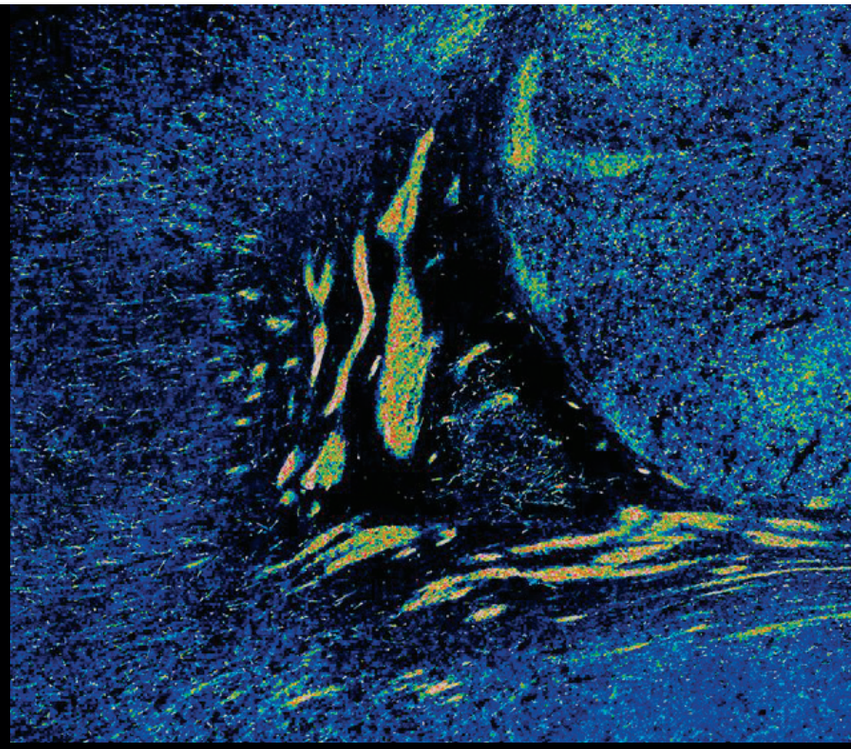
During childhood, one group of immature neurons hang around just outside of the amygdala (part of the brain linked to emotions), while other neurons in the brain continue to develop. Initially, finding these younger-looking neurons led researchers to believe that they were indeed seeing proof of postnatal brain cell birth. A University of Pittsburgh team has found otherwise. Research from Shawn Sorrells, a PhD assistant professor of neuroscience in the Kenneth P. Dietrich School of Arts and Sciences, has determined that in mice, which have a similar collection of immature neurons, this cache of cells was born prenatally with the other neurons, though their development was delayed.

By adolescence, however, most of the neurons ripen and begin migrating into the amygdala, where they probably contribute to emotional maturity. That makes sense to Sorrells: "Anyone who knows a teenager knows—there's a lot going on in those years." These findings were published in February 2024 in Neuron.

The amygdala isn't the only area of the brain that continues to recruit neurons postnatally. Sorrells and colleagues, including Taylor Abel, associate professor of neurological surgery at Pitt and chief of pediatric neurosurgery for UPMC Children's Hospital of Pittsburgh, found a similar cache of neurons migrating into an area of the brain related to memory formation.

From infancy into toddlerhood, these neurons continue to migrate into this memory center where they settle and mature. The findings, published in February 2024 in Nature, suggest that these and other neural maturation and migration events are related to periods of neuroplasticity during development—times when the brain is particularly receptive to change and more flexible when it comes to adapting to new situations.

This research is the first to show that neuronal migration of such scale and duration is extensive within regions that control thoughts and emotions. From teen angst to language acquisition, it's possible that our own maturation is actually a byproduct of the maturation of clusters of neurons. ***—Brandie Jefferson***



Large chains of migrating cells break down into a shower of young migrating neurons that continue to integrate into the entorhinal cortex (important for memory formation) and neighboring regions until 2-3 years of age. (Image courtesy Shawn Sorrells.)



During a small Pitt study using a spinal cord stimulator, patients experienced relief from phantom limb pain, as well as improved gait and balance.

FIGHTING PHANTOMS

A DECADES-OLD TREATMENT FOR PERSISTENT PAIN SHOWS PROMISE FOR AMPUTEES.

BY MICHAEL AUBELE

ILLUSTRATIONS BY MAGGIE NEGRETE

Scientists at the University of Pittsburgh School of Medicine have shown again that spinal cord stimulation could offer therapeutic benefits beyond its traditional application in treating chronic pain.

Late in 2023, a team at Pitt's Rehab Neural Engineering Labs (RNEL) released results from a study that used spinal cord stimulation to relieve phantom limb pain, generate sensation and improve gait for a small group of lower leg amputees.

Earlier that year, RNEL scientists publicized the results of another study that used the technology to restore arm and hand movement in stroke patients.

Both clinical trials took place about the same time in 2021, involved many of the same scientists and reinforced Pitt Med's status as a leader in neuroscience and rehabilitation research. RNEL includes eight core faculty among a team of about 90 biomedical experts, including engineers, students, clinicians and postdocs.





Fisher

"All of us are working to restore function in conditions like spinal cord injuries, stroke and amputation," says Lee Fisher, a PhD and Pitt associate professor of physical medicine and rehabilitation. "There's a lot of overlap across all of the different projects."

The team's work is among the foremost of its kind in the country, says a biomedical engineer in North Carolina.

Helen Huang is a PhD and Jackson Family Distinguished Professor in the University of North Carolina and North Carolina State University Joint Department of Biomedical Engineering who spent a minisabbatical in Pittsburgh two years ago. She came here wanting exposure to RNEL in hopes of collaborating in the future or using what she learned to pursue similar research in her own lab.

"I wanted to find a place where they're using invasive electrodes to restore sensation and movement," she says. "What they're doing at RNEL is definitely cutting edge. They are leaders in the field."

The Fisher team's work is supported by a five-year, $5.8 million grant from the National Institutes of Health and funding through the Swiss National Science Foundation to study the effectiveness of the technology Huang was anxious to learn more about.

"What we did," says Fisher, "was use electrical stimulation of the spinal cord to generate sensations that feel like they come from the missing limb, and we paired those with a sensorized insole in the shoe to restore sensation that feels like now it's coming from the prosthesis."

Eric Helm, an MD assistant professor of physical medicine and rehabilitation, and Vincent Miele, an MD clinical associate professor of neurological surgery and chief of neurosurgery at UPMC Mercy, implanted electrodes along a specific section of the spinal cord in each of the three patients in the study. The device, when activated in the lab over the course of one to three months, depending on the patient, delivered an electric charge; those bursts of energy allowed the patients to feel tactile sensations, alleviated their phantom limb pain and helped them walk with added confidence.

More than 1.5 million people in the United States live with lower-limb amputation. Current prostheses don't deliver sensory feedback. That can lead to balance problems and an increased risk of falls. RNEL researchers found they could control the location and intensity of the sensations perceived as coming from the missing limbs. And by adjusting the electrical stimulation in real time using the wireless, pressure-sensitive shoe insole, they improved balance and gait for the patients.

The patients reported pain reduction of 70% on average, according to the paper Fisher and team published in the journal Nature Biomedical Engineering—lead authors were Rehab Neural Engineering Labs' Ameya C. Nanivadekar (now at Abbott), Rohit Bose and Bailey Petersen.

Elsewhere, scientists have been working to alleviate phantom limb pain and restore sensation, but the approach has been different: The focus has been on stimulating the nerves around the amputated limb. Pitt's approach differs, notably in the technology and type of patient.

"Other people have previously shown that you can stimulate nerves out in the periphery, in the limbs, to restore sensation to the amputated limb," Fisher says. "So that's not really brand new; they've done that for the upper limbs and lower limbs.

"The thing that we did that's different—we're using electrodes that are already clinically and commercially used for other purposes. So, when we think about the process of getting a system like this out into the clinic, hopefully we can leverage that existing knowledge and infrastructure to make that process more straightforward than it would be if we were developing new surgical procedures and devices that aren't used for something else clinically."

Using spinal cord stimulation to treat chronic pain has become relatively common. About 50,000 patients each year in the United States undergo the procedure. Most major medical centers in the country have physicians capable of completing the surgery.

Stimulating the spinal cord to relieve phantom limb pain, restore sensation and improve balance and gait among lower-limb amputees is new, yet that isn't the only novel component to this research.

Gavron has her fingers crossed it won't be long before the treatment is approved for clinical use, knowing how much it relieved her discomfort.

Fisher says two of the three patients lost their lower leg from diabetes-related peripheral neuropathy, which happens when the nerves outside of the brain and spinal cord are damaged. It can cause pain, numbness and weakness, most often in the hands and feet, and can lead to amputation.

"This is the first time, as far as I know, that anybody has included subjects in a study like this who have diabetes-related amputations," Fisher says. "All of the research done in this space in the past has been focused on traumatic amputation or post-cancer amputation."

As many as 65% of the amputees in the United States have lost a lower limb or extremity due to complications from diabetes or dysvascular disease.

"These are people who are losing sensation in their feet long before they ever have an amputation, and I think one of the open questions was that if we stimulate the nerves in the spinal cord, would we be able to restore sensation for someone who has chronic sensory loss?" Fisher says.

Gavron experienced relief from her almost constant phantom limb pain.

NATE LANGER/UPMC AND UNIVERSITY OF PITTSBURGH

The answer was yes, they found.

The team is hopeful funding will come through for the next stage of research, which will involve permanent implants for another small group of patients. The goal will be to gauge the real-world efficacy of the treatment.

FORCED TO FIGHT

Lauren Gavron, 67, of Duquesne, lost her lower left leg to amputation in 2016. She since has had fingertips removed and two toes on her right foot—and is worried she'll soon have her pinky toe amputated. All from infections caused by peripheral neuropathy.

Gavron started struggling before the amputations. She was diagnosed in 2014 with cancer in her appendix that spread to her stomach and underwent grueling treatment that included a chemo bath. "I've literally had to fight these last 10 years," she says.

Gavron learned about Fisher's study by chance. During a visit to Union Orthotics and Prosthetics outside of Pittsburgh, she saw a flyer on the wall advertising for research participants. She says the prospect of relieving her pain was all the incentive she needed to enroll.

She's one of the two study participants who have diabetes; Gavron wore the implant for three months though it was activated only in the lab.

In a phone interview, she describes how her phantom limb pain is nearly constant and debilitating.

"It's just awful," she says. "I have pain in my toes right now—they're screaming. I'm moving my toes right now, and there aren't even any toes there."

Phantom limb pain is the perception that pain is coming from an amputated limb—in Gavron's case, her missing foot. Some amputees have pain at the site of the amputation, though that's referred to as residual limb pain and often recedes as the amputation wound heals.

Scientists for years believed that irritation of the severed nerves causes phantom limb pain, though current research suggests that central nervous system factors also are involved.

Gavron says the first instance of having the spinal stimulator activated in the lab gave her immense hope: "The first time the pain hit, and it took that pain away, I just cried. It was like you really had something there to help."

The RNEL team had Gavron complete a number of tasks to check her balance while the implant was engaged, such as walking along a wooden beam that got progressively narrower. She says there was benefit to her steadiness that came from having sensation restored in her toes through the technology but proudly notes that she's more agile than you might expect, even though she deals with persistent pain. "There are many people who don't even know that I lost my leg because I walk so good," she says.

The potential for spinal implants to help folks with phantom limb pain gives Gavron hope. She has her fingers crossed it won't be long before the treatment is approved for clinical use, knowing how much it relieved her discomfort.

Gavron still wrestles with why she can't make the pain go away on her own. "I just can't understand why you can't turn it off in your mind, you know?" she says.

"But having something that triggers once the pain starts and makes that pain go away is a wonderful thing," she adds.

"Because once it starts, you know you're done until it ends." ■



University of Pittsburgh
School of Medicine | Class of 2024 Oath

As the entering class of 2020, we start our medical journey amidst the COVID-19 pandemic and a national civil rights movement reinvigorated by the killings of Breonna Taylor, George Floyd and Ahmaud Arbery. We honor the 700,000+ lives lost to COVID-19, despite the sacrifices of health care workers.

We recognize the fundamental failings of our health care and political systems in serving vulnerable communities. This oath is the first step in our enduring commitment to repairing the injustices against those historically ignored and abused in medicine: Black patients, Indigenous patients, Patients of Color and all marginalized populations who have received substandard care as a result of their identity and limited resources.

Acknowledging the privilege and responsibility that come with being a physician, I take this oath as a call to action to fulfill my duty to patients, to the medical profession and to society.

Thereby, I pledge as a physician and lifelong student of medicine:

I will support and collaborate with my colleagues across disciplines and professions, while respecting the patient's vital role on the health care team.

I will honor my physical, mental and emotional health so as to not lessen the quality of care I provide.

I will carry on the legacy of my predecessors by mentoring the next generation of diverse physicians.

I will recognize the pivotal role of ethical research in the advancement of medicine and commit myself to endless scholarship with the ultimate goal of improving patient care.

I will care for my patients' holistic well-being, not solely their pathology. With empathy, compassion and humility, I will prioritize understanding each patient's narrative, background and experiences while protecting privacy and autonomy.

I will champion diversity in both medicine and society, and promote an inclusive environment by respecting the perspectives of others and relentlessly seeking to identify and eliminate my personal biases.

I will be an ally to those of low socioeconomic status, the BIPOC community, the LGBTQIA+ community, womxn/women, differently-abled individuals and other underserved groups in order to dismantle the systemic racism and prejudice that medical professionals and society have perpetuated.

I will educate myself on social determinants of health in order to use my voice as a physician to advocate for a more equitable health care system from the local to the global level.

I will restore trust between the health care community and the population in which I serve by holding myself and others accountable, and by combating misinformation in order to improve health literacy.

In making this oath, I embrace the ever-changing responsibilities of being a physician and pledge to uphold the integrity of the profession in the clinic and beyond.

MORE THAN WORDS

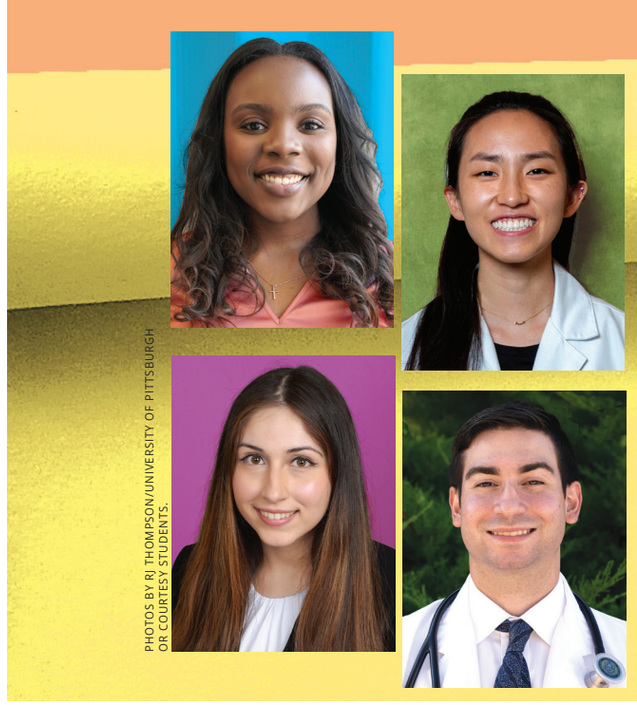
STUDENTS WROTE THEIR OWN OATH OF PROFESSIONALISM FOUR YEARS AGO. NOW, THEY'RE LIVING IT. | BY ANDREW DOERFLER

The School of Medicine's Class of '24 wasted no time rising to challenges. In the summer of 2020, before their classes began, all 149 were charged by their deans to work together (virtually) to write a class oath. "It was an exercise in discourse, recognizing that people have different backgrounds and different values, and coming to common ground," says Keerthana Samanthapudi, one of 12 representatives on the oath writing committee.

The result built on the standard set by the 2,400-year-old Hippocratic Oath, committing the class to an even wider-ranging set of responsibilities that physicians have to their patients and communities. "I will care for my patients' holistic well-being, not solely their pathology," one section of the Class of '24's Oath of Professionalism reads. "With empathy, compassion and humility, I will prioritize understanding each patient's narrative, background and experiences while protecting privacy and autonomy."

Their Oath of Professionalism also explicitly acknowledges how the events of that year—the first months of the COVID-19 pandemic, the killing of Black Americans that prompted widespread protest and advocacy—called attention to the health care system's shortcomings in serving vulnerable communities.

SCROLL: GETTY IMAGES



PHOTOS BY RJ THOMPSON/UNIVERSITY OF PITTSBURGH OR COURTESY STUDENTS.

"I think the beauty of the oath is that it addressed what was happening in that moment," says committee member Nerone Douglas, "but we left it open [to the fact] that the world will continue to change—and we are open to whatever that change may be."

Distilling all of that into a 438-word document was no small feat. Four years later, though, the students have found the true undertaking has been consistently upholding its ideals—a challenge that will continue as they graduate and step into residency.

"Saying that you're going to center the patient is one thing," says Samanthapudi. "But then realizing, OK, what happens when maybe the patient's wishes and priorities are at odds with what you are trying to push?" It's a question that she has repeatedly had to grapple with through her training as she aspires to meet the standard the oath set.

Subsequent classes have followed the Class of '24's precedent and written their own oaths.

"The oath writing process is a transformative experience that requires the students reflect on and critically analyze the covenant they have made in service to humanity, and what it really means to be a physician," says Chenits Pettigrew Jr., an EdD and associate dean for diversity, equity and inclusion. The med school, he adds, supports the students' aspirations to become empathetic, inclusive physicians through the leadership and professional identity development thread integrated into their curriculum.

For Tito Onyekweli, another committee member, "the oath is just a document." Living it takes hard work and sacrifice, he says. "I hope that the oath, for all of us, can serve as a reminder of the promise that we made, and the commitment we have to the people of Pittsburgh and the world at large."

JEYANI NARAYAN

The values in the oath square well with the school's ambition to prepare the next generation of Healers, Activists, Innovators and Leaders (that's the med school's adaptation of the "Hail" in "Hail to Pitt"). For Jeyani Narayan, activism and advocacy have been central to the med school experience.

For three years, she has led the student-run School of Medicine Human Rights Clinic. It provides medical evaluations for asylum seekers in support of their applications as they escape human rights abuses and other harms that have displaced them from their home countries.

One patient, with her three kids, had fled an abusive relationship in her home country; she was suffering from PTSD, depression and anxiety. "And you can see that on her face as we were asking her to detail these experiences so that we could document them," Narayan recalls. "But even through that struggle, you can see how brave she had been to finally leave that environment and come here."

Narayan has also served as the co-coordinator of Students for One Health at Pitt, which raises awareness about medicine's connection to environmental health. The organization embodies the oath's guidance to "support and collaborate with my colleagues across disciplines and professions" in projects like a partnership with engineering students to calculate the carbon footprint of clinical settings. "A lot of these efforts are certainly multidisciplinary and require all hands on deck to move forward," she says.

For Narayan, who hopes to pursue hospitalist medicine in combination with primary care, the oath helped set the tone for her approach.

"There's something to be said for tradition, but I think there's value in the exercise of evaluating what you want to see in the medical field before you enter it," she says. "For students, it's worthwhile to be thinking about the physician you want to become—making that commitment and practicing that from the beginning."

TITO ONYEKWELI

Writing the oath, says Tito Onyekweli, meant not standing around as a bystander to the disparities in health care—which, in his training, he often saw in stark relief. During his internal medicine clerkship, he worked with a patient with sickle cell disease who was also incarcerated. "So you can imagine, it's hard to have optimal health outcomes if you have those two issues that are concurrent," he says.

During a pain crisis the patient suffered, Onyekweli overheard prison guards making snide comments. "I thought, 'I wonder how much the guards know about sickle cell disease.'" He put together a short presentation that he shared with them, not expecting much change. But later, one of the guards expressed gratitude for the information. The experience was personally important for Onyekweli: He is named after an uncle who died of sickle cell.

The chance to help marginalized communities is something that drew him to his chosen specialty of dermatology. He points out that from the 1950s to 1970s, a common acne medication was tested on inmates who were primarily Black. Such testing would now be widely acknowledged as coercive and unethical. In general, Onyekweli says, the dermatology field has historically neglected the needs of marginalized groups, notably of people of color. He's been inspired by the work of Alaina James, an MD, PhD and former assistant professor of dermatology at Pitt, to reach underserved communities and train the next generation.

For the Class of '24, Onyekweli says, having worked together on the oath was a sometimes difficult but joyful process. And it gave his class grounding during necessary conversations around privilege and race. "It got heated at times. And I'm thankful that we had the oath to draw on and say, 'This is what our core values are,'" he says. "Racial reckoning is not an easy process. And the only way to make true progress and create true equity is through hard work and through sacrifice."

NIA BUCKNER

Nia Buckner was struck by the diversity of viewpoints her classmates brought to writing the oath.

"I think that was one of the most beautiful



The Class of '24 oath writing committee. FIRST ROW (FROM LEFT): **Nia Buckner, Nathalie Chen, Nerone Douglas, Sean McClaine, Jeyani Narayan, Tito Onyekweli.** SECOND ROW (FROM LEFT): **Tanya Qureshi, Michael Raver, Abigail Rubio, Keerthana Samanthapudi, Sean Sweat, Ashley Whited.**

aspects of the process—just seeing how different we were, but how we were able to have the same values and put those to words."

Especially important to her was the oath's pledge "to use my voice as a physician to advocate for a more equitable health care system from the local to the global level."

As she does that, she wants to remain mindful of the individual perspective each person has. Buckner notes that the system often treats people in minority groups as a monolith. Her own family members—Black Americans, mostly living in the South—have had their voices minimized when they sought care.

A social medicine fellow and a Pittsburgh Schweitzer fellow, she has partnered with community leaders in Homewood, Wilkinsburg and the greater Pittsburgh area to improve health outcomes through education and outreach. Acknowledging cultural differences, even across Pittsburgh neighborhoods, and supporting access to health care services can make a difference, she says.

Buckner is nearing the end of a year as a research fellow, after which she plans to do away rotations as the next step in her journey to become a plastic surgeon. She's passionate about supporting women of color with breast cancer—"making sure that they are seen, know what their options are and know that they have the support of surgeons who can help them throughout this journey."

NERONE DOUGLAS

Nerone Douglas, who's also a social medicine fellow, participates in the Street Medicine at Pitt student group and makes house calls as part of Homewood Home Visits. Sometimes, these experiences bring about serendipitous connections.

On a recent home visit, he met a woman with lymphedema—the very condition he has been researching in med school. "Her PCP takes care of it, but she herself just doesn't know much about it," Douglas says. So he took the time to break down what he has learned about the condition, and the work his mentor is doing. The patient had never before sought out a specialist to treat it, but she's now working with Douglas to set up an appointment.

By meeting people where they are, Douglas is following the oath's pledge to restore trust between the health care community and the population it serves. The importance of trust was also clear when he spent two weeks in Honduras as part of his family medicine rotation—read more about his experience on page 37.

When he pursues a residency in plastic and reconstructive surgery, he aims to treat underserved communities, combating the perception of the field as one meant solely for cosmetic procedures for well-to-do patients.

"It addresses common issues that happen to the common person, whether it be hand injuries, face injuries or reconstruction due to cancer," he says.

Douglas, who was born in St. Lucia and grew up in New York, often saw people in his community unable to advocate for their needs. "What I really want to do is be that voice for patients."

KEERTHANA SAMANTHAPUDI

Keerthana Samanthapudi took the oath's call to "prioritize understanding each patient's narrative" literally. Working at the Pittsburgh VA Medical Center, she interviewed a patient with dementia as part of a program run by Gaetan Sgro (Res '13), an MD clinical assistant professor of medicine and academic hospitalist at the VA, who is also a poet. Samanthapudi wrote a story about the patient that encompassed his time in service, his work as an entrepreneur and when he met his wife.

"What's really special is you get to type this as a document and give it to their family so they can keep that forever," she says. "You also add that document to the medical record in the VA, so any future physicians or providers on that medical team can actually click on it and learn this person's story."

Internal medicine in part appeals to her because of the opportunity to form long-term relationships with patients. That personal attention is something she has valued in many of her mentors—and she notices when others don't get to know her. She points to a time when someone she was working under didn't take time to learn her name. "It's a small thing, but I think that plays into professionalism and respecting colleagues," she says. "And I think to some level that translates to what you are willing to learn about your patients."

Entering med school in 2020, Samanthapudi says, uniquely positioned her class to have a voice in addressing the health care system's shortcomings. "I don't know if every medical school class before us had that same reckoning, that same push, to look at how people in medicine perpetuate systemic racism or how we perpetuate mistrust in our system," she says. "At the same time, I think it was a great way to recognize the strengths of our system too, with vaccine development at the forefront."

Looking back, she sees a piece of the conversation around the oath that was missing: What do you do when those values are not being upheld? "Because if these values are not actionable, they're not useful, right?" Language for students and trainees, especially, about having the courage to speak up or to ask for help in a challenging situation could go a long way.

The push toward a more patient-centric care system remains a work in progress. "Part of the beauty is that classes after us [will] have the same experience of reevaluating our values," Samanthapudi says. "I think that keeps us on our toes and keeps our mission relevant." ■

—Elvira Hoff contributed reporting.

MATCH RESULTS 2024

ANESTHESIOLOGY

Bartel, William
UPMC/University of Pittsburgh, Pa.

Burlew, Alex
UPMC/University of Pittsburgh, Pa.

Crowley, Samuel
Stony Brook Teaching Hospitals/ Stony Brook University, N.Y.

Desai, Nikita
University of Washington Medical Center

Heymann, Allison
UPMC/University of Pittsburgh, Pa.

Hyre, Nathan
UPMC/University of Pittsburgh, Pa.

Jaishankar, Sruthi
Ronald Reagan UCLA Medical Center/University of California, Los Angeles

Montelibano, Antoinette
Oregon Health and Science University

Moses, Mark
UPMC/University of Pittsburgh, Pa.

Stout, Madeleine
Tufts Medical Center/Tufts University, Mass.

Tieu, Roger
Yale New Haven Hospital/Yale University, Conn.

Yates, Megan
Johns Hopkins Hospital/Johns Hopkins University, Md.

CHILD NEUROLOGY

Granovetter, Michael
NYU Langone Health/New York University

Richter, Brandon
UPMC Children's Hospital of Pittsburgh/ University of Pittsburgh, Pa.

Sriram, Ksheeraja
Children's National Hospital/Washington, D.C.

DERMATOLOGY

Onyekweli, Tito
Mayo Clinic School of Graduate Medical Education, Minn.

Vignali, Paolo
McGaw Medical Center of Northwestern University, Ill.

EMERGENCY MEDICINE

Fisch, Matthew
UPMC/University of Pittsburgh, Pa.

Foster, Kathryn
Hospital of the University of Pennsylvania

Gautier, William
UPMC/University of Pittsburgh, Pa.

Rutledge, Karrin
Kaweah Health Medical Center, Calif.

Wecht, Sophie
Cook County Health/University of Illinois Chicago

FAMILY MEDICINE

Butler, Alison
Harbor-UCLA Medical Center/University of California, Los Angeles

Guevara, Astrid
University Hospital/University of Texas Health Science Center at San Antonio

Indralingam, Renusha
Kent Hospital/Brown University, R.I.

Metz, Cameron
Providence Hospital/University of Anchorage, Alaska

INTERNAL MEDICINE

Aepfelbacher, Julia
Ronald Reagan UCLA Medical Center/ University of California Los Angeles

Ali, Mustafa
Henry Ford Hospital/Michigan State University

Boorgu, Devi Sai Sri Kavya
NewYork-Presbyterian/Weill Cornell Medical Center/ Cornell University

Brown, Wesley
UPMC/University of Pittsburgh, Pa.

Burr, Ansen
UCSF Health/University of California, San Francisco

Carrozzi, Sabrina
UPMC/University of Pittsburgh, Pa.

Chen, Grace
Beth Israel Deaconess Medical Center/ Harvard University, Mass.

Crum, Raphael
Vanderbilt University Medical Center (Research Pathway), Tenn.

Feld, Emanuel
UPMC/University of Pittsburgh, Pa.

Garvey, Joseph
Loyola University Medical Center, Ill.

Gohel, Paulomi
UPMC/University of Pittsburgh, Pa.

Gourlias, Panagiotis
UPMC/University of Pittsburgh, Pa.

Hallihan, Cameron
NYU Langone Health/New York University

Knight, Julia
University of Wisconsin Hospitals/ University of Wisconsin

Layden, Alexander
Beth Israel Deaconess Medical Center (Research Pathway)/Harvard University, Mass.

Modi, Udit
NYU Langone Health/New York University

Narayan, Jeyani
NYU Langone Health/New York University

Nolen, Rosalie
UPMC/University of Pittsburgh, Pa.

Samanthapudi, Keerthana
UPMC/University of Pittsburgh, Pa.

Sehra, Rishabh
Duke University Medical Center, N.C.

Sriram, Annapurni
Stanford Medicine/Stanford University, Calif.

Thomas, Shavin
Johns Hopkins Bayview Medical Center/ Johns Hopkins University, Md.

MEDICINE – PEDIATRICS

Lentscher, Anthony
UPMC Children's Hospital of Pittsburgh/ University of Pittsburgh, Pa.

MEDICINE – PRELIMINARY

Barnagian, Derrick
McGaw Medical Center of Northwestern University, Ill.

Connell, Marc
Jefferson Einstein Philadelphia Hospital/ Thomas Jefferson University, Pa.

Driban, Matthew
University Hospital/University of Michigan

Gupta, Kanupriya
University Hospital/University of Virginia

Kovats, Tessa
University of Maryland Medical Center

Kukowski, Melissa
UPMC/University of Pittsburgh, Pa.

Rosario, Brian
Buffalo General Medical Center/ University at Buffalo, N.Y.

Vignali, Paolo
UPMC/University of Pittsburgh, Pa.

Yates, Megan
MedStar Union Memorial Hospital/ Georgetown University, Md.

NEURODEVELOPMENTAL DISABILITIES

Aburachis, Alyssa
UPMC/University of Pittsburgh, Pa.

NEUROLOGICAL SURGERY

Bindal, Shray
Baylor Scott & White Medical Center—Temple, Texas

Remick, Madison
UPMC/University of Pittsburgh, Pa.

Sharma, Nikhil
UPMC/University of Pittsburgh, Pa.

NEUROLOGY

Barnagian, Derrick
McGaw Medical Center of Northwestern University, Ill.

Hsu, Joey
Beth Israel Deaconess Medical Center/ Harvard University, Mass.

Mendoza-Cervantes, Diana
UPMC/University of Pittsburgh, Pa.

OBSTETRICS AND GYNECOLOGY

Hart, Renee
Brigham and Women's Hospital/ Harvard University, Mass.

Jano, Antalya
NYU Langone Health/New York University

Little, Caitlin
Geisinger Medical Center/Geisinger Commonwealth School of Medicine, Pa.

Liu, Alicia
UPMC Magee-Womens/University of Pittsburgh, Pa.

Mak, Allison
Women & Infants Hospital of Rhode Island/ Brown University

Noel, Grace
University Hospitals Cleveland Medical Center/ Case Western Reserve University, Ohio

Oken, Molly
Lankenau Medical Center, Pa.

Patel, Nikita
Temple University Hospital, Pa.

Sasaki, Alexandria
Community Regional Medical Center/ University of California, San Francisco—Fresno

Tollefson, Savannah
UPMC Magee-Womens/University of Pittsburgh, Pa.

JOSHUA FRANZOS







Pitt Med's Class of 2024 gathered at Petersen Events Center on March 15 for Match Day, with excellent results—UPMC, Harvard and NYU hospitals are among their most popular destinations. The largest number of grads, 22, will go into internal medicine, followed by 12 in anesthesiology and 10 in obstetrics and gynecology.

OPHTHALMOLOGY

Brown, Richard
UPMC/University of Pittsburgh, Pa.
Chang, Jordan
UPMC/University of Pittsburgh, Pa.
Driban, Matthew
Kellogg Eye Center/University of Michigan
Nawash, Baraa
Cleveland Clinic Cole Eye Institute/
Case Western Reserve University, Ohio
Rosario, Brian
Buffalo General Medical Center/
University at Buffalo, N.Y.
Selvam, Amrish
Illinois Eye and Ear Infirmary/
University of Illinois Chicago
Stone, Andre
Illinois Eye and Ear Infirmary/
University of Illinois Chicago

ORTHOPAEDIC SURGERY

Aloi, Nicholas
UPMC Hamot/University of Pittsburgh, Pa.
Ashok, Samantha
Temple University Hospital, Pa.
Carlos, Noel Bien
Shands Hospital/University of Florida
Kane, Gillian
UPMC/University of Pittsburgh, Pa.
Njoku Austin, Confidence
University of Minnesota Medical Center
Plakseychuk, Elizabeth
UPMC (Research Pathway)/
University of Pittsburgh, Pa.
Reddy, Rajiv
Hospital for Special Surgery/
Weill Cornell Medical Center, N.Y.
Ridolfi, Dominic
McGaw Medical Center of Northwestern University, Ill.
Setliff, Joshua
Virginia Commonwealth University Medical Center

OTOLARYNGOLOGY

Cai, Wesley
UPMC/University of Pittsburgh, Pa.
Hoppe, Meagan
Thomas Jefferson University Hospital, Pa.
Kurukulasuriya, Chareeni
NYU Langone Health/New York University
Owoc, Maryanna
UPMC/University of Pittsburgh, Pa.

PATHOLOGY

Kazi, Eman
Rhode Island Hospital/Brown University
Sciurba, Joshua
Massachusetts General Hospital/Harvard University

PEDIATRICS

Balaan, Emma
UPMC Children's Hospital of Pittsburgh/
University of Pittsburgh, Pa.
Cunningham, Catherine
Ann & Robert H. Lurie Children's Hospital of Chicago/
Northwestern University, Ill.
Firdous, Ayesha
UPMC Children's Hospital of Pittsburgh/
University of Pittsburgh, Pa.
Gabriel, George
Children's Hospital Colorado/University of Colorado
Galati, Vito
Nationwide Children's Hospital/
The Ohio State University
Hester, Alexis
UPMC Children's Hospital of Pittsburgh/
University of Pittsburgh, Pa.
Niederberger, Sara
UPMC Children's Hospital of Pittsburgh/
University of Pittsburgh, Pa.
Tompkins, Alexandra
University Medical Center/
Medical University of South Carolina

PEDIATRICS – ANESTHESIOLOGY

Gilbert, Ryan
Lucile Packard Children's Hospital/
Stanford University, Calif.

PLASTIC SURGERY (INTEGRATED)

Humar, Pooja
Hospital of the University of Pennsylvania

PSYCHIATRY

Dienel, Samuel
Yale New Haven Hospital (Research Pathway)/
Yale University, Conn.
Saloom, Samantha
The Ohio State University Wexner Medical Center
Talbot, Sandra (Alex)
UPMC/University of Pittsburgh, Pa.

RADIOLOGY – DIAGNOSTIC

Connell, Marc
Thomas Jefferson University Hospital, Pa.
Gupta, Kanupriya
University Hospital/University of Virginia
Razskazovskiy, Vladislav
UPMC/University of Pittsburgh, Pa.
Zheng, Aaron
Los Angeles General Medical Center/
University of Southern California

SURGERY – GENERAL

Crentsil, Victor
UPMC/University of Pittsburgh, Pa.
Dembinski, Robert
Rhode Island Hospital/Brown University
Gruen, Danielle
UPMC/University of Pittsburgh, Pa.
Guerrero, David
Hackensack University Medical Center, N.J.
Kann, Rachel
UPMC/University of Pittsburgh, Pa.
Meshkin, Dana
University of California, Irvine Medical Center
Muchnok, Daniel
Thomas Jefferson University Hospital, Pa.
Ortiz, Kimberly
Temple University Hospital, Pa.
Ridgley, Jacqueline
UPMC/University of Pittsburgh, Pa.

SURGERY – ORAL AND MAXILLOFACIAL

Moghaddam, Maryam
UPMC/University of Pittsburgh, Pa.
Ekehchiadi, Victor
UPMC/University of Pittsburgh, Pa.

SURGERY – PRELIMINARY

Buldo-Licciardi, Michael
University Hospital/Rutgers University, N.J.
Finger, Logan
Morristown Medical Center/
Thomas Jefferson University, N.J.
Moorhead, Jeffrey
Allegheny General Hospital/Drexel University, Pa.

TRANSITIONAL YEAR

Brown, Richard
UPMC/University of Pittsburgh, Pa.
Chang, Jordan
UPMC/University of Pittsburgh, Pa.
DeStefino, Vincent
UPMC Altoona/University of Pittsburgh, Pa.
Onyekweli, Tito
University Hospitals Community Consortium, Ohio
Razskazovskiy, Vladislav
UPMC/University of Pittsburgh, Pa.
Zheng, Aaron
Lehigh Valley Hospital, Pa./University of South Florida

TRIPLE BOARD (PEDS/PSYCH/CHILD PSYCH)

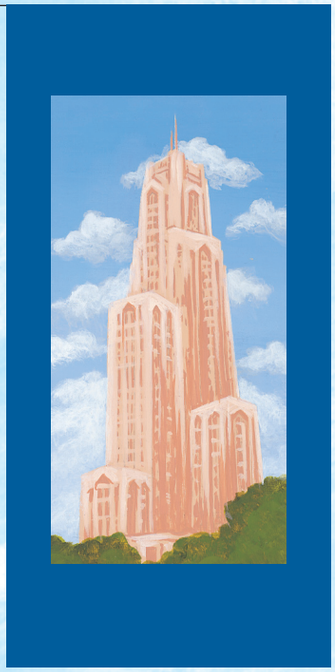
Coren, Morgan
University of Texas Southwestern Medical Center
McClaine, Sean
UPMC/University of Pittsburgh, Pa.

UROLOGY

Zhu, Toby
University of California, Irvine Medical Center

VASCULAR SURGERY

Myers, Sarah
UPMC/University of Pittsburgh, Pa.
Vodovotz, Lena
Massachusetts General Hospital/Harvard University



SPOTLIGHTS

IS "DON'T STRESS!" BAD ADVICE?

Deborah Gilboa walked into her family practice exam room to greet a patient who was nearing the end of her life, forced to use a wheelchair, feeling ill and had little reason to smile.

It seemed.

"She's in a wheelchair. She's dying," recounts Gilboa, "but she's smiling and going on and on about her grandbaby" with hardly a complaint.

Gilboa (MD '00) saw another patient later that day dealing with sciatic pain. "Same demographic as the first patient," she says. "College educated, middle class. But with this patient, everything was awful.

"And so, I started to think about why some of the patients I treat who are recovering from a serious illness or injury are thriving while others are recovering in terms of numbers only and not in their own experience or perception."

Her thoughts tilted first toward her children: "I thought, 'How do I get my kids to grow up behind door number one?'" And the question led her into a focus on resilience in youth.

Gilboa, better known as Dr. G, started writing books about parenting and resilience in children, delivering her message in front of large groups and appearing on TV.

She's now a national media personality who has made more than 100 broadcast appearances, including on "Good Morning America," Fox News and "Pittsburgh Today Live," to name just a few. She's also written extensively; her articles appear in publications across the country.





"Dr. G," a family medicine doc, author and TV personality, is sought out for her expertise on resilience.

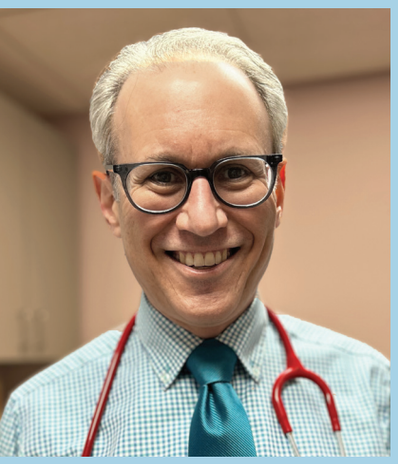
COURTESY D. GILBOA

Gilboa doesn't isolate her message to parenting, however. Resilience, she says, can be taught and—whether it's to you, your children or your employees—putting it into practice sets you, or them, up for success.

As she's dug more deeply into resilience over the years, she's concluded that stress can't be all bad: "There can be something very protective about it." Look at her website (askdoctorg.com), and you'll see her thoughts on using stress to your benefit.

"Bringing some of these day-to-day issues to the forefront on a national platform is great," says Karen Moyer (MD '01, Res '04), director of family medicine obstetrics at UPMC St. Margaret, as well as director of that program's fellowship.

"Dr. Gilboa is helping people realize there's a lot they can do to help themselves and their families improve their mental health." *—Michael Aubele*



PROTECTING PEDS PRACTICES

On the 25th anniversary of his Pitt Med graduation, pediatrician **Aaron Bornstein** (MD '99), shown left, has added policy advocate to his ever-growing job description.

"Something has to change," he says. "Or we're not going to make it."

Bornstein works for Middleboro Pediatrics—a small private practice in southern Massachusetts that was founded 47 years ago by his father and employs three nurse practitioners and four physicians, including himself. The practice treats about 4,600 children and serves as medical consultant to seven local school districts. With a patient census this large, says Bornstein, "my workday starts the weekend before; it's a rare day that I don't touch work."

In Massachusetts, as in many other states, children are disproportionately represented under Medicaid, making their treatment more costly—sometimes unsustainably so—for practices like Bornstein's.

"We face a reimbursement rate for a large number of patients that's well below the cost of delivering their care," Bornstein says. Small private practices located outside of large urban centers get hit especially hard. (Large medical centers are often able to offset losses facing primary and pediatrics care with more specialized care that's reimbursed at higher rates.)

As a result, many peds practices are struggling to remain open in Massachusetts, and those closures are making it harder for patients to access care. In the area around Middleboro Pediatrics, the number of pediatric primary care practices has decreased nearly 10% in the last decade.

To save his practice and ensure continued affordable care for his patients, Bornstein picked up the phone and started calling local representatives. These calls expanded to lobbyists, professional organizations, friends and The Boston Globe, which led to a profile that caught political attention and helped to create change: An increase in Medicaid payments ranging from 25%-35% for eligible primary care practices took effect this year, with particular consideration for pediatric practices and independent private practices.

"I was surprised that people called me back," Bornstein says. "But I was told repeatedly that what [pediatricians] say is important, and that more people need to hear it."

—Rachel Mennies

STEP UP: PITT MED TRIVIA



GETTY IMAGES/CAMPWILLOWLAKE

Can you answer these without going online?

(We encourage you to call doctors-in-the-know for consults.)

1. Danny Chu, an MD Pitt professor of cardiothoracic surgery, has been named president-elect of the Society of University Surgeons. How many current or former Pitt Med faculty have served as president of the society since its founding in 1938? Bonus if you can name them.

2. Dubbed the "King of Peptides" by Pitt Med Magazine 10 years after his death, Klaus Hofmann, chair of biochemistry from 1952-64, was one of the world's experts on the molecular structure of what?

3. When did the School of Medicine's current building first open? Hint: It was named after Alan Magee Scaife five years later.

4. Can you guess the title of the 2024 production of Scope and Scalpel from this list of nominees?

a) "Stent" ("Rent")
b) "School of Doc"
c) "Into the Wards"
d) "Book of Hormone"
e) "Jab-aret"
f) "Medically Blonde"
g) "Indiana Crohn's and the Temple of Zoom"

Done? Now, check our inside back cover to find out if you aced this one. And if you have an idea for a Pitt Med-related trivia question, send it our way; we're all ears: medmag@pitt.edu.

BREAKING INTO MEDICINE

Tinsley Grimes (MD '22) says she's still recognized as Nina Walsh from "Smart Guy," despite the Disney Channel sitcom ending in 1999.

"It's funny how your childhood shows," she says and pauses, "they stick with you."

Currently completing a psychiatry residency at University Hospitals (UH) Cleveland Medical Center with Case Western Reserve University, Grimes hasn't always known she would go into medicine. But acting wasn't always the plan, either.

Growing up in rural Alabama with dreams of being a writer, Grimes ended up immersing herself in acting only after she recognized her thespian knack during boarding school. With her drama coach's encouragement and the confidence in seizing the world that she says being 17 afforded, Grimes left school, earned a GED and moved to Los Angeles.

She built an acting career with recurring roles and guest star spots on comedies like "Everybody Loves Raymond" in addition to playing Katie Howard on "That '80s Show." She formed lasting memories working alongside Goldie Hawn and Geoffrey Rush in "The Banger Sisters" and sneaking around studio lots with her mother, but she knew further education was calling. At 25, she returned to school full time, earning undergraduate and graduate degrees.

While interning at Vanderbilt University Medical Center for an ethics consult service during her studies at Vanderbilt's Peabody College, Grimes was drawn to the palliative care cases. "Every time I went on an ethics consult, I wanted to stick around and implement the plan," she says. The experience sparked a passion that drove her to Pitt Med.



Grimes went from Hollywood to Vanderbilt to Pitt Med.

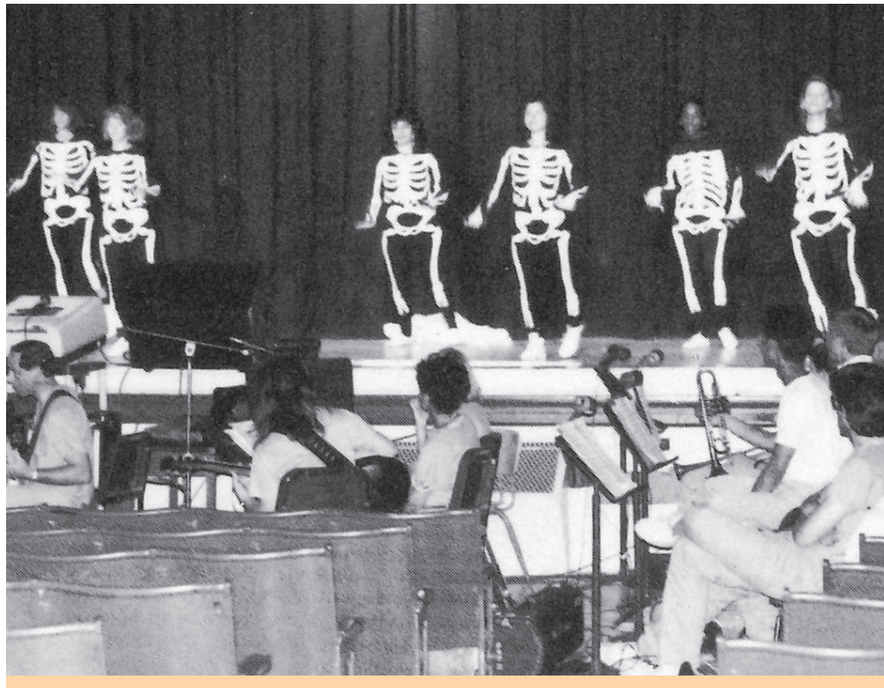
Her interest piqued again while pursuing a master's in bioethics at Pitt between her third and final years of medical school. (She expects to defend her thesis and earn that degree this summer.) Her Pitt advisor, Jack Rozel (Res '02, Fel '05), an MD professor of psychiatry and adjunct professor of law, is a forensic psychiatrist. Eager to acquire skills and experience like his, Grimes headed to UH Cleveland Medical Center because of its highly regarded forensics faculty and fellowship program.

Now in her second year of residency, which Grimes says many deem the most difficult, she's focused on taking her training in stride, pondering where her career might take her. *—Juliana Briggs*

Attention class!

If you have news about an exciting career advancement, honor, publication or gratifying volunteer work, let us know. And we love to hear your Pitt memories. Please share updates with our Alumni News editor, Michael Aubele, at mia97@pitt.edu.

Note: "Res" and "Fel" designations after names refer to training at sites within UPMC or the VA Pittsburgh Healthcare System, which are Pitt's clinical partners.



"I Love the Nightlife Baby"—dancing skeletons scene from the 1991 Scope and Scalpel. *(1991 Hippocratean)*

HEALING IN HONDURAS





Pitt Med students who travel to Honduras for a two-week clinical rotation come across a variety of health conditions, some severe, and treat patients of all ages. BELOW: Nerone Douglas helps a young girl with her oral health.



Nerone Douglas hikes 45 minutes up a small mountain to care for a man whose life-threatening infection has him bedridden.

This is in Honduras in late February 2023, one of the cooler months in the Central American country, but because it's 85 degrees and sunny, it makes for a tiring trek.

Douglas (MSc '19 and MD student) chronicles the experience in his journal, detailing that the man has a skin infection on his scrotum and that the infection is spreading. "It is really terrible," Douglas writes. "I got to do a whole surgical debridement on my own though and did my best to give him his best shot. But he will need more surgery because the wound will not heal well."

Douglas cares for the man, Don Portillo (not his real name), throughout the next two weeks while he does a rotation at a medical clinic run by Pittsburgh-based Shoulder to Shoulder. He then heads back to Pittsburgh to continue as a plastic surgery research fellow before beginning his final year at Pitt Med.

Christmas rolls around when Douglas finally gets word that Portillo's wound healed, thanks to his efforts and those of a doctor in Honduras who continued to care for Portillo. "It felt really sobering and humbling to be able to do a lot for him," Douglas says.

The **Medical Alumni Association (MAA)** contributed $500 toward travel costs for Douglas' trip. The association has similarly sponsored more than a dozen other Pitt Med students who've done rotations at the clinic over the past few years.

Douglas traveled with five other Pitt Med students who completed their clinical rotation through Pitt Med's Office of Medical Student Research and International Studies. Another group of students traveled at the end of February this year. *—MA*

SIX DEGREES OF SCOPE AND SCALPEL

BELOW: Andy Miller (MD '91), Alvin Newman (MD '64) and Tory Steen (MD '15) bond over shared connections with Scope and Scalpel. Newman worked with Miller's dad, Bebe Miller (MD '55), on the 1964 production, "Beyond the Syringe." (That was Bebe Miller's first year as Scope and Scalpel's faculty advisor. He was instrumental in creating the annual production, which had its first run in 1955. Steen holds that show's score below.) Steen was the musical director for her class's production of "Modern Family Medicine" and trained as an anesthesiology resident under Andy Miller at Brigham and Women's Hospital. This photo was taken in Boston in 2019 at Newman's daughter's home. Sadly, Newman died in November 2023.



MAA SAYS: YOU CAN HELP

There are all kinds of ways to get involved with your alma mater. Your support helps the Medical Alumni Association (MAA) continue programming that enriches the lives of both students and alumni. You can get involved through a contribution of time or money.

Help Our Students Thrive (HOST)
HOST connects alumni with students looking for guidance and support as they plan their next chapter. You can engage through virtual or in-person mentoring sessions, cover letter and resume reviews or provide travel accommodations for residency interviews.

Student networking events
MAA hosts quarterly, in-person events that connect alumni with students wanting a wider network.

MAA student resource fund
The fund supports travel (like the Honduras rotation, see above), the White Coat Ceremony, Senior Awards and Orientation luncheons and Match Day celebrations.

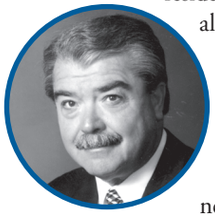
MAA scholarship fund
This directly supports the two $40,000 scholarships given annually to exceptional first-year students to ease the burden of cost-of-living expenses. They're awarded based on the students' financial circumstances, community service, leadership positions and passion for medicine.

Moved to do more? Get in touch with Maddie Sieber, alumni coordinator, at MAS1357@pitt.edu.

PETER E. SHEPTAK

AUG. 27, 1937 – JAN. 26, 2024

Peter Sheptak (MD ’63, Res ’68) was a paragon of neurosurgery at Pitt who performed thousands of operations at UPMC hospitals and mentored nearly 100 residents throughout his career of almost 40 years.



Sheptak

He excelled in an era when neurosurgeons typically did not specialize but dealt with all types of brain, spinal and peripheral nerve problems. He was also lauded for his expertise with early endovascular surgery, acoustic tumor treatment and spine disorders.

Sheptak retired as a clinical professor of neurological surgery in 2008, after serving as vice chair of that department. During his career, he was a team neurosurgeon for University of Pittsburgh football and the Pittsburgh Penguins and helped found a clinical practice.

Born in Butler, Pennsylvania, Sheptak completed his undergraduate studies and played football at the University of Notre Dame. He returned to Pittsburgh for medical school and residency, where he met his wife, Gracia (née Venetos) Sheptak.

He led an active personal life, enjoying painting, fast cars, golf and, according to those who knew him well, family most notably.

Sheptak left a lasting impression on L. Dade Lunsford (Res ’80), an MD Distinguished Professor and Lars Leksell Professor of Neurological Surgery, whom he mentored before the pair became decades-long colleagues and friends. He left that same impression on many of his other residents, often taking them out for dinner or golf.

“He was such an advocate for the residents. He used to have me call him ‘Papou,’ which is grandfather in Greek,” says Costas Hadjipanayis (PhD ’05, Res ’06), an MD, PhD and the L. Dade Lunsford MD Professor of Neurological Surgery. “And he was like a grandfather to us.”

Hadjipanayis recalls how residents used to travel to UPMC Shadyside to cover Sheptak’s cases, even though it was not an official rotation site.

Sheptak established an endowed chair in his name in Neurological Surgery in 2005, which is held by Peter Gerszten (MPH ’98, Res ’99, Fel ’00), a pioneer of minimally invasive spinal surgery. “As I teach the residents today, I can hear his voice in my head,” says Gerszten. “Dr. Sheptak set the gold standard for teaching. I am so honored to hold a chair in his name.”

—Sarah Lindley



REMEMBERING RON JAFFE

Moved by the influence of longtime Pitt Professor of Pathology and Pediatrics Ron Jaffe, Jennifer Picarsic (MD ’07, Res ’11, Fel ’12) [FRONT ROW, LEFT] and Laura Finn (Res ’94, Fel ’96) [SECOND ROW, THIRD FROM LEFT] coauthored the recent article “Founders of Pediatric Pathology: Dr. Ron Jaffe (1943-2022)—An Appreciation” in Pediatric and Developmental Pathology. The late Jaffe is shown above seated next to Picarsic, surrounded by trainees and colleagues at a gathering in 2017.

IN MEMORIAM

’40s

ROBERT B. CHALLINOR, MD ’48
MARCH 18, 2024

’50s

FRANK L. FONTANA, MD ’54
FEB. 23, 2024

JOHN P. HODGSON, MD ’56
JAN. 10, 2024

’60s

EDWARD J. BARVICK, MD ’68
JAN. 8, 2024

MYRON GESSNER, MD ’67
JAN. 20, 2024

’70s

RICHARD PLOTZ, MD ’77
MARCH 2, 2024

’80s

EDWARD SEAN KELLEY, MD ’88
NOV. 22, 2023

FACULTY

PETER SHEPTAK, MD ’63, RES ’68
JAN. 26, 2024

JAMES V. SNYDER, MD, RES ’72, FEL ’73
DEC. 31, 2023

Please send
In Memoriam notices
to mia97@pitt.edu.

A RARE PARLAY

GREEN TRANSLATES HIS MEDICAL EXPERIENCE AND INSIGHTS INTO POLITICAL LEADERSHIP.

MICHAEL AUBELE



COURTESY J. GREEN

Hawai'i Gov. Josh Green did his family medicine residency at UPMC Shadyside.

"So, my road was a little bit different than many people's in government," says Hawai'i Gov. Josh Green.

His starting point arguably began at Pitt Med in 1997 when Green, an MD (Res '00), landed at UPMC Shadyside as a doctor in training. He honed his skills as a physician here along with a personal and professional mindset that informs how he cares for people and governs in the Aloha State.

Green joined the National Health Service Corps immediately after completing residency and was assigned to Ka'ū, a large rural district on Hawai'i's Big Island. He served with the health corps throughout the next four years and walked away debt free in that relatively short time frame. (More to come on how that influenced his gubernatorial agenda.)

Political aspirations began for Green 20 years ago—about the time he wrapped up his service commitment. He wanted to improve care in areas like Ka'ū and decided he could be a change agent in state government. So, he ran for state representative and took office in 2004.

"I ran for office because as the National Health Service [Corps] doctor in Ka'ū, we didn't have access to any drug treatment or trauma services or mental health care, per se, so I was just worried about people. I ran to make a point that we needed those services in the rural areas," he says.

Green served in the state house until 2008 and then in the state senate until 2018, when he became lieutenant governor.

He created or supported several major health care initiatives during his time in the state legislature: Providing health insurance to every child in the state and establishing Luke's Law to help children with autism get appropriate care, creating the Cancer Research Center, raising the legal age for purchasing tobacco and e-cigarettes to 21, and establishing a statewide trauma health care system.

The state legislature holds sessions only four months out of the year, so Green was able to remain a full-time physician working in family medicine and even emergency care. He intended to keep that up as lieutenant governor, but COVID happened.

"The lieutenant governor job, which tends to be kind of a mellow, less impactful position than many, became lieutenant governor on steroids because COVID hit, and I ended up being responsible for our response," he says.

Green rode his track record and popularity into the governor's office in 2023, then found himself responding to another crisis when wind-driven wildfires erupted in the state in August, killing 101 people and causing widespread devastation, primarily on the island of Maui.

Amid the ongoing disaster response, Green also remains mindful of other needs of Hawai'i residents. He's pushed through legislation that relieves student loan debt for medical professionals who commit to practicing in Hawai'i—the Healthcare Education Loan Repayment Program (HELP). He says the benefit of having his medical debt wiped out through his health corps commitment 20 years ago played a prominent role in creating the program.

"We have an extreme shortage of health care providers in our state, mostly physicians and nurses," Green says. The National Health Service relieves some of that, yet the new legislation broadens the benefit for health care professionals such as social workers, psychologists and nurse practitioners, he adds.

N. Randall Kolb (MD '82, Res '85), a clinical associate professor of family medicine at Pitt, says what he hears about Green's ability to make a difference is not surprising.

"He was an enthusiastic resident who was interested in learning more than about just medicine," says Kolb, an attending at UPMC Shadyside during Green's residency and today. "For one, he expressed a real interest in underserved patient populations—in folks who had been marginalized."

Kolb remembers the nurses Green worked with at UPMC Shadyside described him as having a Patch Adams personality.

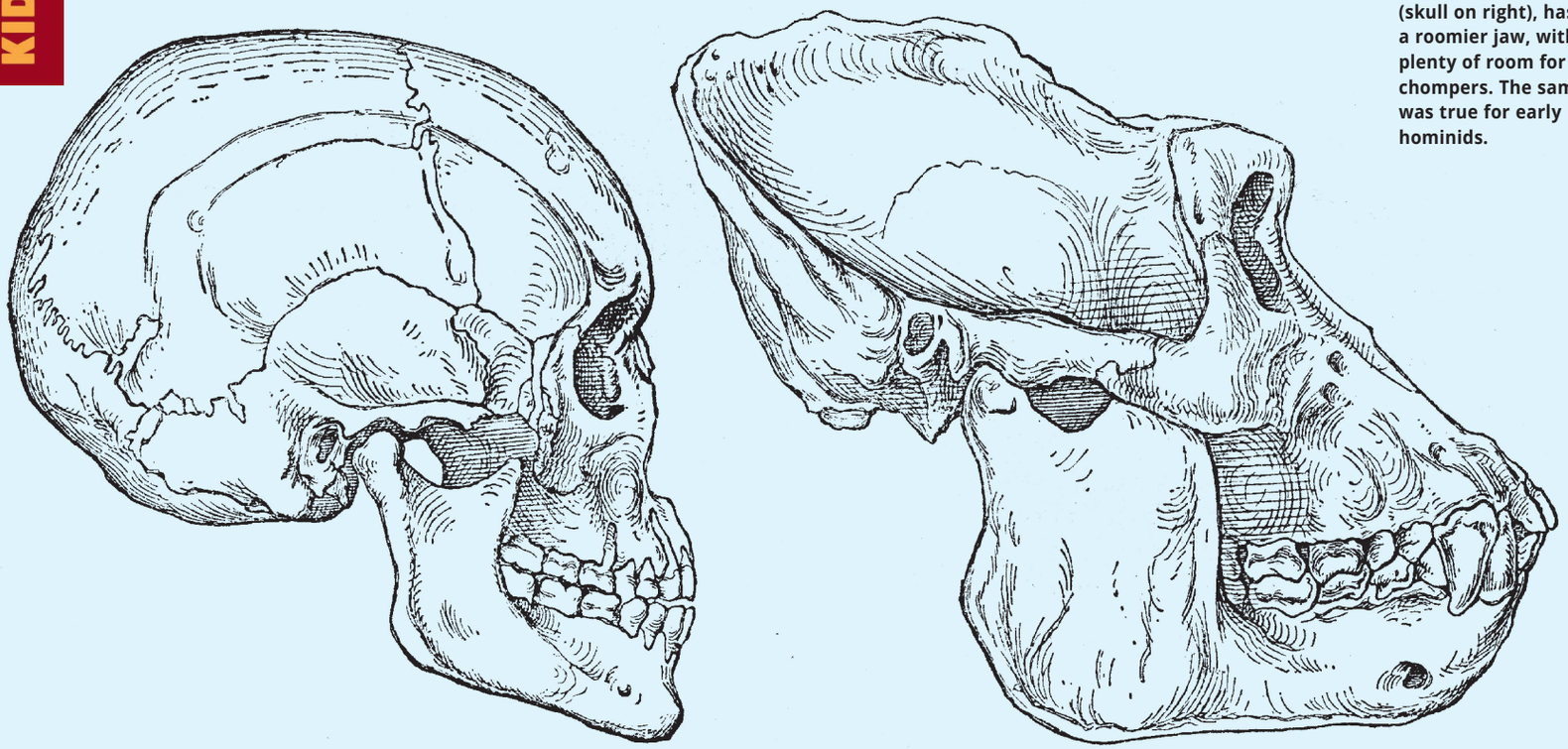
"I knew Josh, and I've been watching some of the things he's been doing," Kolb says.

"I know that while he was here, he would do things that clearly made people feel that he not only cared but was very competent."

Deciding to transition from physician to politician is rare, though Green says he's sought guidance from previous doctors who became governors, such as John Kitzhaber, an MD from Oregon, and Howard Dean, an MD from Vermont.

"I'm still deeply invested in what I learned as a resident, and I've been able to translate that directly," Green says.

"I go and assess things as a physician would, which really makes you sensitive to people's emotional state." ■



Why do our mouths try to squeeze in wisdom teeth? One of our closest living great ape cousins, the gorilla (skull on right), has a roomier jaw, with plenty of room for those chompers. The same was true for early hominids.

GETTY IMAGES: HUMAN AND GORILLA SKULL ENGRAVING 1894

FOR REAL! TWEEN SCIENCE



Older, wiser and—toothier? You may have heard of wisdom teeth, the permanent teeth that show up last: between ages 17 and 25, at the back of the mouth. You may have also heard that they're often surgically removed. In fact, some people don't even have them! It seems like these teeth don't get much use. So why do they exist?

The answer starts a few million years ago, with a toothy tale of evolution.

While we get to enjoy soft foods like pasta and burritos, our early human ancestors weren't as lucky. They relied on things like raw meat and plants for nourishment. These tough-to-chew foods required big, strong jaws and teeth.

As humans' diets changed over time, so did their dental demands. Millions of years later, we have food preparation and preservation methods that let us have softer, easier-to-chew treats. Scientists think this shift from tough to soft foods allowed for a very gradual evolution that gave us smaller jaws and flatter faces. Wisdom teeth are lingering evidence of this evolution. So, though they were once very important, it seems they are a lot less so now.

Because our jaws have evolved to be smaller, wisdom teeth can't always squeeze in neatly with our other pearly whites. Sometimes they only partially emerge from the gums. In some cases, this can cause pain, tooth decay or gum inflammation, and it may be necessary to have them removed by a dentist. If they come in healthily and fit in correctly, however, they usually don't need to be removed.

With X-rays and examinations, dentists can keep track of our wisdom teeth and figure out if they should pull them out or keep them in. Despite what the name suggests, we're just as wise either way!

Adapted by Juliana Briggs from an article by Ariadne Letra, a DDS, PhD, and Seth Weinberg, a PhD, that first appeared in The Conversation. Letra is a Pitt professor of dental medicine, and Weinberg is a professor of oral and craniofacial sciences and human genetics.

CALENDAR

"MEDICALLY BLONDE"
SCOPE AND SCALPEL
MAY 17-18
Charity Randall Theatre

DIPLOMA DAY
MAY 19
Soldiers and Sailors
Memorial Hall and Museum

WHITE COAT CEREMONY
JULY 28
Carnegie Music Hall

NEW PHD STUDENT CEREMONY
SEPTEMBER 5
Alumni Hall

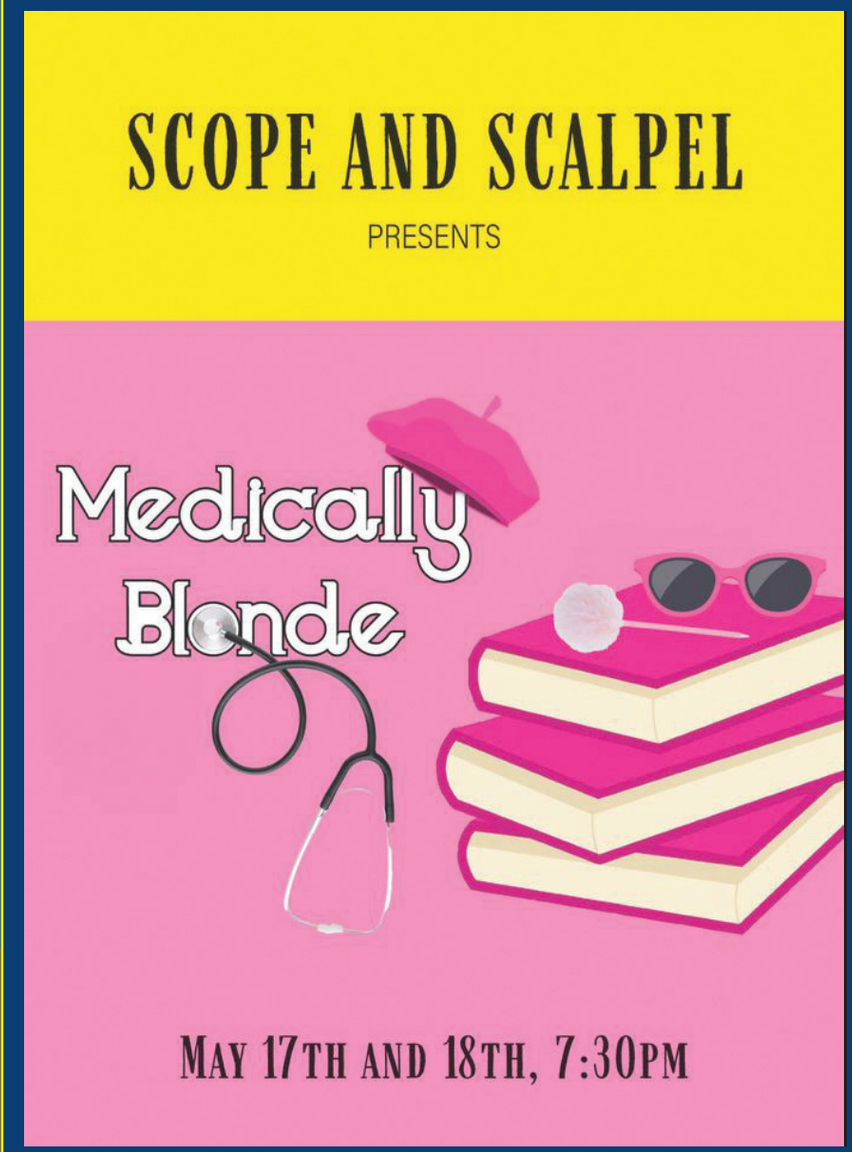
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To find out what else is happening at the medical school, visit health.pitt.edu and maa.pitt.edu.



Pitt Med Trivia *(from page 35)*

Answers:
1. Seven: Henry T. Bahnson (1965), Richard L. Simmons (1977), Timothy R. Billiar (2000), George K. Gittes (2005), David A. Geller (2009), David J. Hackam (2014), Allan Tsung (2018)
2. Hormones
3. 1955
4. "Medically Blonde"



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See it. Be it.

The Vrabec scholarships at the medical and pharmacy schools help students from the region—including (from left) Tritan Plute and Joseph Belfiore—accomplish their dreams.



PHOTOGRAPHY: PLUTE BY RJ THOMPSON/UNIVERSITY OF PITTSBURGH. BELFIORE: COURTESY BELFIORE.

Donald Vrabec's dad refused to let him spend his life working in the coal mines in Smock, Pennsylvania, where the population of just under 600 is roughly equal to the number of medical students at the University of Pittsburgh.

Happy to oblige, Vrabec left home and put himself through school, working in a steel mill and holding down odd jobs to pay for tuition and living expenses at Pitt, where he earned a pharmacy degree in 1954 (then a four-year degree).

"My dad lived off of peanut butter and banana sandwiches for years," Tamara Vrabec says of the commitment Donald Vrabec had to getting an education, despite his parents having no means to support him.

After working for a year as a pharmacist, Vrabec enrolled at Pitt Med, graduating in 1959. He served as a medic in the Army and then spent his entire career as an otolaryngologist at Geisinger Medical Center in Danville, Pennsylvania, retiring in 2000 as chair of his department, a post he assumed in 1984.

Vrabec considered Pitt to be one of the greatest influences on his life and never forgot how it propelled him to great things. To that end, he and his wife, Eleanor, established a namesake scholarship in 2006 with priority given to students from the Southwestern Pennsylvania region who face financial barriers.

Donald Vrabec died in 2021, and Eleanor in 2022.

"He understood what it meant to want to go to school but to have obstacles," Tamara Vrabec says. "It was his intent to help other people like him who had aspirations that seemed impossible."

Tamara and her brothers, Jeff and Keith, all of them physicians, made commitments in 2023 to give more to the fund, which also supports Pitt Pharmacy students. "We're fulfilling his mission," Jeff Vrabec says.

Tritan Plute (Pitt Med Class of '26), who grew up in Washington, Pennsylvania, is a Vrabec scholarship recipient who appreciates the tuition support. "The cost of med school is quite expensive, as you might imagine," he says, noting that he expects to have medical school debt. "It definitely makes things easier; I'm able to worry a little less looking forward."

Joseph Belfiore (Pitt Med Class of '26) of Peters Township says the scholarship gives him the freedom to pursue extracurricular opportunities like research or clerkships, "rather than just [focus] on supporting myself in some way."



Eleanor and Donald Vrabec surrounded by their children Keith, Jeff and Tamara (from left to right).

To make a gift to the medical school:

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