

Northwestern Medicine

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White Coats

FOUNDERS' DAY CELEBRATION

First-year medical students model their new white coats in front of Chicago's Fourth Presbyterian Church and the John Hancock Building. Pictured (left to right), Fernando Hernandez, Nathaniel Moxon, Allison Morgan, Maya Jackson-Gibson, Benjamin Stocker, Sasha Kurumety and Celeste Witting.



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ON THE COVER

Three-dimensional reconstructed normal human skin (raft culture) showing the overlay of insulin-like growth factor receptor (green), caveolin-1 (red) and DAPI-stained nuclei (blue). Image courtesy of Duncan Dam, PhD, a postdoctoral fellow in the lab of Amy Paller, MD, chair of Dermatology.

Giving Back to Our Neighbors



Eric G. Neilson, MD

Dean M. Harrison

NORTHWESTERN MEDICINE'S SOCIAL MISSION IS to improve the health of the communities we serve. From the dedicated efforts of our clinicians to the academic and volunteer work of our faculty, students and trainees, the entire academic health system is committed to giving back to the people we care for and the places we call home.

Clinical care is the most recognizable component of this mission, and we are proud to deliver medically-necessary healthcare to everyone who seeks it, regardless of their ability to pay. In fiscal year 2016, we provided more than \$747.3 million to the community through charity care, unreimbursed costs of Medicaid and Medicare, research, education and community health initiatives.

We also realize that to have the greatest impact, we need to work with our neighbors and learn from them. Our health system has partnered with community-based organizations to identify and respond to priority health concerns within their communities and to systematically reduce barriers to patient care services. Together we have developed important initiatives to promote healthy lifestyles and minimize risk factors for heart disease, stroke, cardiovascular disease and other chronic diseases; to provide women's health services to at-risk women; to address mental health and recreational drug use; and to give some of our community's most vulnerable patients access to care.

But clinical care alone does not paint a complete picture of the community engagement that advances our mission as an academic health center. Our investigators are also carrying out research with community collaborators on projects to help us better understand and treat the diverse neighborhoods and populations we serve and to deepen discovery beyond the walls of our own labs and clinics. Ronald Ackermann, MD, MPH, our senior associate dean for Public Health explains why this work is so important: "We dedicate our careers to learning, developing and applying strong theories and innovative methodologies toward ultimate goals of improving human health and well-being, but we cannot accomplish our goals if we distance ourselves from the people who have firsthand experience with the problems we are trying to solve."

It's also a point of pride for Feinberg that we attract some of the most passionate, motivated and engaged students in the world, all dedicated to improving the world around them. Roopal Kundu, '01 MD, '02 GME, our associate dean for Admissions, describes the medical students her team works hard to recruit as "people who want to give back to the community around them in a bigger space than the patient-physician relationship."

As soon as they arrive at Feinberg, students begin to learn about the communities they will care for, and how to give back. Our first-years go off campus to perform outreach and help care for the uninsured and underserved. They volunteer in community health clinics and choose to rotate through federally qualified health centers. They also develop long-term relationships with high-risk patients through our Education-Centered Medical Home program, which places students in the same outpatient clinic throughout their four years. Students also tutor and mentor children living in poverty, provide free sports physicals and give at-risk children in Chicago opportunities to participate in positive recreational activities, like an annual camping trip. What's

\$747.3 million

USED BY NORTHWESTERN MEDICINE TO DELIVER HEALTH-CARE INITIATIVES TO THE COMMUNITY

Year One

MEDICAL STUDENTS GET INVOLVED IN COMMUNITY OUTREACH OFF CAMPUS

200

COMMUNITY PARTNERS HELP US PROVIDE EDUCATION, RESEARCH AND POSITIVE OUTCOMES FOR PATIENTS

particularly incredible is that our students do all of this while juggling the varied challenges of medical school.

Fundamental to the DNA of Northwestern Medicine is our mission to improve human health. To deliver on that promise, we strive continually to understand the diverse neighborhoods and populations we serve. It's a pursuit we have come to understand as core to our identity as an academic health system. Working closely with our community partners — more than 200 organizations to date — empowers us to provide unique educational experiences, strengthens our research enterprise and improves outcomes for our patients and communities.

With warm regards,

Eric G. Neilson, MD
Vice President for Medical Affairs
Lewis Landsberg Dean

Dean M. Harrison
President and CEO
Northwestern Memorial Healthcare

ON CAMPUS

Incoming Medical Students Celebrate Founders' Day

WRITTEN BY *Anna Williams*

THE CLASS OF 2021 BEGINS MEDICAL SCHOOL

For first-year medical student Rebecca Xu, Founders' Day marked the moment she was officially welcomed into the medical profession.

"It's really exciting to finally put on my white coat," she said. "This has been a dream of mine my whole life, and now it's culminating in this one symbolic moment: putting on the uniform of medicine."

Founders' Day, an annual tradition held August 11 this year, serves to initiate the incoming class of first-year medical students, honor Feinberg's founders and mark the official beginning of the new academic year.

"I've always loved science, but I chose to become a physician because I also like the relationship-building aspect of it," said Xu, who taught chemistry to high schoolers through Teach for America before entering medical school. "Meeting the people that I help — and seeing a side of medicine beyond the molecules, cells or drugs — it's something I really look forward to."

Xu was one of the 161 members of the Class of 2021 who gathered at this year's celebration, joined by their families, faculty and second-year medical students, who presented the incoming students with their white coats.

"You have opened a new portal in your life's work that focuses on medicine and science that very few are privileged to enter.

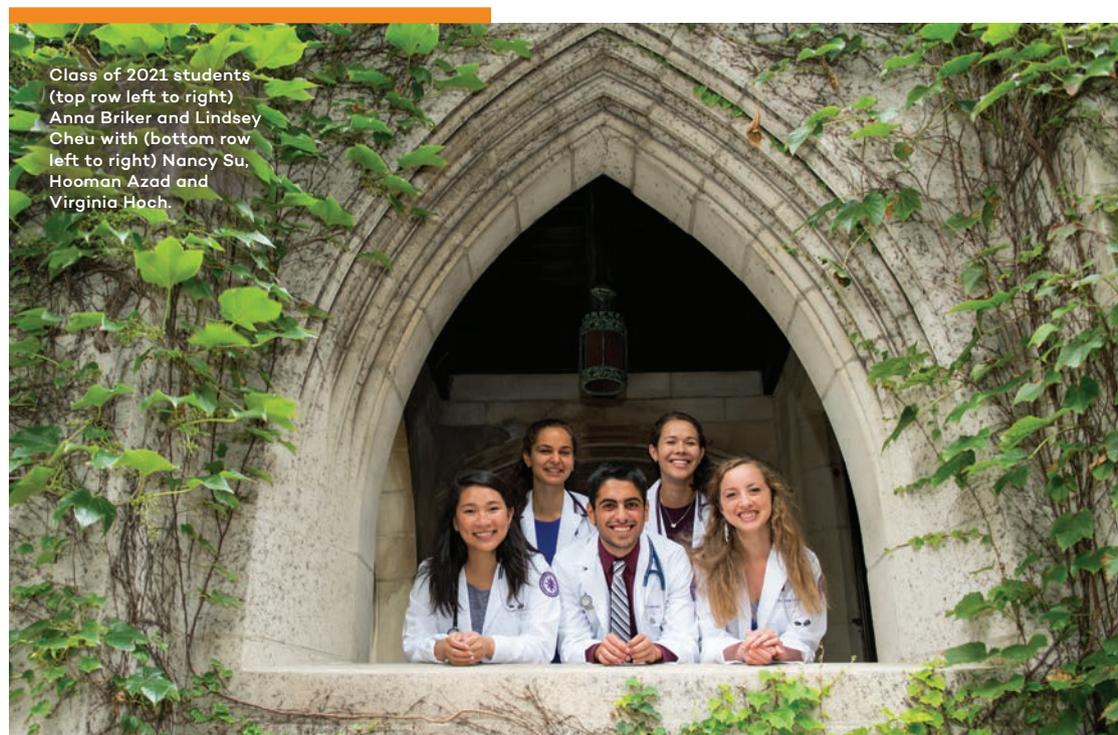
There are a myriad of exciting times ahead for you," said Eric G. Neilson, MD, vice president for Medical Affairs and Lewis Landsberg Dean.

During his opening address, Neilson discussed the history of the medical school and shared with students the unique responsibilities they assume by entering into the profession.

"We know we are going to train great doctors at Feinberg,



First-year medical student Nikita Saladi puts on her white coat with help from second-year student Jenna Stoehr.



Class of 2021 students (top row left to right) Anna Briker and Lindsey Cheu with (bottom row left to right) Nancy Su, Hooman Azad and Virginia Hoch.

**EXCERPTS FROM THE
DECLARATION OF GENEVA**

I SOLEMNLY PLEDGE
*to consecrate my life to
the service of humanity;*

THE HEALTH OF MY
PATIENT *will be my
first consideration;*

I WILL MAINTAIN *by all
the means in my power,
the honor and the noble
traditions of the medical
profession.*



(Left to right) Maya Jackson-Gibson, Melissa Querrey, Denise Monti and Wesley Peng recite the Declaration of Geneva.

but this is a minimal expectation,” Neilson said. “One might ask, ‘What else are you going to do to improve the profession and human health beyond the individual patient?’”

Keynote speaker John Csernansky, MD, chair of the Department of Psychiatry and Behavioral Sciences, reflected on the importance of the physicians’ oath.

“The statements in our oath seem formal and high-minded, and you may well feel that you will need to wait for some great occasion to apply them in your practice in medicine,” said Csernansky, also the Lizzie Gilman Professor of Psychiatry and Behavioral Sciences. “However, I don’t think you will have to wait very long to test the promises that you will make today. You will be challenged to conduct yourself on the wards and in the clinic in a manner that fulfills your oath on a daily basis — especially after a long night on call.”

Afterward, the new medical students donned their white coats for the first time.

“When I received my white coat, I actually felt a difference in how I perceived myself, which surprised me,” said first-year medical student Nehal Singh Samra. “I felt a sense of responsibility to uphold the integrity of such

an esteemed profession, but also excitement in anticipation of the journey before me. It’s extraordinary how a simple article of clothing can have such a symbolic influence.”

Below, college mentor Tracy Lyons, MD, ’11, ’14 GME (left foreground), with first-year students (left to right) Francisco Cai, Shreyas Bharadwaj, Rachel Armstrong and Daniel Liu.



GET TO KNOW THE CLASS OF 2021

20 to 31 years old

82 different types of undergraduate majors, spanning from biology and neuroscience to economics and history

17% are nontraditional (they have taken off two or more years between their undergraduate studies and medical school)

17% are from underrepresented minority groups

25 languages spoken in addition to English

Northwestern Hospitals Among the Best

Latest U.S. News Rankings

Three Northwestern Medicine hospitals have been recognized by *U.S. News & World Report* in its 2017-18 Best Hospitals rankings:



NORTHWESTERN MEMORIAL HOSPITAL

1

in Illinois and Chicago Metro Region for 6th year in a row

13

in the United States

4

specialties in top 10: Cardiology & Heart Surgery (7th), Geriatrics (9th), Neurology and Neurosurgery (9th) and Orthopaedics (9th)

7

other nationally ranked specialties: Cancer (16th), Diabetes & Endocrinology (31st), Gastroenterology & GI Surgery (22nd), Gynecology (36th), Nephrology (23rd), Pulmonology (21st), Urology (11th)



NORTHWESTERN MEDICINE CENTRAL DUPAGE HOSPITAL

5

in Chicago Metro Region

5

in Illinois



NORTHWESTERN MEDICINE LAKE FOREST HOSPITAL

18

in Chicago Metro Region

23

in Illinois

Northwestern Medicine's continued success in the *U.S. News Best Hospitals* rankings is a reflection of our 'Patients First' mission and our culture of excellence that drives us to not only be Chicago's premier academic health system, but one of the best health systems in the country," said **Dean M. Harrison, president and chief executive officer of Northwestern Memorial HealthCare**. "I applaud and congratulate our exceptional physicians, nurses and staff who provide world-class compassionate care to our patients each and every day. Without their talents and dedication, this accolade would not be possible."

AbilityLab and Lurie Children's Also Rank on Top

Shirley Ryan
Abilitylab

1

in the United States for physical medicine and rehabilitation for 27th year in a row

 **Ann & Robert H. Lurie Children's Hospital of Chicago**

1

in Illinois for children's hospitals

7

in the United States for children's hospitals

4

specialties in top 10: Cardiology (3rd), Urology (4th), Gastroenterology (7th), Neurology/Neurosurgery (6th)

Course Strives to Reduce Gunshot Mortality in Chicago

Program transforms bystanders into first responders.

WRITTEN BY *Will Doss*



FOR A GUNSHOT VICTIM, TIMING IS CRITICAL:

Research has shown that mortality rates increase sharply when patients must be transported long distances to the nearest trauma center, or when they lack access to high-quality pre-hospital care.

While Chicago has six level I trauma centers within the city limits, the South side, especially the Southeast side, has several neighborhoods more than five miles from the nearest level I trauma center; for trauma victims that distance can mean the difference between life and death.

To help trauma victims survive — wherever they are injured — Mamta Swaroop, MD, '10 GME, associate professor of Surgery in the

Division of Trauma & Critical Care at Feinberg and a trauma surgeon at Northwestern Memorial Hospital, designed an innovative solution: the Chicago South Side Trauma First Responders Course, a free program giving Chicago community members the tools to render first aid to trauma victims.

In countries with little pre-hospital trauma care, the World Health Organization recommends teaching interested community members basic first aid techniques to provide care while waiting for an ambulance or transporting an injured person to an appropriate facility. Simple maneuvers to stop bleeding can help trauma patients survive, Swaroop said.

“HEARING PEOPLE’S BYSTANDER EXPERIENCES IS ALWAYS PARTICULARLY STRIKING; I THINK IT’S THE PART OF THE COURSE THAT ALWAYS HAS THE MOST IMPACT ON INSTRUCTORS AS WELL AS PARTICIPANTS, AND IT GOES A LONG WAY TOWARDS ENCOURAGING A SENSE OF EMPOWERMENT IN PEOPLE.”

Seeing the potential of a similar approach in Chicago, Swaroop applied these principles when designing the First Responders Course.

“Turning bystanders into immediate responders is a great way to care for patients,” said Swaroop, founder and executive director of the Northwestern Trauma & Surgical Initiative (NTSI), which oversees the First Responders Course among several other projects.

The course focuses on the basics of first aid and scene management: Participants learn how to manage a victim’s airway and how to properly apply pressure to a wound, all while keeping themselves safe. Particular attention is paid to managing the often-intense emotions at the scene, a section that was added after Swaroop received feedback from course participants.

The backgrounds of the attendees have varied widely, including people concerned for their friends and family, students from Chicago Public Schools, healthcare professionals and Northwestern medical students, residents and fellows.

One course participant, Cassandra Hanna, said she attended a session held at the Northwestern Simulation lab because she saw another student die in a stabbing incident during high school.

“Nobody helped him, and he died in the street,” she said. “I wanted to learn how to help, so I don’t just walk by a situation like that again.”

Extracurricular Activities

Feinberg medical students aren’t just participating in the course — they’re teaching it, too. Several students and residents, including second-year medical student Bitania Wondimu, have helped teach classes.

“I initially came across the project when looking to do research with a physician as part of my Area of Scholarly Concentration research requirement, and I was really drawn to the First Responders Course after speaking with Dr. Swaroop,” she said. “Having now taught a few courses, it’s been wonderful to see the enthusiasm of the participants and their willingness to engage with the various skills stations in the course.”

That enthusiasm is often paired with honesty, according to Wondimu.

“Hearing people’s bystander experiences is always particularly striking; I think it’s the part of the course that always has the most impact on instructors as well as participants, and it goes a long way towards encouraging a sense of empowerment in people,” she said. “It’s been a really rewarding experience thus far, and I encourage anyone who is interested in the program to reach out and see how they can get involved.”

Visit ntsinitiative.org or call 773-999-NTSI to learn about getting involved in the First Responders course.



A group of Chicago Public Schools students took the First Responders Course on Northwestern’s Chicago campus this fall.

Medical Students Broaden Their Horizons

Students at Feinberg travel near and far for experiences that will complement their medical education and help them become better physicians in the future.

WRITTEN BY *Anna Williams and Will Doss*

WENYUAN ZHOU DEEPENS GLOBAL PERSPECTIVE WITH INTERNSHIP IN CUBA

A second-year medical student also earning a master's degree in public health, Wenyuan Zhou planned and completed a unique summer internship that combines her passions for preventive medicine and global health: She traveled to Havana, Cuba, to discover how prevention is integrated into every aspect of the Cuban healthcare system.

“This experience reminded me that the physical and history will take you very far, and to not always rely on technology. Feinberg actually does a really good job of emphasizing that to us as well. The history and the physical should give you your diagnosis, and extra tests and imaging should only confirm that. But seeing that really in practice in Cuba was nice.

“I think in general, the more you learn about different perspectives and different ways of doing things, the better you become

at what you do,” she says. “Feinberg is one of the best medical schools in the country, and we have all these great resources, but it’s important to remember that there’s not necessarily only one way of doing things.”

For four weeks, Zhou received intensive one-on-one lectures from faculty members at Escuela Latinoamericana de Medicina (ELAM) — a major medical school in Cuba, largely free, that is dedicated to training physicians from around the world to practice in underserved areas.

Beyond the lectures, Zhou also shadowed physicians in family health clinics, interviewed healthcare professionals about their experiences, visited Cuban health institutes and sat in on medical school classes dedicated to health promotion. Following her time

Zhou in front of Escuela Latinoamericana de Medicina (ELAM), the medical school where she studied in Cuba. Bottom, on the last day of her internship at ELAM, with some of the faculty and staff members she learned from.



at ELAM, she also completed a one-week internship at a local pediatric hospital.

“I had heard a lot of great things about its health system; it’s really focused on disease prevention and health promotion,” she says. “I also knew it had some challenges, because they don’t have access to a lot of advanced medicine and technology. And yet they’re still able to achieve great health results — with infant and maternal mortality rates similar to developed Western countries — and that really appealed to me.”

Zhou’s internship was funded through the Center for Global Health and was completed as part of the field experience component of her master’s degree.



MICHAEL MUSHARBASH WORKS WITH LGBT AND HOMELESS YOUTH



Second-year medical student Michael Musharbash received a Schweitzer Fellowship to implement health educational services for LGBT and homeless youth

at the Center on Halsted, an LGBT community health organization in Chicago's Lakeview neighborhood.

"The goal of my workshop is to improve health literacy and economic opportunity among LGBTQ youth," Musharbash says. "Nearly 40 percent of homeless youth identify as LGBT. That's because half of all teens still get a negative reaction from their parents when

"PROVIDING THESE YOUNG PEOPLE WITH BOTH MEDICAL AND ECONOMIC KNOWLEDGE WILL HELP THEM LIVE FULFILLING LIVES — BECAUSE, AS THE SAYING GOES, HEALTH IS WEALTH."

they come out. Providing these young people with both medical and economic knowledge will help them live fulfilling lives — because, as the saying goes, health is wealth."

The competitive Schweitzer Fellowship, which is awarded annually to 30 Chicago-area graduate students, is a year-long service learning program that allows aspiring health professionals to design and direct innovative community service projects to address unmet health needs.

"During medical school, we are often caught up in the horserace of exams and research. The Schweitzer Fellowship is a way for me to take some time out of my week to remember why I went into medicine in the first place," says Musharbash, who is also president of the Queers & Allies Student Group at Feinberg.

The fellowship, named in honor of the Nobel laureate and physician Albert Schweitzer, is administered by the non-profit Health & Medicine Policy Research Group.

KYLE YOO HEADS TO INDIA TO ASSESS MANAGEMENT AND CARDIAC CARE

Selected as a Fogarty Global Health Fellow, fourth-year medical student Kyle Yoo is spending a year in Kerala, India, investigating the management practices of hospitals participating in the Acute Coronary Syndrome Quality Improvement in Kerala (ACS QUIK) trial.

"I plan to examine quantitative and qualitative measurements of team dynamics, hiring practices, promotions and interdepartmental communications," Yoo says. He will use a management assessment tool called the World Management Survey (WMS) adapted for healthcare.

He hypothesizes the management practice scores may be relatively low among hospitals in Kerala, but hospitals that tend to do well will have a few things in common — including similarities in clinical workflows.

Establishing associations between WMS scores and clinical practices would demonstrate the viability of management interventions in India, providing a model for other middle- and low-income countries, according to Yoo.

"I'm excited to be exposed to their perspectives on caregiving in India, because there's such variety among hospitals," he says. "I can't wait to find areas with room for improvement or find out what management practices are associated with morbidity and mortality."

The ACS QUIK trials, which implemented quality improvement toolkits in 62 hospitals in and around Kerala, on India's Malabar Coast, are still ongoing, but evaluations like Yoo's will assess the impact of the interventions on patient outcomes such as stroke, heart attack and other cardiovascular events.

The Fogarty Global Health Training Program is administered by a consortium of universities, led by Harvard University and also including Boston University, University of New Mexico and Northwestern University. The National Institutes of Health organizes the 12-month intensive, hands-on research program, which takes place at research sites in Africa, Asia, Latin America and the Caribbean. The Global Health Initiative also contributes funding to the project.



ROSEMARY HINES FULLER PURSUES MBA TO INNOVATE HEALTHCARE



For medical student Rosemary Hines Fuller, dedicating her summer to courses like finance, marketing and accounting was all part of her journey to becoming a better physician.

Fuller is one of six medical students spending the next year at Northwestern's Kellogg School of Management earning a master of business administration before completing her fourth year of medical school.

"Before I came to Feinberg, I spent a year working at a global health research group focused on developing low-cost, scalable technologies for low-income countries," she says. "The MD/MBA

sounded like the perfect continuation of what I had already done: think innovatively and creatively about medicine and how we can effect change at a more systemic level."

While some who pursue Feinberg's joint MD/MBA degree have future plans for careers in hospital administration, Fuller hopes to apply what she learns to her future job as a physician.

"So much about the way we practice medicine involves very business-minded problems and ideas," Fuller says.

For example, in a "Leadership in Organizations" course, she learned about negotiation and team management, skills she says complement her medical education. "I hope to be a better resident, and ultimately attending, as a result."

RESEARCH BRIEFS

DISEASE DISCOVERIES

KEY CELLULAR MECHANISM UNDERLYING PARKINSON'S DISEASE DISCOVERED



Northwestern Medicine scientists identified a toxic cascade that leads to neuronal degeneration in patients with Parkinson's disease (PD) and figured out how to interrupt it with an antioxidant, according to a recent study published in *Science*.

Intervening with the antioxidant early in the disease process may break the degenerative cycle and improve neuron function in PD, the study showed.

The investigators also discovered that mouse models of PD didn't have the same abnormalities they found in human PD neurons,

revealing the importance of studying human neurons to develop new therapies.

Using human neurons from PD patients, the scientists identified a toxic cascade of mitochondrial and lysosomal dysfunction initiated by an accumulation of oxidized dopamine and a protein called alpha-synuclein. They demonstrated that this accumulation depressed the activity of lysosomal glucocerebrosidase, an enzyme previously implicated in PD. That depression in turn weakened overall lysosomal function and contributed to the degeneration of neurons.

After cataloging this toxic cascade, the team began looking for ways to interrupt it.

"One of the key strategies that worked in our experiments is to treat dopamine neurons early in the toxic cascade with specific antioxidants that improve mitochondrial oxidant stress and lower oxidized dopamine," said principal investigator Dimitri Krainc, MD, PhD, the Aaron



Montgomery Ward Professor and chair of Neurology. "With this approach, we found that we can attenuate or prevent the downstream toxic effects in human dopaminergic neurons."

This study was supported by National Institute of Neurological Disorders and Stroke grants NS081774, NS076054, NS047085, NS092823, NS041234 and NS101778, National Institute on Deafness and Other Communication Disorders grant DC013805, JPB Foundation, Michael J. Fox Foundation, IDP Foundation, German Academic Exchange Service, Les Turner ALS Foundation, Target ALS, German Research Council, and Fond National de Recherche PEARLE Programme.

CLINICAL BREAKTHROUGHS

Online Tool Predicts Heart Disease Events in Young Adults



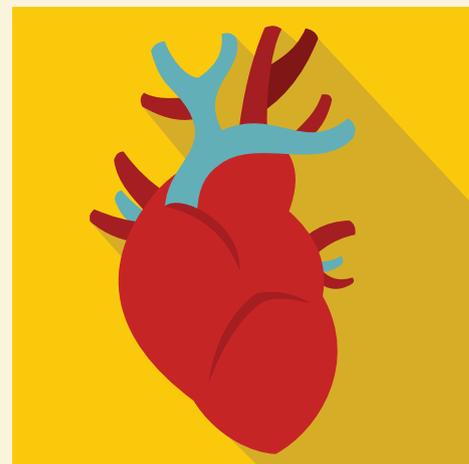
An online calculator using lifestyle metrics showed initial success at predicting the risk of heart disease events among young, healthy adults, according to a study published in *JAMA Internal Medicine*.

The Healthy Heart Score (HHS), a free, web-sited tool developed by Harvard investigators, allows individuals to assess their risk of heart disease by answering simple questions about nine key lifestyle factors, such as weight, smoking habits, exercise and diet. The tool was developed for and validated in middle-age and older adults, but had never been assessed in young, healthy adults — a group that could

potentially benefit most from early prevention measures.

In the study, investigators calculated the HHS of healthy adults 18 to 30 years old. They discovered that HHS performed moderately well at estimating the 25-year risk for premature cardiovascular events, such as heart attack and stroke. The tool was most accurate when performed in men, white participants and those who did not have any heart disease risk factors, such as diabetes or hypertension, at baseline.

HHS could help young adults gauge their risk of heart disease and, if necessary, make appropriate changes.



"With the score, you get a more personalized sense of what your risk is — rather than just generic advice about eating well and moving more," said senior author Donald Lloyd-Jones, MD, ScM, senior associate dean for clinical and translational research and chair of Preventive Medicine.

Data for this research came from the Coronary Artery Risk Development in Young Adults (CARDIA), which is supported by National Heart, Lung, and Blood Institute (NHLBI) grants K23HL122361-01A1, HHSN268201300025C, HHSN268201300026C, HHSN268201300027C, HHSN268201300028C, HHSN268201300029C and HHSN268200900041C; the Intramural Research Program of the National Institute on Aging (NIA); and an intra-agency agreement AG0005 between the NIA and NHLBI.

CLINICAL BREAKTHROUGHS

Weekly Steroids Strengthen and Repair Muscles



Weekly doses of glucocorticoid steroids, such as prednisone, help speed recovery in muscle injuries, reports a Northwestern Medicine study published in the *Journal of Clinical Investigation*. The weekly steroids also repaired muscles damaged by muscular dystrophy. The studies were conducted in mice, with implications for humans.

One of the major problems of using steroids such as prednisone is they cause muscle wasting and weakness when taken long term. This is a significant problem for people who take steroids for many chronic conditions and can often result in patients having to stop steroid treatments.

But the study showed weekly doses — rather than daily ones — promote muscle repair.

“We don’t have human data yet, but these findings strongly suggest some alternative ways of giving a very commonly used drug in a manner that doesn’t

GLUCOCORTICOID STEROIDS USE



Daily Use: muscle wasting and weakness



Weekly Use: speeds up muscle recovery and repair

harm, but in fact helps muscle,” said lead investigator Elizabeth McNally, MD, PhD, the Elizabeth J. Ward Professor of Genetic Medicine and director of the Center for Genetic Medicine.

The study showed prednisone directs the production of annexins, proteins that stimulate muscle healing. Giving weekly doses of prednisone also stimulated a molecule called KLF15, which is associated with improved muscle performance. Daily doses of prednisone, however, reduced KLF15, leading to muscle wasting.

The study was funded in part by National Institutes of Health grants NIH U54 AR052646 and NIH RO1 NS047726, the Muscular Dystrophy Association, Parent Project Muscular Dystrophy and the American Heart Association.

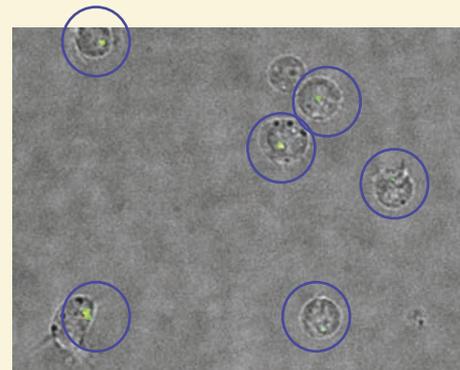
DISEASE DISCOVERIES

NOVEL APPROACH OFFERS NEW INSIGHTS INTO HIV’S LIFECYCLE



Scientists developed a novel method of tracking HIV infection, allowing the behavior of individual virions — infectious particles — to be connected to infectivity.

The findings, published in *Proceedings of the National Academy of Sciences*, could help lead to the development of novel therapies for HIV prevention and treatment by providing a deeper understanding of the mechanisms of HIV’s lifecycle.



A snapshot from the live-cell fluorescent imaging that the scientists used to identify individual particles associated with HIV infection.

It has become routine to visualize the movement and progression of individual virions in cells, but the relevance of these observations was previously unclear, as many virions are defective or do not progress to make further copies of themselves.

“This approach — and the ability to say ‘that virion infected that cell’ — will help bring clarity to the field,” said principal investigator Thomas Hope, PhD, professor of Cell and Molecular Biology. “It allows us to understand what the virus really needs to do to infect a cell. It gives us new details, like where in the cell it happens and the timing of specific events. The more we know about the virus, the better our chances are to stop it.”

The study was supported by National Institutes of Health grant P50 GM082545.

CLINICAL BREAKTHROUGHS

BRINGING LIFESTYLE FACTORS INTO PRECISION MEDICINE



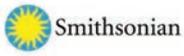
Investigators at Feinberg and the Ann & Robert H. Lurie Children’s Hospital of Chicago propose new nomenclature for social and environmental influences on health in an article in *Clinical and Translational Science*.

“Although where a child lives and goes to school often has more bearing on his or her health than the genetic code, social and environmental factors get far less attention than the genetic influences in precision medicine research,” said lead author Matthew Davis, MD, chief of Academic General Pediatrics

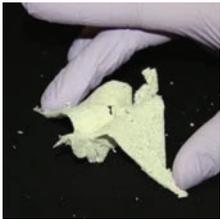
and Primary Care in the Department of Pediatrics. “We hope that the broader and more consistent terminology we propose will facilitate more collaboration across scientific disciplines.”

The authors suggest a naming system that expands the “-omes” discussed in precision medicine, such as the “genome” or “proteome,” which describe factors within an individual’s body that impact disease or wellness. They call these internal domains the “endome.” Similarly, they refer to influences on health that come from outside the individual as the “ectome.” For example, health-related aspects of a person’s social support network are called the “philome” and diet-related factors fall into the “nutriome.”

MEDIA SPOTLIGHT



A Lab Accident Leads to Bioactive ‘Tissue Paper’



Adam Jakus, then a postdoctoral fellow in the lab of Ramille Shah, PhD, assistant professor of Surgery and Materials Science, was working

with the biological “ink” the lab uses to 3-D print ovaries. Standing beneath the lab’s fume hood, Jakus knocked over the container, spilling it onto the lab bench. By the time he went to clean it up, it had formed a solid sheet. “It felt great,” Jakus said. “If you make a new biomaterial and you can’t pick it up or it falls apart when you pick it up, it’s useless. I had this lightbulb go off – ‘we can do this with all the other tissues we’re working with in our lab.’”

STAT

Cancer is ‘Natural.’ The Best Treatments for It Aren’t



“In the early years of my career as an oncologist, I’m learning that you really remember the patients you can’t

save. Those with essentially curable cancers who refused the right treatment stand out the most,” wrote Suneel Kamath, MD, a hematology/oncology fellow at Northwestern Memorial Hospital. “It is human nature to believe that anything that is ‘all natural’ is intrinsically good.... [But] making a decision about treating cancer shouldn’t be based solely on a natural versus unnatural algorithm. We should focus on making choices that realistically have the best chance to help us. Sometimes, the ‘unnatural’ option is the best one.”



Northwestern to Offer Home-based Health Training

In a move to serve Chicago’s growing number of seniors and to reduce costs for Northwestern Memorial Hospital, Feinberg will soon offer a program that trains doctors on how to provide home-based primary care. Feinberg has been working with Schaumburg-based Home

Centered Care Institute for the past year to develop a program that will coach up to 40 doctors, physician assistants, social workers and nurse practitioners. “Ultimately, being in your own home is where most seniors want to be. With home-based primary care, it allows physicians to meet that need,” said Lee Lindquist, ’00 MD, ’03 ’05 GME, ’05 MPH, ’10 MBA, chief of Geriatrics, who leads the initiative.



Heart Benefit of Alcohol Not Seen in People With Liver Disease



Light to moderate drinkers may have a lower risk of heart disease than teetotalers, but a new study suggests this doesn’t hold true for

people with nonalcoholic fatty liver disease. Investigators examined data on 5,115 adults aged 18 to 30, following them for up to 25 years.

“We failed to find any association between moderate alcohol use and multiple different markers of heart disease and heart disease risks, including blood pressure, cholesterol or calcium deposits in the arteries of the heart [in a sample of individuals with nonalcoholic fatty liver disease],” said lead study author Lisa VanWagner, MD, ’11 MSc, ’10, ’11, ’14, ’15 GME, assistant professor of Medicine and Preventive Medicine.

FACULTY AWARDS & HONORS



Hossein Ardehali, MD, PhD, professor of Medicine in the Division of Cardiology, was named the new director of Feinberg's Medical Scientist Training Program (MSTP). Two additional new leadership positions within the MSTP were also announced: **Melissa Brown, PhD**, professor of Microbiology-Immunology, was named associate director of MSTP Student Advising, while **Xunrong Luo, MD, PhD**, the Margaret Gray Morton Professor of Medicine in the Division of Nephrology/Hypertension, was named associate director of MSTP Admissions. They join Jayms Peterson, PhD, who will continue in his role as associate director for Administrative and Academic Affairs. [📖 1, 2, 3](#)

Robert Kalb, MD, will be the inaugural director of the Les Turner ALS Research and Patient Center



at Northwestern Medicine and chief of Neuromuscular Medicine in the Ken & Ruth Davee Department of Neurology, beginning in December 2017. Kalb arrives from the Perelman School of Medicine at the University of Pennsylvania where he heads a lab focusing on the abnormal molecular processes that lead to ALS. [📖 4](#)

Teresa K. Woodruff, '89 PhD, the Thomas J. Watkins Professor of Obstetrics and Gynecology, chief of Reproductive Science in the Department of Obstetrics and Gynecology and director of the Women's Health Research Institute at Northwestern was named associate provost for graduate education and dean of The Graduate School at Northwestern. She was also recently named editor-in-chief of *Endocrinology*, a peer-reviewed journal



published by the Endocrine Society. Her term begins in January 2018.

Kyle Eagen, PhD, instructor of Biochemistry and Molecular Genetics, and **Jaehyuk Choi, MD, PhD**, Ruth K. Freinkel, MD, Research Professor and assistant professor of Dermatology and of Biochemistry and Molecular Genetics, each received the Director's Awards from the National Institutes of Health. Eagen was given the Early Independence Award, and Choi received the New Innovator Award. Both support creative early stage investigators doing innovative, high-impact projects. [📖 5 \(Egan\)](#)

John Varga, MD, John and Nancy Hughes Distinguished Professor of Rheumatology, director of the Northwestern Scleroderma Program and co-editor of the journal *Arthritis and Rheumatology*, received the Lifetime



Achievement Award from the Scleroderma Foundation. The foundation, which has given this award to physicians only twice in its history, mentioned Varga's more than a decade of service as chair of its Medical & Scientific Advisory Board and his role in creating the Early Career Investigator workshop and establishing the SCORE Grant program.

Melissa Simon, MD, MPH, '06 GME, the George H. Gardner Professor of Clinical Gynecology, vice chair for clinical research in the Department of Obstetrics and Gynecology and professor of Preventive Medicine and Medical Social Sciences, has been chosen to receive the 2017 Marion Spencer Fay Award, presented annually by the Drexel University College of Medicine Institute for Women's Health and Leadership, in recognition of her contributions to women's health, health equity and national health policy.



John Gatta, PhD, assistant professor of Family and Community Medicine, received the 2017 Outstanding Teaching Award from the American Statistical Association's Section on the Teaching of Statistics in the Health Sciences. Gatta is the course director for biostatistics courses offered through Feinberg's Master of Science in Clinical Investigation program. [📖 6](#)

Abel Kho, MD, director of the Center for Health Information Partnerships, was recently elected to the American College of Medical Informatics. *(Read more about his work on page 15.)*

Rachel Cyrus, MD, assistant professor of Medicine in the Division of Hospital Medicine and **Gopi Astik, MD**, instructor of Hospital Medicine, were selected by the editorial board at ACP Hospitalist as top 10 hospitalists of 2017. [📖 7 \(Astik\)](#)



David Green, MD, '74 PhD, professor emeritus of Medicine in the Division of Hematology and Oncology, received the "Walk in Our Shoes" Award from the Bleeding Disorders Alliance of Illinois.

Rosalind Ramsey-Goldman, MD, Solovy/Arthritis Research Society Research Professor of Medicine in the Division of Rheumatology, was chosen to receive the Lupus Foundation of America's 2017 Evelyn V. Hess Award.

Jeffrey Wayne, MD, chief of Surgical Oncology in the Department of Surgery, received the Melanoma Research Foundation's Humanitarian Award, presented to a leader who has committed to fighting melanoma through exemplary patient care, cutting-edge research or scientific leadership.



Interventions

in the

Real World



Investigators are working closely with community partners to address healthcare challenges.

It's estimated that academic medical centers see less than one percent of the American population over the course of a month. Yet much of the clinical research that informs broad, far-reaching medical policy is conducted within this small subset of the population.

For scientists like Abel Kho, MD, director of the Center for Health Information Partnerships (CHiP) at Feinberg's Institute for Public Health and Medicine (IPHAM), this is a problem — not just for the patient groups that are consequently overlooked, but for the pursuit of science overall.

“In order to do statistically sound science, you need to get at larger data sets. And to do that you need to get out into that much larger real-world community,” says Kho, also an associate professor of Medicine in the Division of General Internal Medicine and Geriatrics and of Preventive Medicine in the Division of Health and Biomedical Informatics.

Kho is one of an increasing number of Feinberg investigators dedicated to what's known as community-engaged research — research that involves direct collaboration with communities to identify and address health concerns. By taking such an approach, scientists hope to not only reduce health disparities, but also to deepen discovery.

“It's not just that this type of research is more representative. It also bubbles up good ideas,” Kho explains. “By engaging people where they are, you move past just the priorities of science happening within the ivory tower. You end up getting at the real health priorities of people.”

Across the medical school, investigators are leading grants for community-engaged research projects that tackle a wide range of specific health challenges in Chicagoland and beyond — from interventions to prevent diabetes through collaboration with Hispanic-serving community

organizations in Humboldt Park and South Lawndale, led by Matthew O'Brien, MD, assistant professor of Medicine and Preventive Medicine, to programs that address mental health and post-partum depression in at-risk women in Illinois, led by Darius Tandon, PhD, associate professor of Medical Social Sciences.

The landmark “All of Us” research program at Northwestern, part of a national precision medicine initiative that aims to recruit one million people, is also uniquely focused on reaching patient populations not

“BY ENGAGING PEOPLE WHERE THEY ARE, YOU MOVE PAST JUST THE PRIORITIES OF SCIENCE HAPPENING WITHIN THE IVORY TOWER.”

traditionally connected to academic medical centers. Investigators hope the broad scope will lead to discoveries that might not otherwise be possible.

“For us, community-engaged research is just doing good science,” Kho says. “It's one reason why we're seeing a shift in this direction, both in funding and in national legislation.”

In fact, over the decade from 2007-2016, while research grants focused on “community” ➔

or “practice” research increased 66 percent nationally, they grew more than 200 percent at Feinberg.

“At Northwestern, we’ve made a commitment to engaging communities and stakeholders in our research, in the hopes of developing and evaluating more complete and implementable solutions for health’s challenges,” says Ronald Ackermann, MD, MPH, senior associate dean for public health and director of IPHAM and the Center for Community Health. “We take pride in this

evolution of the way we conduct research, and we continue striving to expand this work to have the biggest impact we can on the health of Chicago and beyond.”

Translating Findings to Communities

Namratha Kandula, MD, MPH, has long been dedicated to identifying solutions to health disparities by collaborating closely with underserved populations.

“Over the last 60 years, we’ve learned a lot about what promotes health and what causes disease — yet we are still seeing large health disparities in terms of some communities benefiting from the advances, and others not. Community-engaged research is a way to close the disparities gaps,” says Kandula, an associate professor of Medicine in the Division of General Internal Medicine and Geriatrics and of Preventive Medicine. “The question is, how do you take interventions that were developed in a very highly controlled setting, with a narrow population, and actually implement them in the real world?”

Kandula is now the principal investigator of a study to answer that question specifically within the South Asian community around Chicagoland.

South Asians, the second-fastest growing ethnic group in the United States, suffer a disproportionately high rate of cardiovascular disease. But the majority of research on the development of heart disease, and appropriate interventions, has been mostly conducted in populations of white men.



Kandula partners with Chicagoland community organizations such as Universal Metro Asian Services to test the efficacy of culturally relevant lifestyle interventions. Pictured are some of the events organized for her South Asian Healthy Lifestyle Intervention (SAHELI) study.

“It’s usually not as effective to take an intervention developed in one population and drop it into another,” Kandula explains. “There are a lot of cultural and social factors that determine how people think about their own health, how they think about prevention and how behavior change might work.”

With community partners, Kandula and her team have developed a program, The South Asian Healthy Lifestyle Intervention (SAHELI), that translates established lifestyle interventions — focused on diet, physical activity and stress management — to the community’s specific cultural context and needs. The program uses concepts and values that are

“THERE ARE A LOT OF CULTURAL AND SOCIAL FACTORS THAT DETERMINE HOW PEOPLE THINK ABOUT THEIR OWN HEALTH, HOW THEY THINK ABOUT PREVENTION, AND HOW BEHAVIOR CHANGE MIGHT WORK.”

culturally relevant to South Asians to inspire behavior change and includes established behavior change strategies, such as motivational interviewing, self-monitoring diet and physical activity. Key to the program is that it was developed using a community-based participatory research process, which involved investigators and community members throughout.

For example, through her research with community members around Devon Avenue — a largely South Asian area of Chicago — it became clear that exercising for personal benefit was not something inherently valued. As such, traditional exercise counseling, which emphasizes working out for 30 minutes a day for your own health, was not proving effective.

So the team developed an exercise intervention specifically for South Asian women that involved exercising with their children. “It turned out to be very successful,” Kandula says. “The whole family was on board, which was critically important to making it happen — and the only way we learned what might work was through working with the community.”

In a pilot study, participants enrolled in SAHELI saw significant improvements in

weight and blood sugar levels at six months, when compared to a control group.

Now Kandula is launching a \$3.5 million-National Institutes of Health-funded study to test the efficacy of SAHELI in a larger, more generalizable group of South Asians who all have at least two cardiovascular risk factors.

As part of SAHELI, the team is also forming a stakeholder advisory board, to help govern how the study should be conducted, as well as partnering with organizations such as the Skokie Department of Health, Metropolitan Asian Family Services and NorthShore University HealthSystem, to ensure that the program can be sustained.

“In addition to working with community members, we also like working with stakeholders, business owners, public health departments, policy makers — people from different sectors who bring a different perspective and can help us with longer-term sustainability of the intervention we are testing,” Kandula explains. “Our research does not happen in a silo.”

Kandula is also involved in research projects exploring the roots of cardiovascular disease disparities. She is a principal investigator for the Mediators of Atherosclerosis in South Asians Living in America (MASALA) Study, the first longitudinal study to understand heart disease etiology and risk factors specific to this group.

So far the study has shown that Americans of South Asian descent are twice as likely as whites to have risks for heart disease, stroke and diabetes when their BMIs were in the normal range. Such data from MASALA, published in the *Annals of Internal Medicine*, has helped lead to a proposed congressional bill, introduced in late July, that would increase funding for medical research on cardiovascular disease in South Asians.

“My research is not successful just because I’m able to receive grant funding or complete the aims of a project. My research is successful if there is a community, clinical or policy impact,” Kandula says. “The ultimate goal of the research is to reduce health



disparities by improving the care that people receive and working with communities to improve people's lives.”

Improving Primary Care for All

Kho, meanwhile, is leading a research project that aims to improve cardiovascular health by reaching a different group: primary care physicians in small practices around the Midwest.

After all, just as heart disease interventions proven in controlled settings may have limited success when applied to diverse sociocultural groups, strategies for physicians developed in large healthcare systems are not always as effective when applied to small medical practices with limited resources.

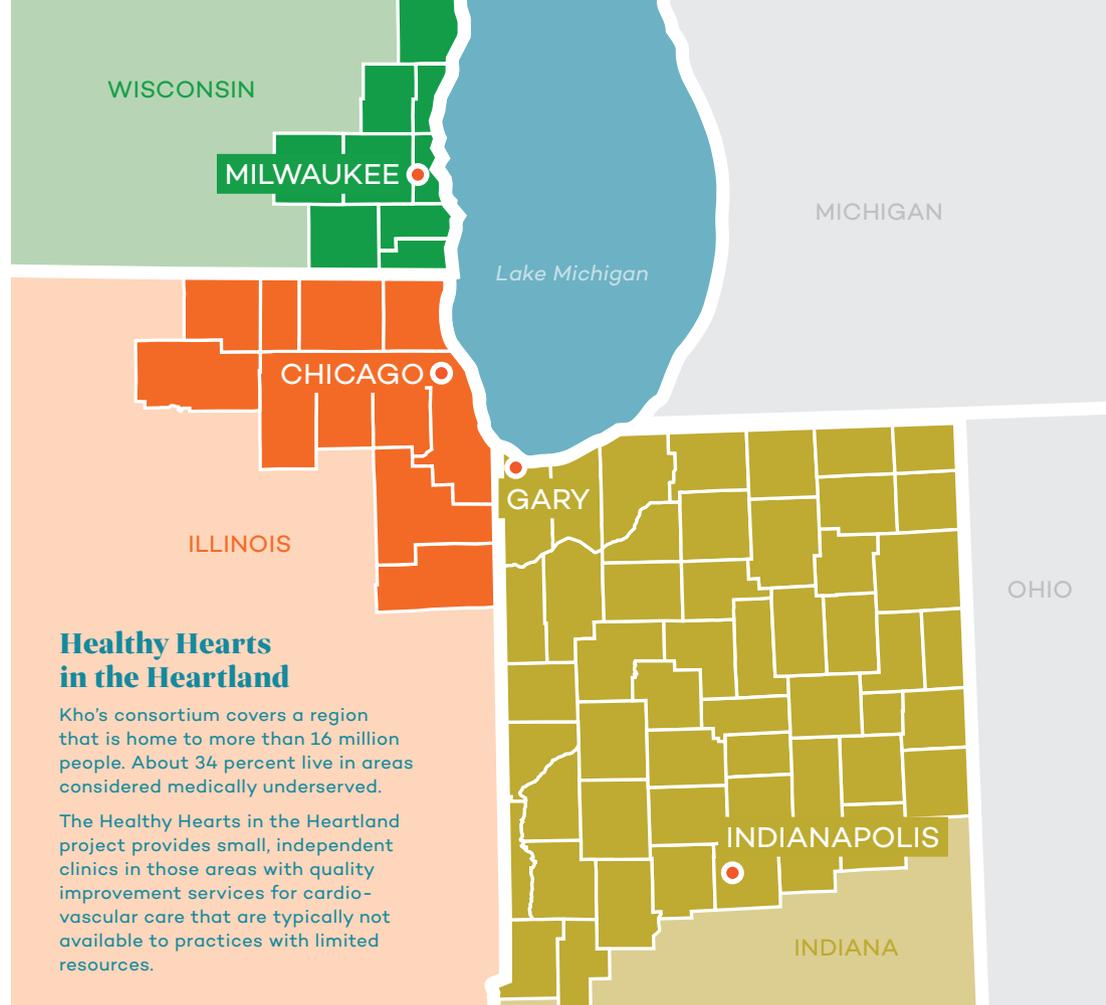
In 2015, Kho was awarded a \$15 million grant to establish a consortium called Healthy Hearts in the Heartland. Funded by the Agency for Healthcare Research and Quality, the group assists independent clinics in Illinois, Indiana and Wisconsin in improving care around what's known as the “ABCS” of heart health. These key measures focus on the importance of providing patients with aspirin therapy when appropriate, controlling blood pressure, cholesterol management and smoking cessation counseling.

“MY RESEARCH IS NOT SUCCESSFUL JUST BECAUSE I'M ABLE TO RECEIVE GRANT FUNDING OR COMPLETE THE AIMS OF A PROJECT. MY RESEARCH IS SUCCESSFUL IF THERE IS A COMMUNITY, CLINICAL OR POLICY IMPACT.”

Quality improvement strategies have been shown to increase these measures in academic medical centers and well-resourced healthcare systems, but it was unclear how these might be implemented in small, independent practices. Kho is aiming to find out in his study.

“There are a lot of resources that we take for granted in academic medical centers,” he says.

As part of the study, practice facilitators are working closely with individual clinics to tailor a program around improving ABCS measures with hands-on coaching, tools and strategies. Although the study is ongoing, the



team has already discovered that this process of practice facilitation has led to noticeable increases across a majority of the study quality measures.

In many cases, the improvements are largely driven by helping primary care providers make better use of their electronic health records (EHRs).

“Once you put quality measures in front of people — for example, showing your current rate of patients who are eligible for aspirin who are actually on aspirin — that in and of itself drives change and is probably where we see the biggest benefit,” Kho explains.

The team also built a novel data reporting system, hosted at Northwestern, that enables the independent small practices to dynamically track and compare their quality measures through electronic feeds of EHR data. It's part of the reason why, beyond the immediate impact of Healthy Hearts in the Heartland, Kho and his collaborators see the study also kickstarting related research in the future.

“We hope that this opens the door to continue engaging with that much broader community of providers, rather than just those

who are within large centers,” Kho says. “Both in terms of the relationships and the tools that we're building, I think this can greatly increase the efficiency of how we do future research and engage unseen populations.”

Beyond the clinical impact of this approach, there's also a bonus benefit to conducting research that so closely collaborates with different communities. For investigators like Kho and Kandula, it's also intensely invigorating to their lives as clinicians and scientists.

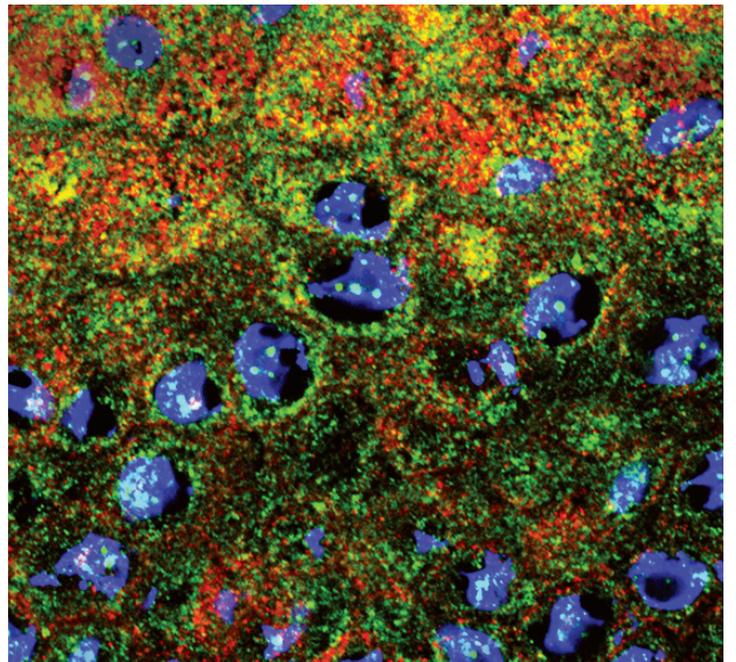
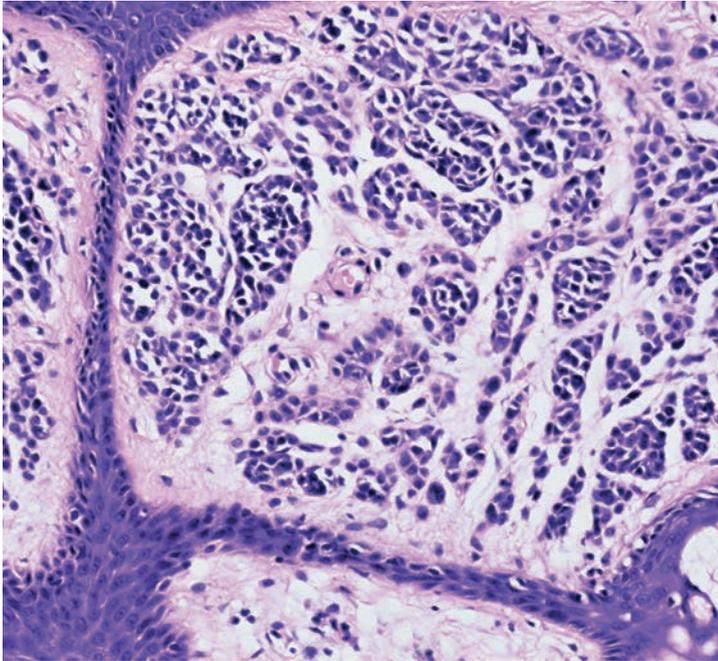
“Community-engaged research is really what keeps me going. I find it to be a great antidote to burnout,” Kandula says. “To be able to work with these wonderful partners who are excited about the work that we do, and to see the way that it impacts people's lives, has been so incredibly rewarding.” ■



Namratha Kandula, MD, MPH



Abel Kho, MD



WRITTEN BY
BRIDGET KUEHN

EMPHASIS ON
TRANSLATION IS
DRIVING DISCOVERIES
IN DERMATOLOGY.

GETTING UNDER THE SKIN

The body's largest organ, the skin plays an essential role in maintaining health. It acts as both a protective barrier and a sensor linking the body to the outside world. Yet many unanswered questions remain about how genetic mutations, diseases or even common treatments can harm the skin.

"Skin is the first barrier and line of defense against many environmental stressors, including ultraviolet — UV — radiation, mechanical stress and infectious agents," explains Kathleen Green, PhD, the Joseph L. Mayberry, Sr., Professor of Pathology and Toxicology, and a professor of Dermatology.

Faculty members in Northwestern's Department of Dermatology are working hard to better understand the fundamentals of skin biology and bring those discoveries

to the forefront of skin treatment. Their research extends from deciphering the genetic and molecular basis of deadly skin cancers, to trying to avoid harmful side effects of treatments like glucocorticoids, to preventing disease-related complications like neuropathy.

Department Chair Amy Paller, MD, '81 MSc, '83 GME, explains that she and her colleagues have been shifting increasingly toward more translational work. This includes leveraging genetic and molecular discoveries to develop new treatments or repurpose old ones.

"We've gone from a department where scientists in the lab are making important discoveries in basic biology to one in which our scientists are using human tissues and applying their discoveries to disease," says Paller, also the Walter J. Hamlin Professor of Dermatology.

CANCER'S CALLING CARD

Seeing patients with cutaneous T-cell lymphoma (CTCL) suffer from symptoms, including intractable itching, motivated Jaehyuk Choi, MD, PhD, to make the disease

his research focus. A type of cancer involving the immune system, cutaneous T-cell lymphoma first manifests in the skin. To improve care for his patients, he's turned to genomic techniques to identify mutations that lead to the disease.

"Cancer is fundamentally a genetic disease," says Choi, the Ruth K. Freinkel, MD, Research Professor and an assistant professor of Dermatology and of Biochemistry and Molecular Genetics. Mutations in DNA set cancer in motion and cause a host of metabolic, immunologic and transcriptomic changes in a cell. Choi's studies have begun to yield a high-resolution map of all the mutations that occur in patients with CTCL.

Currently, many patients with the disease go undiagnosed for years, in part because physicians don't have specific tests to identify it. Choi hopes his studies will lead to more personalized care based on finding specific mutations that characterize an individual's lymphoma.

Green is also leveraging molecular techniques to identify cancer's calling cards, but rather than start from a clinical perspective →

she's starting with fundamental basic biology. She studies structural molecules called desmosomes in the skin that emerged when vertebrates evolved from their more primitive ancestors.

"Textbooks describe desmosomes as structures that physically hold cells together, allowing tissues to resist mechanical stress," she explains. This function is particularly important for holding together epithelial cells, called keratinocytes, that make up the outer layer of the skin, the epidermis. In addition to structural roles, Green's research has shown that some desmosomal protein components may also be involved in regulating the immune response. One such protein called desmoglein 1 (DSG1) helps the outer layer of the skin recover from UV radiation damage.

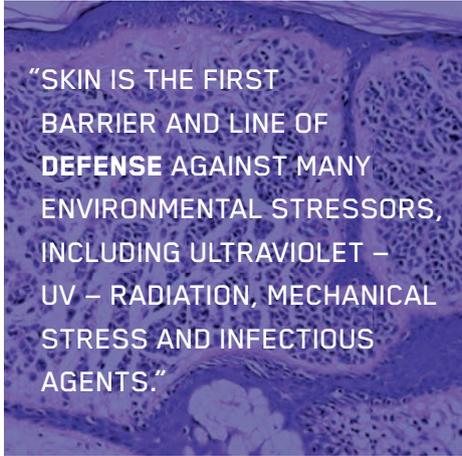
Green is collaborating with Pedram Gerami, MD, who directs the dermatology department's melanoma program and Northwestern Medicine's Skin Cancer Institute, to study molecular changes in the keratinocytes that surround abnormal moles and very early stage melanomas. So far, their studies have shown that DSG1 lacks a nest of epithelial cells that surround the pigment-producing melanocytes or melanoma cells. Now they're trying to figure out how these desmoglein-deficient cell neighbors might promote the conversion of moles to melanoma and to create a biomarker panel to test for such cellular changes to predict progression to melanoma.

While the work is currently in the very early stages, Green hopes it might one day lead to ways to prevent melanoma.

"There could be something topical people could put on moles to prevent transformation into melanoma," she says. "That is the ultimate goal."

SAFER STEROIDS

Few embody the department's shift to translational science better than Irina Budunova, MD, PhD, associate professor of Dermatology and Urology. She's spent more than a decade exploring the glucocorticoid receptor in cancer.



"SKIN IS THE FIRST BARRIER AND LINE OF DEFENSE AGAINST MANY ENVIRONMENTAL STRESSORS, INCLUDING ULTRAVIOLET – UV – RADIATION, MECHANICAL STRESS AND INFECTIOUS AGENTS."



But five years ago she began to focus more exclusively on dermatology. Now, she's using her insights to try to find safer alternatives to drugs targeting the glucocorticoid receptor, a ubiquitous protein that binds to cortisol and other steroid hormones.

Glucocorticoids have been a mainstay of treatment for many systemic diseases and skin conditions for more than 50 years. Despite their effectiveness at treating inflammation and some cancers, these drugs can have serious adverse effects on the skin and many other tissues. Over time, they cause skin thinning and weakening, and prevent wound healing. They also cause a myriad of systemic adverse effects, including muscle wasting, metabolic disturbances and osteoporosis, Budunova notes.

"If glucocorticoids were proposed now, they would never be approved by the FDA because the side effects are too great," she says.

The reason for these side effects is that the glucocorticoid receptor is a major regulator of metabolism. Glucocorticoids can degrade proteins and lipids necessary for the synthesis of glucose in the liver to maintain blood glucose levels. Cells also try to compensate for the receptor's activity, which may cause another set of problems. "Cells don't want the glucocorticoid receptor active for a long time," Budunova says. "They want to shut it down."

She and her colleagues are hot on the trail of two potentially safer treatment strategies. With Joel Dudley, PhD, director of the Next Generation Health Institute at Mount Sinai School of Medicine in New York, she discovered a gene called REDD1, short for "regulated in development and DNA damage response."

The REDD1 gene appears to promote skin atrophy in patients treated with glucocorticoids. Studies in mice showed that knocking out REDD1 allows mice to benefit from the glucocorticoids without developing skin atrophy. Now, the team is screening for FDA-approved drugs that inhibit REDD1; they could potentially be repurposed and given in combination with glucocorticoids as tissue protectors, to prevent adverse effects. One that has emerged as a potential candidate is rapamycin, an immunosuppressant currently used to prevent organ transplant rejection.

"We've already proved this approach is feasible and effective," Budunova says.

She is also searching for alternative glucocorticoid ligands that have a safer pharmacological profile than classic glucocorticoids. One example of such a ligand is a synthetic version of a compound found in an African shrub.

"Using the combination of a REDD1 inhibitor and a topical steroid or of a steroid-like alternative without the steroid side effects could revolutionize how we treat skin disease," Paller said.

Irina Budunova, MD, PhD



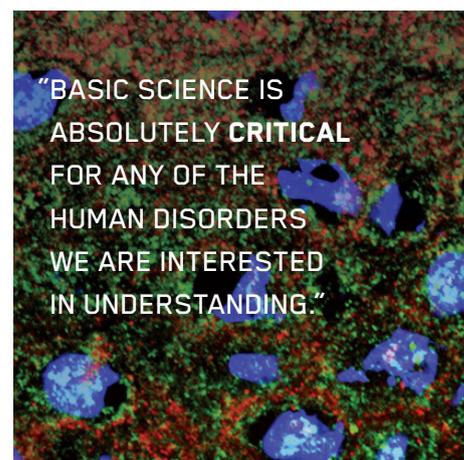
Jaehyuk Choi, MD, PhD



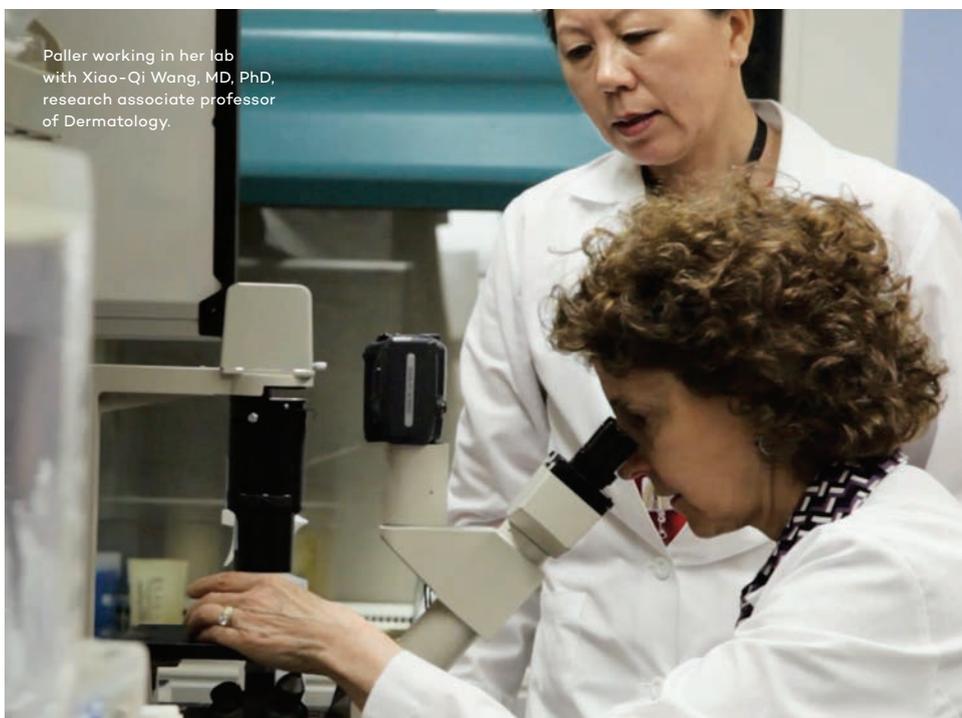
Kathleen Green, PhD



Amy Paller, MD



“BASIC SCIENCE IS ABSOLUTELY CRITICAL FOR ANY OF THE HUMAN DISORDERS WE ARE INTERESTED IN UNDERSTANDING.”



Paller working in her lab with Xiao-Qi Wang, MD, PhD, research associate professor of Dermatology.

COLLABORATING ACROSS NORTHWESTERN

Though all of this research revolves around skin, the work extends beyond the Department of Dermatology. The Northwestern Skin Disease Research Center supports investigators in at least 14 departments across the medical school and university.

As center director, Paller not only promotes this interdisciplinary research — she does it herself. With Daniela Menichella, MD, PhD, '08, '11 GME, assistant professor of Neurology and Pharmacology, and Richard Miller, professor of Pharmacology, Paller has demonstrated that an enzyme called GM3 synthase mediates insulin resistance, impaired wound healing and peripheral neuropathy (nerve damage) in diabetes. Tamping down the activity of GM3 synthase prevents all of these signs in mouse models of diabetes.

Recently, Paller has been working with Chad Mirkin, PhD, professor of Medicine and George B. Rathmann Professor of Chemistry, on nanoparticle constructs called spherical nucleic acids (SNAs). Together, the two found that SNAs can penetrate skin and knock down genes, including GM3 synthase. GM3 synthase SNAs have already reversed the diabetic wound healing problem in mice. “Now we want to leverage these discoveries to see if we can apply this SNA or a small molecule inhibitor topically to prevent or treat neuropathy in the diabetic foot,” she says.

Other leaders in the center, particularly Robert Lavker, PhD, associate director and director of bench research, and Bethany Perez White, PhD, director of the Skin Tissue Engineering Core, use their basic science

expertise to help Northwestern scientists with studies involving patient skin tissue samples or 3-D skin cultures.

“Basic science is absolutely critical for any of the human disorders we are interested in understanding,” says Green, co-director of the Core.

Interdisciplinary support also is essential to work like Choi's. He explains that his patients' care and his studies depend on a team of dermatologists, pathologists, and medical and radiation oncologists, as well as important scientific collaborators in Biochemistry and Molecular Genetics. He and others in Dermatology use what they learn from patients to inform their hypotheses and then use what they find in their labs to improve patient care.

“We pride ourselves as a department that has a robust bedside to bench to bedside pipeline,” he says. ■

GIVING IT A



After Wolff's brain tumor was surgically removed, Northwestern Medicine neurosurgeons injected a concoction of neural stem cells loaded with virus into his brain to attack remaining cancer cells typically resistant to chemotherapy and radiation. Wolff's dose of the new drug is pictured above.

SHOT



First patient undergoes innovative gene therapy to fight brain cancer.

NEWLY DIAGNOSED WITH MALIGNANT GLIOBLASTOMA, HAROLD "WOODY" WOLFF WAS LOOKING FOR HIS BEST CHANCE AT BEATING THIS AGGRESSIVE AND DEADLIEST OF BRAIN CANCERS.

He received that chance — and much more — after seeking a second opinion from James Chandler, MD, '96 GME, the Lavin/Fates Professor of Neurological Surgery and co-director of the Northwestern Brain Tumor Institute (NBTI).

This spring, Wolff became the first patient in a first-of-a-kind clinical trial testing a neural stem cell therapy that works with a common cold virus to attack cancer cells deep within the brain. Unlike most clinical studies for brain cancer that often come into play after tumor recurrence — the hallmark of gliomas — this

trial, known as NU-16CO4, focuses on treating and attempting to cure the disease upfront.

A green light from the Food and Drug Administration (FDA) for a new, untried therapeutic approach never comes without numerous biological studies and exacting data collection and analysis to ensure a minimum baseline of safety. While the preclinical work conducted by principal investigator Maciej "Matt" Lesniak, MD, the Michael J. Marchese Professor and chair of Neurological Surgery, demonstrated that the novel drug works when injected into the brains of animal models, investigators must try the therapy in humans to find out if it will improve patient outcomes.

The fact that no one knew exactly what would happen and what side effects might

"WELL, SOMEONE HAD TO BE FIRST. I WAS WILLING TO BE THAT PERSON."

develop, from brain swelling to death, didn't deter Wolff from participating in the phase I trial. He and his family only saw a promising avenue for help and hope in overcoming this lethal disease.

"Well, someone had to be first," says this 64-year-old resident of St. Charles, Illinois. "I was willing to be that person."

Fuzzy Brain

Short-term memory loss. Difficulty retrieving words. Wolff began noticing these problems in early April while at work and home, making his family concerned about his brain health. "Because of a family history, our first reaction was that he had early-onset Alzheimer's disease, and he should get checked out," recalls Wolff's daughter, Jaclyn Youngquist. "But my dad doesn't always go to the doctor when he should."

Later that month, though, Wolff, owner and president of a water and waste water management services company based in Elgin, found himself tongue tied while giving a presentation in Salt Lake City to clients. His colleagues had to take over. Upon returning



Harold Wolff, below with his family pre-surgery. Wolff was the first patient to try the new treatment for glioblastoma.

home, Wolff immediately went to the emergency room at Northwestern Medicine's Delnor Hospital in Geneva. An MRI scan of his brain showed a large mass. "I asked what that meant," Wolff recalls. "They said, 'You have a very large brain tumor,' and then they kept me in the hospital for several days."

After making the initial diagnosis, John Brayton, '90 MD, a neurosurgeon at Delnor, and his team referred Wolff to the NBTI, part of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University. Chandler got the seal of approval from one of Wolff's distant relatives — a spine specialist who knew of the skilled neurosurgeon. "After doing a lot

of research, it made sense to find the best doctors as close to home as possible," Youngquist says. "Northwestern has a great reputation."

Multipronged Approach

Today's standard treatment for malignant glioma follows three steps: surgery, radiation and chemotherapy. During the past 15 years, significant advances in these therapies have failed to raise the survival rate for malignant

glioma beyond two years. "That's just not good enough," says neuro-oncologist Roger Stupp, MD, co-investigator on the trial and co-director of the NBTI, a post he assumed upon joining Northwestern Medicine this spring.

In 2005, Stupp demonstrated that chemotherapy with the drug temozolomide in conjunction with radiotherapy increased survival for patients with glioblastoma. Known as the "Stupp Protocol," this has become the standard of care around the world and is an important component of the new neural stem cell therapy trial.

Intended to test the safety and dosage of the treatment, the first phase of clinical trial



Neurosurgeon Maciej “Matt” Lesniak, MD (bottom left), during Wolff’s procedure. Right, colleagues Angela Bohnen, MD, and James Chandler, MD, ’96 GME, with Lesniak in the operating room.

NU-16CO4 involves injecting neural stem cells loaded with virus throughout the brain cavity at the time the initial tumor is surgically removed. For Wolff’s May 5th surgery, Chandler and Lesniak worked in the operating room together: The former performed the two-hour tumor resection and the latter the 10-minute experimental procedure. Wolff recovered well from both interventions without a hitch.

“It was extremely thrilling to see an idea that I had in the laboratory a dozen years ago and developed through 10 years of publications and \$20 million of government-funded studies finally come to fruition,” says Lesniak about the clinical trial’s inaugural patient. “Of course, I was also happy that Mr. Wolff didn’t experience any adverse side effects.”

After brain surgery, glioblastoma patients typically wait three to six weeks before starting radiation and chemotherapy to ensure wound healing and that they are healthy enough for further treatment. However, a unique aspect of the investigational drug called for a faster timeline. Preclinical data had indicated that radiotherapy could synergistically accelerate and boost viral replication of the engineered adenovirus and its cancer-killing properties.

“With this trial, we wanted to start radiation therapy sooner rather than later,” says co-investigator Sean Sachdev, MD, ’16 GME, assistant professor of Radiation Oncology. For Wolff and the other two clinical trial patients who have followed him this summer,

optimizing the potency of the investigational drug meant starting radiotherapy no later than 10 days after surgery.

Positive Thinking

Advancements in medicine come from pushing the boundaries of care to offer the best options, especially when there are few on hand, as in the case of malignant glioma. Participants in clinical trials are as much pioneers as the clinicians and scientists who translate discoveries from the bench to the bedside. Says Lesniak, “While he fit all the eligibility criteria, most importantly, Mr. Wolff was not afraid to be the first in the world to undergo a treatment that could cause as much harm as good.”

Since completing his cancer treatments, Wolff has been able to go back to work and spend time with friends and family. He continues to maintain a positive outlook on his prognosis. “I thought it was worth a chance,” he says of his participation in the trial.

“Hopefully it will work for me and others, and we can live free of cancer for many more years to come.” ■

CLINICAL TRIALS

Visit cancer.northwestern.edu or call 312-695-1102 if you or someone you know would like to get involved in a clinical trial for cancer at Northwestern.

NORTHWESTERN DEVELOPS TWO NEW INVESTIGATIONAL DRUGS

NU-16CO4

NU-16CO4 is the second drug developed at Northwestern in pre-clinical research to get authorized by the FDA as an investigational new drug, a complex process that involved a multidisciplinary team of 40 people and 25 offices at Northwestern to set up.

NU-0129

The first drug, NU-0129, combats glioblastoma using spherical nucleic acids to target a gene overexpressed in the cancer, BCL2L12. It’s the result of a collaboration between the laboratories of Alexander Stegh, PhD, assistant professor of Neurology in the Division of Neuro-oncology and of Medicine, and Chad Mirkin, PhD, the George B. Rathmann Professor of Chemistry in the Weinberg College of Arts and Sciences, a professor of Medicine in the Division of Hematology and Oncology and director of Northwestern’s International Institute for Nanotechnology.

The early-stage clinical trial for NU-0129, led by Priya Kumthekar, MD, ’11, ’12 GME, assistant professor of Neurology in Neuro-oncology and of Medicine in Hematology and Oncology, will investigate whether the drug is capable of crossing the blood-brain barrier to reach brain tumors in people.

FROM MODEL

Roopal Kundu guides students through the admissions process and beyond.

WRITTEN BY *Nora Dunne*

Kundu mingles with new first-year medical students at a welcome barbeque this summer.



Clinical rotations

Between June and November of last year, 7,516 prospective students applied to join Feinberg's MD Class of 2021, a group that would contain just 161 matriculating students by the following summer.

Choosing the best and brightest from such a large pool of applicants is a responsibility that Roopal V. Kundu, '01 MD, '02 GME, associate dean for Admissions, takes very seriously.

"We are looking for students who will not only be exceptional clinicians, but also leaders in medicine: individuals who want to give back to the community around them in a bigger space than the patient-physician relationship," she explains. "This could be in academia, science, policy, advocacy, international health — as future ambassadors of Feinberg, we want our students to develop their individual passions."

Kundu, a Feinberg graduate herself, practices what she preaches: In addition to leading the Office of Admissions, she is a dermatologist at Northwestern Memorial Hospital and the Jesse Brown VA Medical Center, a principal investigator on multiple research projects

and an associate professor in Feinberg's Departments of Medical Education and Dermatology. Before taking over admissions in September 2016, she was also director of the dermatology residency program at McGaw Medical Center of Northwestern University.

As a clinician and investigator, Kundu focuses on skin of color. In 2005, fresh out of her residency, she founded the Northwestern Center for Ethnic Skin, where she treats skin and hair disorders in African-American, Hispanic and Asian patients.

"One of the main diseases I see is vitiligo, where you lose pigment in your skin," Kundu says. "A light-skinned patient can get it as commonly as a dark-skinned patient, but there's more contrast and psychosocial implications for people with darker skin."

She's currently testing a potential new treatment for vitiligo and looking for new treatment targets for keloids, raised scars that affect dark-skinned people most frequently. At the same time, she serves as the faculty mentor on a handful of student- and resident-initiated research projects.

"Getting to know our talented students and residents, and striving to be a good role model and mentor to them, is one of the parts of my job that I love most," says Kundu, also the Jacob R. Suker, MD, Professor of Medical Education.

She and her team look for a similar sense of altruism in applicants. Kundu puts it simply: "We're looking for nice people, who are inquiry driven and hard working and enjoy working collaboratively in a team environment to accomplish a bigger purpose than they could on their own."

A CULTURE OF SUPPORT

Kundu recognizes that the kind of applicants Feinberg wants to attract likely have their pick of top-tier medical schools. While part of her job is determining which students will thrive at Feinberg, it's also to show students that the school is the right choice for them. Her office does this by inviting applicants to one-on-one interviews with faculty and current students, and by running events like Second Look, where accepted students come back to campus in the spring before making their final decision. ➤

“We want applicants who visit to understand that Feinberg is a special place where they’ll be mentored and supported and make personal connections.”



Kundu with other leadership from Feinberg's MD Admissions and Education team. From left to right, Patricia Garcia, MD, MPH, '91 GME, Marianne Green, MD, Diane Wayne, '91 MD, Kundu, and Sandra Sanguino, '93 MD, MPH, '96, '99 GME.



Each spring, Kundu's team hosts Second Look, an event that showcases the school's curriculum and campus to students who have been accepted to Feinberg.

Below, Kundu with one of her own mentors, Amy Paller, MD, chair of Dermatology.



“Among the great joys of being a mentor is watching a student blossom into a leader and role model.”

— AMY PALLER, MD

First research project

“Outside of the obvious factors like location and ranking, students choose Feinberg based on fit and feel, the intangibles that are difficult to quantify,” she says. “We want applicants who visit to understand that Feinberg is a special place where they’ll be mentored and supported and make personal connections.” It’s certainly proved to be the case for Kundu. She recalls how her own mentor, Amy Paller, MD, ’81 MSc, ’83 GME, gave her initial exposure to research and the field of dermatology when she was a medical student, setting her on the path she’s on today.

“When I started medical school, I wanted to be a pediatrician,” Kundu recalls. “So I met with clinicians involved in different pediatric specialties, including Dr. Paller in pediatric dermatology. She was contagiously excited about her work, full of ideas and inspirational.”

Kundu went on to conduct a research project with Paller between her first and second year of medical school, leading to her first published manuscript reviewing hypertrichosis in children. Years later, just as Kundu was finishing her residency at the University of Illinois Hospital, Paller became chair of Dermatology and recruited her protégé back to Northwestern.

“I was interested in ethnic skin, this brand-new niche in dermatology,” Kundu says. “She supported me when I was just beginning and made it possible for me to start the Center for Ethnic Skin.”

Kundu left to serve on the faculty at New York University from 2007 to 2010, but kept her foot in the door at Northwestern by continuing to run the Center from afar. Then she returned to Northwestern to direct the dermatology residency program.

“Suddenly my office was next to Dr. Paller’s office,” she says. “I met her when I was in my early 20s, a deer in the headlights, and then I’m her colleague and making decisions with her. There’s some serendipity to life.”

It doesn’t seem like too much of a stretch, then, that a prospective student who sits across from Kundu’s desk for an interview in the Office of Admissions this fall could choose Feinberg, complete medical school and, with a lot of hard work, eventually land a leadership role here and share a wall with Kundu herself.

“Among the great joys of being a mentor is watching a student blossom into a leader and role model for the next generation,” says Paller. “Indeed, from our first discussion of her early scholarly publication 20 years ago as a Northwestern medical student through career counseling as a faculty member, residency director and now associate dean for Admissions, I have had the pleasure of observing Dr. Kundu evolve into an outstanding mentor to students, residents and other faculty. She truly embodies all the qualities we treasure at the Feinberg School of Medicine.” ■



A Feinberg Family

Kundu, who went to Northwestern as an undergraduate student before medical school at Feinberg, says she “bleeds purple” — and so does her family. Her husband, Shilajit Kundu, MD, ’07 GME, is an associate professor of Urology at Northwestern, and her two younger sisters (pictured above), Neelam Vashi Secemsky, ’08 MD, ’09 GME, and Ronak Vashi Patel, ’13 MD, also attended Feinberg for medical school. Though her parents, Ajit and Kaumudini Vashi, are not physicians, “They believe in the value of education as a platform to reach opportunity and then give back,” Kundu says.

She has a full life outside of work, too. At home, Kundu spends time with her three children, ages 6 to 11, and dog Funder. This summer, for instance, the family grew vegetables together in their garden. She also takes tennis and golf lessons, belongs to a book club and is vice president of the parent teacher council at her children’s school.

“I’ve always lived by the motto ‘Work hard and play hard, and always enjoy the ride,’” Kundu says.

Apply for residency

Graduate

150 YEARS

This year is the Medical Alumni Association's 150th anniversary! The Alumni Association of the Chicago Medical College (what later became Northwestern University's medical school) was organized in 1867. Today, our members number nearly 25,000.

Helping Our Students Succeed

A letter from Jim Kelly, '73 MD

As chairman of the Engagement Committee, I have had the opportunity to be a part of an "exit interview" process with a group of graduating Feinberg students for the past three years. Usually the interview took place over pizza and beer at Gino's East in a fairly relaxed atmosphere.

While I asked standard questions, the student answers were certainly not standard. **Why apply to Feinberg?** Answers included: because it's a "top tier medical school," it has an "outstanding reputation" and "strong medical school and residencies."

— ” —
How can we as alumni then support the Feinberg student body? Certainly, by aligning ourselves with the school's administration and by seeking new ideas to engage our students, GMEs and alumni.

this: "Yes, I wanted to be challenged academically and prepared for residency. Feinberg did them both."

Clearly I was talking with a hand-picked group of Feinberg students, but I sensed among them a feeling of accomplishment and a strong undertone that as senior students, they were well prepared for their next challenge. How can we as alumni then support the Feinberg student body? Certainly, by aligning ourselves with the school's administration and by seeking new ideas to engage our students, GMEs and alumni.

any surprises?

Responses included: "faculty and alumni both wanted us to succeed" and "the structure of the didactics and the clinical work were designed to make us good doctors."

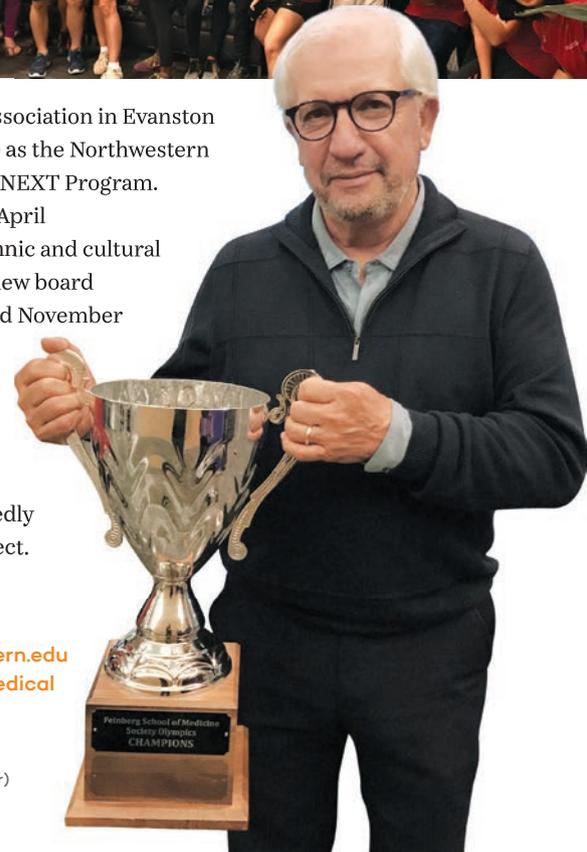
And, finally, I asked, **Would you do it again?** One student summed it up like

With this in mind, we are fully implementing the new HOST Program for our M4s. HOST is an acronym for Help Our Students Travel. The program launched on August 29th through our Mentoring Committee and the work of Emily Jones, '08 MD, '11 GME, and Dan Schwarzlose from our Alumni Office. Through this program, alumni offer free housing and other resources to M4s when they travel for their residency interviews. This program is being offered in collaboration with the Northwestern Alumni Association in Evanston using the same program and software as the Northwestern Network Mentoring Program and the NEXT Program.

We undertook a commitment in April of 2015 to seek greater geographic, ethnic and cultural diversity on the MAAB. We added 20 new board members between November 2015 and November 2017 to amplify and diversify our engagement offerings to GMEs and Feinberg alumni and students. The resulting interaction with our MAAB members and the quality of offerings to our alumni and students has markedly increased as diversity is having its effect.

JOIN THE MAAB!

Contact us at medalum@northwestern.edu if you are interested in joining the Medical Alumni Association Board.



Above and right: Medical students from each of Feinberg's four societies (Lawless, Thompson, Ricketts and Cooper) competed in physical and mental challenges during this year's Society Olympics, hosted by the Medical Alumni Association. The Cooper Society took home the trophy.

Gift Honors Family's Connection to Northwestern

WRITTEN BY *Andrea Arntsen-Harris*

NORTHWESTERN UNIVERSITY ALUMNI ANN SUKER POTTER AND STEPHEN N. POTTER

of Kenilworth, Illinois, have been supporting Northwestern since the mid-1980s, when they made their first gift of \$150 to support scholarships. Since then, their generosity has touched the University's libraries, the Kellogg School of Management and the Feinberg School of Medicine. In January 2017, the couple documented a \$1 million bequest to benefit the Jacob R. Suker, MD, Professorship in Medical Education.

"The faculty and staff at Northwestern are so talented, and we know how expensive it is to stay at the leading edge of healthcare at Feinberg," Stephen Potter said. "We appreciate this great institution that we have in our midst and feel that we and others who are able have an obligation to sustain it."

The Suker Professorship has been held by Roopal V. Kundu, '01 MD, '02 GME, since September 2016 (read more about her on page 26).

An Enduring Family Legacy

The Potters met while pursuing their undergraduate studies at Duke University, but didn't date until the two were at Northwestern — Ann was earning her master of arts in public policy and Stephen his master of management in business. They married two weeks after graduation in 1982.

The couple's gratitude for Northwestern goes even beyond their status as alumni — Ann's father, Jacob R. Suker, '56 MD, for which the professorship they are supporting is named, served on Feinberg's faculty for his entire career.

"Because of our family's longstanding association with Northwestern and its medical school, we had some understanding of the great work being done there, but this new connection has deepened our appreciation and, unexpectedly, enriched our lives," Ann Potter said.

”
“Even though he died nearly 30 years ago, most of the people we meet who have been affiliated with Northwestern for a while know who he is and the impact he made.”



Ann and Stephen Potter created a legacy with a gift that honors Ann's father, Jacob R. Suker, '56 MD.

Suker came to Northwestern in 1941 at the age of 16 to pursue his undergraduate education. After serving in the merchant marine during World War II, he returned to accept his bachelor of arts degree in 1947 and received his master of science in biochemistry in 1951. He continued at Northwestern, earning his medical degree in 1956, followed by his internship and residency training. He joined the medical school faculty as an assistant professor in 1962.

Suker went on to establish an integrated residency program at McGaw Medical Center. Its success led to his appointment as assistant dean and later associate dean for Medical Education. In this role, he was responsible for graduate education and continuing medical education programs and had a significant impact on myriad Northwestern medical trainees. He also served as team physician

for the Chicago Cubs for 28 years and as medical director for the Wrigley Company. He passed away in 1989 after a battle with lung cancer.

"Jake was a great scientist and doctor, but really I think of him as a devoted humanist," Stephen Potter said. "He made every one of his patients and every person around him feel good, regardless of their economic or social status. He spent the same amount of time with the factory workers he cared for at Wrigley Company as he would with the University president."

"We are so grateful that the University recognizes my father, and we want to help to continue his legacy," Ann Potter said. "It is amazing: Even though he died nearly 30 years ago, most of the people we meet who have been affiliated with Northwestern for a while know who he is and the impact he made."

PROFESSORSHIPS: A PRIORITY TO HELP RECRUIT AND RETAIN THE FINEST

Endowed professorships, the highest honor a university can bestow upon its faculty, are reserved for Feinberg's most distinguished scholars. Made possible by the foresight and generosity of donors, these academic positions are also vital tools to help the school recruit and retain talented faculty who will do great things at the medical school and for society.

Fawzi Invested as Tang and Jampol Professor

This summer, Amani Fawzi, MD, was invested as the Cyrus Tang and Lee Jampol Professor of Ophthalmology. Established by the Cyrus Chung Ying Tang Foundation, the professorship recognizes and honors longtime Feinberg faculty member and former department chair Lee M. Jampol, MD, a renowned investigator and expert in diseases of the retina and age-related macular degeneration.

Michael Tang, son of entrepreneur and philanthropist Cyrus Tang, whose foundation created the professorship, shared remarks on behalf of his father. "My father's world

was shrinking because of macular degeneration, and Dr. Jampol provided him with great care and comfort. Dr. Jampol, you have a very grateful patient," said Tang, who is vice chair of Tang Industries and chief executive officer of National Material L.P.

Fawzi, who joined Feinberg in 2012, leads an active National Institutes of Health-funded translational research laboratory focused on identifying therapeutic targets for retinal fibrosis in animal models of ischemic retinopathies. She also runs a comprehensive advanced imaging center that is a clinical hub for collaborative studies with clinicians in neurology, cognitive neurosciences and biomedical engineering.



Amani Fawzi, MD, receives a medal commemorating her investiture from Nicholas J. Volpe, MD, chair of Ophthalmology.

Bradley Straatsma, director emeritus of the Jules Stein Eye Institute at the University of California, Los Angeles, served as Fawzi's extoller: **"Her innovative thinking and originality bode well for this professorship, the Department and the entire University."**

Post Invested as Buehler Professor

Lori Post, PhD, was recently invested as the Buehler Professor of Geriatric Medicine, created by the Buehler Family Foundation to improve the quality of life and care for senior citizens.

"We are investing in our own future — these types of gifts will help both our own future lives and the needs of our aging society," said A.C. Buehler III, quoting his late father, A.C. Buehler, who passed away in 2004.

Post is the inaugural director of Northwestern's Buehler Center for Health Policy and Economics, which conducts research in geriatrics and gerontology and specializes in education and healthcare for



From left to right, John Buehler, Eric G. Neilson, MD, Lori Ann Post, PhD, James Adams, MD, and A.C. Buehler III.

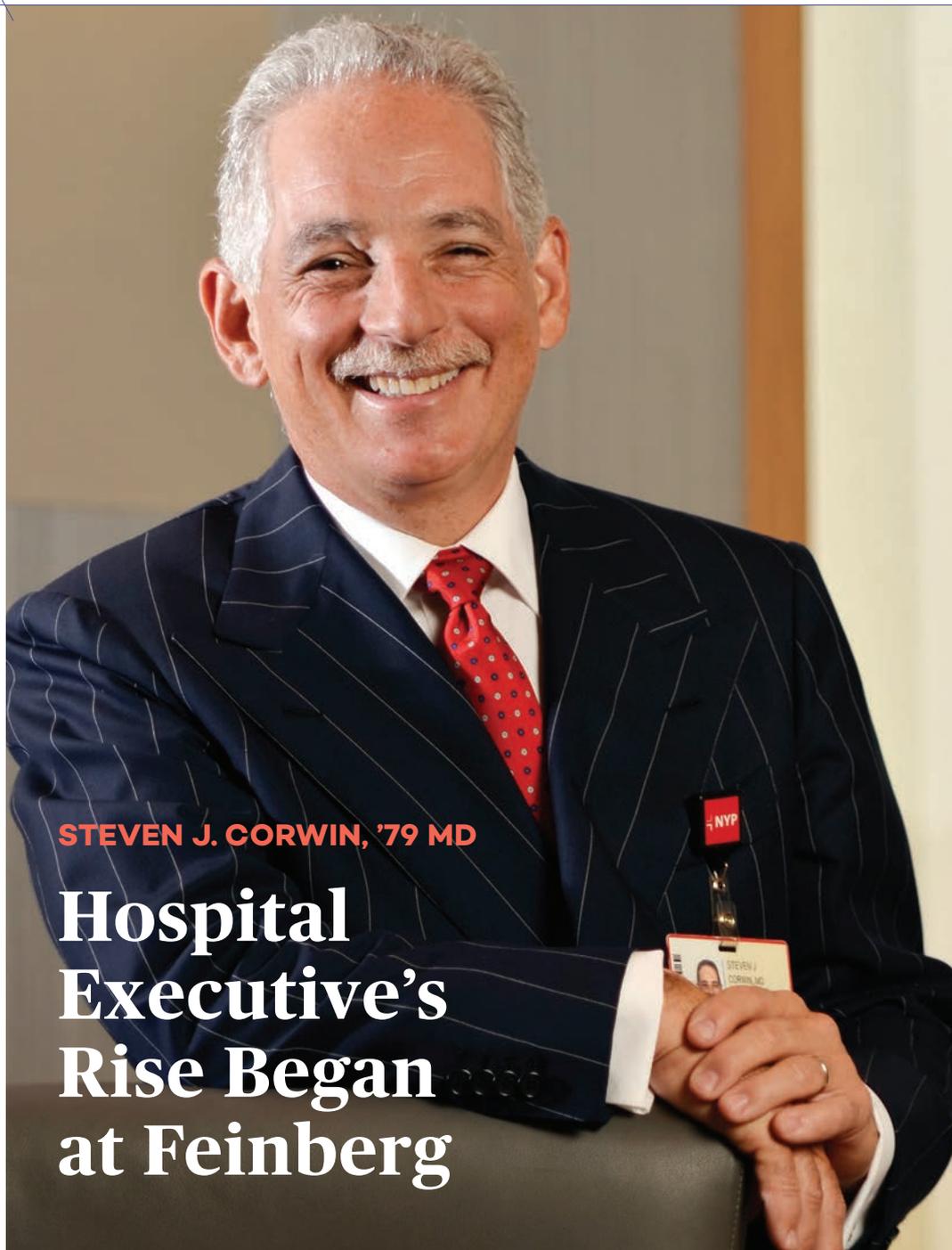
aging individuals and their caretakers. She also has worked on communication techniques and theories to develop a line of research in public and political will.

Post is currently working on USAID-funded food security and conflict in the

21 poorest countries in the world and has numerous collaborations underway with the World Bank, the United Nations, embassies, the United States military and government ministers worldwide. She has developed a strong global network of academic colleagues to end harmful traditional practices such as female genital mutilation, widow cleansing and child brides. Her research awards have exceeded \$30 million in federal, state and foundation grants.

"My dream has been to work across a university to stimulate research and bring people together to collaborate," Post said. "Thank you all for making this dream a reality."

Feinberg continues to pursue endowed professorships as an urgent priority of We Will. The Campaign for Northwestern Medicine. The medical school is proud to have 172 endowed professorships, including 62 established since the start of the campaign.



STEVEN J. CORWIN, '79 MD

Hospital Executive's Rise Began at Feinberg

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teven J. Corwin, '79 MD, president and chief executive officer of NewYork-Presbyterian, traces his multifaceted career success back to his days in a six-year BS/MD program at Northwestern and Feinberg, where he trained to become an acute care cardiologist.

"I have a great fondness for the university and the medical school," Corwin says.

The six-year program "was a terrific experience for me, both as an undergraduate student and a medical student. I felt incredibly well prepared to be an internal medicine intern. That foundation allowed me to do the things I have been able to do in my career."

Under his leadership, the NewYork-Presbyterian hospital system has nearly doubled in size and now has four divisions providing healthcare annually to more than 2 million patients. In 2013, Corwin received an Alumni Merit Award from Northwestern, and this year he was named No. 11 on *Modern Healthcare's* list of the 50 most influential physician leaders.

UNDER CORWIN, NEWYORK-PRESBYTERIAN HAS:

2x
grown in
size

4
hospital
divisions created

2 million
patients provided
healthcare

\$8 billion
operation plus numerous
new facilities

In retrospect, Corwin recognizes that Feinberg was ahead of its time in imparting values and skills like empathy, team building and the social impact of medicine.

“Although they weren’t explicitly taught, it was very much a core part of the value system,” he says. “A lot of leadership at the CEO level revolves around the ability to lead teams, the ability to show empathy and the ability to build a culture that is fundamentally based on core values like respect — all of which were instilled in me. And I don’t want to underestimate the degree to which the confidence I built during my education as an undergrad and medical student helped to build my career.”

Corwin completed his training — residency and a fellowship at Columbia-Presbyterian Medical Center — in 1986 and then practiced cardiology until 2000 at NewYork-Presbyterian, which has a unique dual affiliation with both Columbia University’s College of Physicians and Surgeons, and Cornell University’s Weill Cornell Medicine. In the last two decades, he has moved up the ranks from senior vice president and chief medical officer to president and CEO.

“Having the background as somebody who practiced and understands the practice of medicine helped me tremendously in my leadership roles,” he says. “Being somebody who was a respected practitioner was instrumental in gaining the confidence and acceptance of both the Columbia and Cornell faculty.”

Corwin encourages MDs who have the proclivity to consider such roles. “It’s helpful to have physicians on the administrative side,” he says. “Yes, they have to learn principles around finance and budgeting. But they do understand the most crucial thing, which is taking care of patients.” Of course, he adds, “There are successful systems like

Northwestern’s that are run by people who are not physicians.”

As executive vice president and chief operating officer, Corwin oversaw day-to-day operations on five campuses and led a number of strategic initiatives around quality and patient safety, employee recruitment and retention, care for the underserved, financial and operational strength, and institutional relationship building. As president and CEO, he’s led the establishment of NewYork-

“A LOT OF LEADERSHIP AT THE CEO LEVEL REVOLVES AROUND THE ABILITY TO LEAD TEAMS, THE ABILITY TO SHOW EMPATHY AND THE ABILITY TO BUILD A CULTURE THAT IS FUNDAMENTALLY BASED ON CORE VALUES LIKE RESPECT — ALL OF WHICH WERE INSTILLED IN ME.”

Presbyterian’s Regional Hospital Network and Medical Groups, overseen planning and construction of several facilities, and spear-headed technological initiatives ranging from on-demand electronic medical records to telehealth services.

Looking back, Corwin takes pride in being the first in his family to become a physician, graduating Feinberg summa cum laude, and being named a chief resident and then a cardiology fellow. More recently, he says, “I’m now very proud of having built up our hospital and put it

in a position to deliver great care for our region. There was a lot of help along the way to getting there. I’ve got a great management team and a great board of trustees.”

NewYork-Presbyterian has grown from a \$3.5 billion operation to an \$8 billion one, and added numerous facilities, Corwin says. “I’m very proud that I’ve been present since the beginning of the merger” with Columbia and Cornell, the only such three-way arrangement in the country. “Our philosophy is that all three enterprises are working together to provide great care and that academic medicine is a very important part of the solution to this country’s healthcare problems.”

His current role includes ensuring the best patient care and getting feedback from chiefs of service to do so, Corwin explains. He must keep the philanthropic community up-to-date about what’s happening at the hospital. And he needs to constantly team-build. “It’s really important, with a system the size of ours, to make sure that we’re all pulling our oars in the same direction,” Corwin says. “I make sure everybody feels listened to, that we’re making decisions with consensus and that tough decisions get made quickly.”

Corwin’s typical day at NewYork-Presbyterian goes from about 7 a.m. to 6 or 7 p.m. He discusses strategic initiatives and financial matters with trustees and senior administrative leaders, and he meets with the deans of the respective medical schools. “I need to make sure we all move forward together and that both deans feel that I’m helping them to support the academic mission and the research mission,” Corwin says. “And then also that we’re moving forward the clinical enterprise together.”

CORWIN’S CAREER TRAJECTORY



PROGRESS NOTES

*We'd love to hear from you!
Please share your recent
news, accomplishments and
important milestones with us.*



Send your updates and high-resolution photos to medcommunications@northwestern.edu.

We will publish them in an upcoming issue of the magazine.

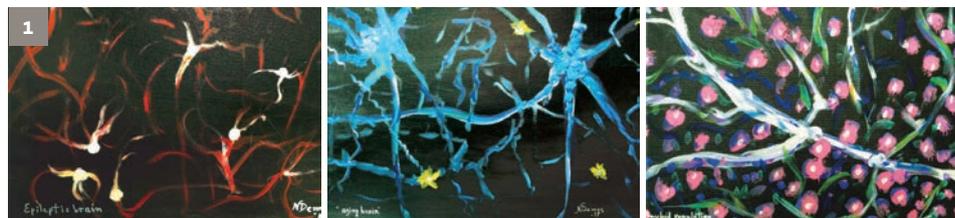
1940s

Albert J. Miller, '46 MD, writes, "I was the class representative, but there are very few of us left now that my classmate, **R. Drew Miller, '46 MD** (no relation), has died. Drew and I sat next to each other for most of our medical classes. He was a fine student, a committed physician and a gentleman; he was a credit to Northwestern and the Mayo Clinic, where he spent most of his career. He personified the concept of a caring physician and should be an idol for those who are coming along."

Benjamin Kenagy, '55 MD, writes, "This summer I celebrated my 90th birthday. At the prodding of my wife and two daughters, I published my life story: "BEN KENAGY: Through 90 Years."

1950s

Simon Myint, '53 MD, shared that he volunteers as a surgeon in remote northwestern Nepal, at his own expense. He has also worked with LIGA International (the Flying Doctors of



Mercy) in Mexico. In October 2016, he played in the World Medical Tennis Society meeting in Lima, Peru. No one was in his 85-90 age group, so he played in the 76-80 age group instead and won a bronze medal. 📷 2

Nicholas Demos, '54 MS, '55 MD, '58 GME, writes, "I finished surgery with Dr. Loyal Davis in 1963. Then I got my boards in surgery in 1964, thoracic in 1965 and peripheral vascular in 1983. After I retired in 2013, I started teaching medical students. I now paint one or two times a week." Demos started painting in acrylics after learning from one of his patients. Pictured, some of his work inspired by images in previous issues of *Northwestern Medicine* magazine. 📷 1, 3

Kenrad Nelson, '58 MD, professor of Epidemiology, International Health and Medicine at the Johns Hopkins Medical Institutions, attended the first European Union/Mongolian Hepatology Conference in Ulan Bator, Mongolia, in August. The purpose of the conference was to develop an effective medical and public health program to reverse the epidemic of liver-related morbidity and mortality in Mongolia, which has the highest rate of mortality from liver cancer of any country in the world.

Nelson is also a member of the Technical Advisory Group to control the hepatitis C virus epidemic in the Republic of Georgia, another country that has developed a public health intervention program to deal with a large epidemic. 📷 4

1960s

Kevin Glynn, '61 MD, released his book, "Gasping for Air: How Breathing Is Killing Us

and What We Can Do about It," Rowman & Littlefield Publishers, in August. He writes, "The book tells stories of the men and women who lead the fight for healthy breathing. Several of the anecdotes draw on my experiences at Feinberg." According to the publisher, "Gasping for Air" is the dramatic story of how infections, toxins, carcinogens and air pollution strike against one of our basic body functions." The book is available online through Amazon and Barnes and Noble. 📷 5

"R. DREW MILLER, '46 MD, PERSONIFIED THE CONCEPT OF A CARING PHYSICIAN AND SHOULD BE AN IDOL FOR THOSE WHO ARE COMING ALONG." -ALBERT J. MILLER, '46 MD

David Kerns, '68 MD, a retired professor of pediatrics, journalist and novelist will be releasing a new book, "Fortnight on Maxwell Street," in early 2018 with Bay Tree Publishing. The novel is set in the Chicago Maternity Center in the spring of 1968.

Kerns writes, "The Maternity Center was overseen by the Northwestern Department of Obstetrics and Gynecology and for 75 years was the source of home deliveries in the inner city. My experience there as a senior medical student was the inspiration for the novel. It is steeped in the history of the center and its association with the medical school. At the heart of the story is the collision of the center's mission and the chaos that ensued following the assassination of Martin Luther King, Jr. The fictional protagonist is a senior Northwestern medical student." 📷 6

1970s

John Dunne, '70 MD, writes, "I am now living in Bellingham, Wash., where we moved after closing my practice, and semi-retired. I still work two days a week providing child psychiatric consultations. I remain active in the American Academy of Clinical Psychiatrists, as well as Rotary, and play trombone in two orchestras. I have started volunteering in two middle schools, coaching new trombone players. We live two blocks away from our grandchildren, ages six and three, and see them frequently. My wife, Joy, and I are both in good health (all things considered) and like to travel."

John Neale, '70 MD, writes, "I enjoyed the U.S. Navy during the Vietnam War and 40 years of emergency room work in California. Now I am in Princeton, N.J., with frequent visits with my medical school roommate, **Rich Gillum, '70 MD.**"

Howard Weiss, '71 MD, of Baltimore, received the 2017 Volunteer Clinical Faculty Award from the Johns Hopkins University School of Medicine. Weiss has been on the clinical faculty of the Neurology department at Hopkins since 1977. He is chairman of the medical advisory board of the Parkinson Foundation of the National Capital Area.

Arnold R. Eiser, '74 MD, was named a Lifetime Achiever by Marquis Who's Who. He is an adjunct senior fellow at the Leonard Davis Institute of Healthcare Economics and Policy at the University of Pennsylvania.

Eiser also authored "The Ethos of Medicine in Postmodern America," available online through Amazon.

"THE ROCK BAND OF MARK NOLAN HILL, '77 MD, DR. MARK AND THE SUTURES, HAS PLAYED FUNDRAISERS FOR THE AMERICAN CANCER ASSOCIATION, MISERICORDIA, TSUNAMI RELIEF AND THE HAITI EARTHQUAKE."

Michael Shannon, '70 MD, was featured in *Reader's Digest* (December 2016/January 2017 issue) in the "Miracle in Real Life" section. The article, entitled "I Don't Know if He Knows How Lucky He Was," details a serious car accident Shannon was in that connected him with a young paramedic whom he had cared for as a severely ill premature baby 30 years earlier.

Richard A. Moscicki, '76 MD, joined the Pharmaceutical Research and Manufacturers of America as chief medical officer and executive vice president.

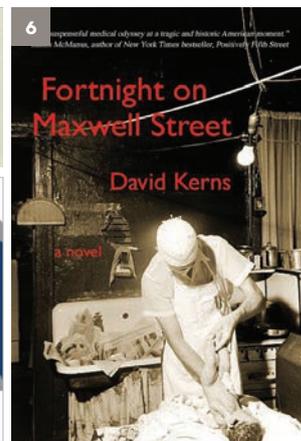
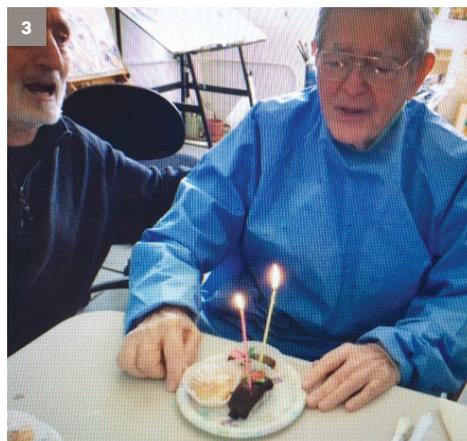
Mark Nolan Hill, '77 MD, professor of Surgery at the Chicago Medical School and president of North Shore Surgical Associates, recently

celebrated the 30th year anniversary of his rock band, Dr. Mark and the Sutures. Their World Tour began at their annual Highland Park concert on Aug. 12. Read more about the band online at magazine.nm.org.  

Peter Geittmann, '77 MD, '81 GME, mentored Northwestern medical students in the 80s at Northwest Community Hospital, where he worked for 35 years, delivering 6,000 babies. He retired last October and started a foundation to continue helping underinsured mothers and babies who suffer catastrophic events.

Howard J. Fullman, '79 MD, of Malibu, Calif., has served as medical director and chief of staff at Kaiser Permanente West Los Angeles since 2004. He is also a professor of Medicine at the University of Southern California and associate clinical professor at the University of California, Los Angeles. He and his wife, Sandra, have two adult children, Alex and Casey. He would love to hear from his classmates.

Ora Hirsch Pescovitz, '79 MD, a member of the National Academy of Medicine, was named the seventh president of Oakland University. She is a renowned pediatric endocrinologist and scientist who has published more than 190 manuscripts and books. She also serves as professor of Biomedical Sciences at the Oakland University William Beaumont School of Medicine. In October, she and her daughter, Naomi, a Northwestern University journalism graduate, opened the Marilyn K. Glick Women's Enrichment lecture series at the Indianapolis Propylaeum.



1980s

Lydia P. Howell, '81 MD, professor and chair of Pathology and Laboratory Medicine at UC Davis Health, will receive the American Society of Cytopathology's Papanicolaou Award at the annual scientific meeting in Phoenix on Nov. 12. Howell has pioneered methods for cervical cancer screening and advocates for high quality screening, early detection and diagnostic services for breast and cervical cancers. She has held many American Society of Cytopathology leadership roles, including foundation chair from 2005-2009 and president from 2011-2012.

Len Yaffe, '82 MD, and George Daniels, '82 MD, '88 GME, shared a photo with their wives Ruth and Kathleen, respectively, at a wine tasting in Napa. [📷 8](#)

James B. McAuley, '85 MD, '87 MPH, internist, pediatrician and adult and pediatric infectious

disease specialist, and his wife Amy McAuley, MD, relocated in 2016 to Whiteriver, Ariz., as employees of the USPHS Indian Health Service, where they provide healthcare for the White Mountain Apache Tribe. Jim serves as the clinical director of the Whiteriver Indian Hospital. From 2011 through 2016, he served in Zambia with the Centers for Disease Control and Prevention (CDC) leading HIV, TB and malaria work funded through the President's Emergency Fund for AIDS Relief. During his time in Africa, he twice served as the CDC team leader for Ebola control in Sierra Leone. Any classmates traveling to the Southwest are welcome to visit him on the Rez! [📷 9](#)

1990s

James Guevara, '90 MD, resides in the Philadelphia area along with his wife, Cindy, and two college-age boys. He works as a professor of Pediatrics and Epidemiology at the

Perelman School of Medicine at the University of Pennsylvania and is an attending pediatrician at the Children's Hospital of Philadelphia.

[📷 10](#)

Ron Villejo, '93 PhD, writes, "Forty years ago I began my first day of classes at NU. Today, my wife Karen Krevchuck and I are proud to say that our wonderful daughter, Eva Krevchuck-Villejo, is also starting her first day of classes at NU! Here is a recent cheerleading photo of her." [📷 11](#)

John M. Santopietro, '95 MD, was named president and medical director of Silver Hill Hospital, a mental health facility in New Canaan, Conn. He began in September.

Isaac Yi Kim, '96 PhD, '97 MD, received his MBA from the Wharton School in May 2017. He is currently serving as the acting chief of Urology at Rutgers-Robert Wood Johnson Medical School. He is working on a study exploring the mechanism of therapy resistance



SAVE the DATE

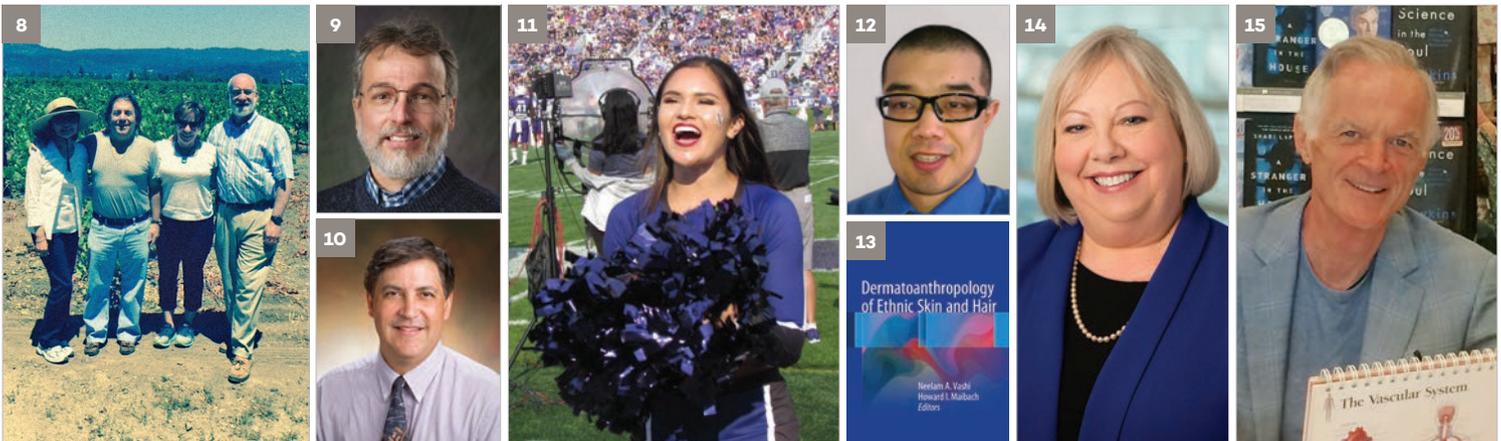
NORTHWESTERN UNIVERSITY
FEINBERG SCHOOL OF MEDICINE

Celebrate
IN CHICAGO

ALUMNI WEEKEND 2018

FRIDAY, APRIL 27

SATURDAY, APRIL 28



in prostate cancer, titled “TCF4 and enzalutamide-resistance in prostate cancer.”

Sharon Mowat '99 MD, pediatrician hospitalist, was named in May 2017 as the new co-physician-in-chief of Kaiser Permanente’s Diablo Service Area. Mowat will serve alongside Kenneth Grullon, MD, overseeing a team of more than 950 physicians, 8,000 staff, two hospitals and 12 clinic sites in Central and East Contra Costa County and the Tri-Valley Area of Alameda County. She is married with two children and her family lives in Danville. Mowat writes, “I am super excited to lead the medical group and focus on physician and staff engagement.”

2000s

Abraham Tzou, '04 MD, was named vice president of regulatory affairs for Freenome, a San Francisco-based health technology company that focuses on early detection and intervention of cancer and other diseases. 📖 12

Neelam A. Vashi, '08 MD, '09 GME, recently published a book as lead editor, entitled “Dermatoanthropology of Ethnic Skin and Hair,” available on Amazon. This comprehensive text extensively examines cutaneous disease in persons with skin of color and serves as a guide to the diagnosis and treatment of skin disorders for those populations with darker skin types. Vashi is an assistant professor at Boston University, founding director of the BU Center for Ethnic Skin and director of the BU Cosmetic and Laser Center. 📖 13

2010s

Nancy Curdy, '14 MS, of Snellville, Ga., system director of patient safety at Piedmont Healthcare, is president of the board of directors for the National Association for Healthcare Quality (NAHQ). NAHQ’s mission is to serve

“THERE IS A HUGE DISPARITY IN ACCESS TO HIGH-QUALITY BREAST HEALTH SERVICES AND TREATMENT IN CHICAGOLAND.”

-ELENA M. KAMEL, MD, '88 GME

the healthcare quality profession by creating a competent, qualified healthcare quality workforce. 📖 14

John Brooks, '16 PhD, was recently awarded a Hanna H. Gray Fellowship from the Howard Hughes Medical Institute (HHMI). The program, in its inaugural year, supports early-career life scientists in academic labs across the United States.

Morgan Kathleen Hoke, '17 PhD, '17 MPH, joined the University of Pennsylvania as an assistant professor of Anthropology. Her specialty is biocultural anthropology.

GME

Robert Buckingham, MD, '79 GME, recently published his second book, “Rejuvenation! How the Capillary-Cell Dance Blocks Aging while Decreasing Pain and Fatigue,” available on Amazon. The book discusses how to prevent illnesses rather than waiting to treat them. It calls for a reassessment of the traditional disease treatment model and replacement with a model that stages chronic inflammation. 📖 15

Elena M. Kamel, MD, '88 GME, received an award from Susan G. Komen Chicago at the second annual Gala of the Chicago Komen Foundation for her work with breast cancer and her efforts to help improve access to care for African-American and Latino women. She writes, “I have spent many years dedicated to breast cancer awareness and evening the playing field for women from all backgrounds to have a fighting chance to survive this devastating disease, breast cancer. There is a huge disparity in access to high-quality breast health services and treatment in Chicagoland.”

Santiago A. Candocia, MD, '89, '90 GME, joined Chicago North Shore concierge medical practice Dedication Health as a primary care physician.

Mark S. Slaughter, MD, '91 GME, professor and chair of Cardiovascular and Thoracic Surgery at the University of Louisville, co-authored a new text on mechanical circulatory support and was named a councilor for the Southern Thoracic Surgical Association.

Joseph Adashek, MD, '93 GME, clinical associate professor of Maternal-Fetal Medicine at the University of Nevada School of Medicine and University of Nevada, Las Vegas, School of Medicine, as well as chairman of Maternal-Fetal Medicine at Summerlin Hospital and Medical Center, was elected president of the Clark County Medical Society, the medical society for Las Vegas and Henderson, Nev. 📷 16

“MARY CATHERINE CASEY, '13 DPT, CELEBRATED THE ONE-YEAR ANNIVERSARY OF HER CHICAGO PHYSICAL THERAPY PRIVATE PRACTICE, THE FIT INSTITUTE.”

Laura Peterson-Boldt, MD, '95 GME, has been married 25 years and has four children, two of whom are hoping to pursue a career in medicine. She visited the McGaw Medical Center last July and loved the new buildings. Peterson-Boldt works at the Pregnancy Help Center of San Gabriel Valley serving the poor during crisis pregnancies. She is the avid owner of a minor champion bloodhound, McGuire's Lil Surfer Girl, who is named after Kelly Slater.

📷 17, 18

Adam R. Silverman, MD, '95 GME, vice president for population health at Saint Francis Health Care Partners and Southern New England

Health Care Organization LLC, joined the clinical advisory team of Life2, Inc., a healthcare analytics and clinical data services company.

Jean Christophe Lapierre, MD, '99 GME, has a healthcare startup, SkinIO, which was featured in *Built in Chicago*. SkinIO uses a computer mapping system to assess pictures that patients take of their skin, flagging any aberrations. The flagged images are then passed to a team of in-house dermatologists for review.

Guilherme Dabus, MD, '05 GME, was named a 2017 Top Doctor in Miami. He works in interventional neuroradiology.

Erinn Tuck Gardner, MD, '06 GME, who practices at Atlanta Allergy & Asthma, was named a top doctor in Atlanta.

Hyde McKinney Russell, MD, '07, '09, '10 GME, was named the Owen L. Coon Chair of Cardiothoracic Surgery at NorthShore University HealthSystem.

Brad Allen, '11 MD, '16 MS, chief resident of Radiology at the McGaw Medical Center of Northwestern University, was selected as the first North American Society for Cardiovascular Imaging Rising Star Fellow.

Daniel Choi, MD, '11, '14 GME, '14 MS, of Evanston, married Janet Lee, in Northbrook, Ill., on Oct. 1, 2016. He is an assistant professor of Pediatrics at the University of Illinois at Chicago College of Medicine, in the Division of Pediatric Hematology and Oncology. Choi participates in the care of children with all types of blood and cancer disorders.

In Memoriam

Northwestern Medicine expresses its condolences to the families and friends of the following alumni (listed in order of their graduation year) and faculty who have recently passed away.

ALUMNI

Sam A. Marascalco, '43 DDS
Tucson, Arizona
FEBRUARY 1

George A. Besbekos, '47 DDS
Longwood, Florida
JANUARY 2

William B. Fischer, '47 MD, '52 GME
Fontana, Wisconsin
FEBRUARY 28

Herbert W. Goodman, '47 DDS
Portland, Oregon
FEBRUARY 16

Robert J. Crum, '50 DDS
Boise, Idaho
FEBRUARY 14

Jack T. Turpin, '50 MD
Tacoma, Washington
DECEMBER 12, 2016

Jack T. Brown, '51 DDS
Decatur, Illinois
MARCH 29

Dale R. Drew, '51 MD
Bloomfield Hills, Michigan
SEPTEMBER 1

Robert W. Schlitts, '51 DDS
Port Huron, Michigan
OCTOBER 6, 2016

Frank B. Anshutz, '52 DDS
Terre Haute, Indiana
FEBRUARY 12

Rosemary E. Brodie, '52 MD
Portland, Oregon
MARCH 7

David H. Farnham, '52 MD
Missoula, Montana
JUNE 27



William R. Thompson, '52 DDS
Manitowoc, Wisconsin
FEBRUARY 10

Donald G. Cannan, '53 DDS
San Bernardino, California
JANUARY 18

Robert P. Jordheim, '54 MD
Fargo, North Dakota
MAY 31

Earl M. Mumford, '54 MD
Bradenton, Florida
AUGUST 1

Donald Dunbar, '55 DDS
Redding, California
FEBRUARY 8

Edmond I. Eger II, '55 MD
Tiburon, California
AUGUST 26

Marcella Heller Owens, '55 DDS,
Valparaiso, Indiana
MARCH 4

David B. Stevens, '55 MD
Lexington, Kentucky
FEBRUARY 8

Leroy "Lee" A. Ecklund, '56 MD
Madison, Wisconsin
JULY 23

John A. Gallios, '56 DDS,
Scottsdale, Arizona
MARCH 23

Alfred L. Thompson Jr., '56 MD
Austin, Texas
JULY 1

Garth M. Blanch, '58 DDS,
Ogden, Utah
APRIL 3

John E. Brasel, '58 MD
East Moline, Illinois
JUNE 20

Theodore C. Rozema, '60 MD
Landrum, South Carolina
JUNE 9

Philip M. Miller, '61 MD
Short Hills, New Jersey
AUGUST 5

John J. Marrella, '64 MD
Northbrook, Illinois
AUGUST 26

Jarrold R. Schaefer, '64 DDS
Fort Morgan, Colorado
MARCH 24

Richard L. Bettenhausen, '66 MD, '67 GME
Fort Lauderdale, Florida
DECEMBER 21, 2016

Richard A. Fallows, '66 DDS
Bainbridge Island, Washington
MARCH 21

Daniel Lovrinic, MD, '68 GME
Sugarloaf, Pennsylvania
JULY 9

Charles E. Smith, '69 MD, '70 GME
Boise, Idaho
JULY 11

Thomas J. Kehoe, MD '75, '77 GME
Santa Fe, New Mexico
MAY 19

Cynthia Ogden, '75 CERT
Springfield, Illinois
JULY 30

Charles C. Hedde, '78 MD, '81, '82 GME
Vincennes, Indiana
AUGUST 13

Donald D. Perry, '81 DDS
Chicago, Illinois
FEBRUARY 18

Todd A. Graham, '86 MD, '90 GME
South Bend, Indiana
JULY 26

June M. Harrison, '90 DDS
Palatine, Illinois
APRIL 5

FACULTY

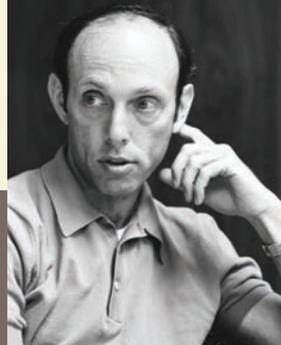
Susan J. Accardi-Muller, MD
instructor of Psychiatry and Behavioral Sciences
Chicago, Illinois
AUGUST 4

Patricia May Barger, '63 PhD
former adjunct professor of Pediatrics
Seattle, Washington
FEBRUARY 25

Roger B. Cole, MD
clinical professor of Pediatrics
Winnetka, Illinois
JULY 15

Mihai Gheorghiadu, MD
professor of Medicine and Surgery
Chicago, Illinois
AUGUST 23

Pioneer in Anesthesiology



When **Edmond I. Eger II, '55 MD**, graduated from Northwestern's medical school, there was not a standard method for measuring the effects of anesthesia on patients. In the decade to come, working as a young anesthesiologist and scientist at the University of California, San Francisco, Eger developed a fundamental unit of anesthetic potency now universally used to determine the appropriate dose of anesthetic gas to give patients in the operating room. His innovation — the minimum alveolar concentration (MAC) — made anesthesia safer for millions of people.

Eger went on to identify the processes governing the onset, uptake and distribution of inhaled anesthetics into the lungs and body tissues and how quickly anesthetics are removed at the end of anesthesia. His work provided precise guidance on how to administer inhaled anesthetics safely and effectively during surgery. Using these concepts, he later identified new anesthetic drugs — isoflurane, sevoflurane and desflurane — that are mainstays of modern practice today.

DPT

Gail (Butler) Elliott, '80 BSPT, lives and works in Fort Wayne, Ind. She works in an outpatient private practice, Mellers and Swoverland Orthopedic Manual Therapy. She received her MHS from the University of Indianapolis in 1993, Orthopedic Clinical Specialist Certification in 2005, fellowship in Orthopedic Manual Therapy from NAIOMPT in 2015, and is pursuing her DSc at Andrews University in Berrien Springs, Mich. Gail has a husband, Gary Elliott, and two sons, Daniel and Matthew.

Carmelo Tenuta, '87 BSPT, is married to Kristie A. Tenuta and owns Sports Physical Therapists, which has nine locations in Southeast Wisconsin.

Mary Catherine Casey, '13 DPT, recently celebrated the one-year anniversary of her Chicago physical therapy private practice, The FIT Institute. She writes, "We are a training facility focused on bridging the gap between physical therapy and sports performance. We increase the longevity of an athlete's career by teaching proper movement patterns that often lead to overuse injuries.

"Most recently, **Stephanie Ferro, '17 DPT**, joined my team. Stephanie is a former collegiate soccer player and brings a great deal of knowledge to FIT and shares our vision in educating today's youth and parents about healthy sports participation and the steps to preserve one's body for years of competition."

PARTNER IN PATIENT CARE

A physician assistant alumnus describes how Feinberg equipped him for a fulfilling career.

When the patient came to the clinic complaining of shoulder pain, Sincer Jacob, '13 PA-C, ordered a routine shoulder X-ray to look for osteoarthritis or rotator cuff disease. Instead, Jacob found something far more sinister: a small lung nodule, peeking through the patient's right lung. When Jacob brought the X-ray to his attending physician, the doctor was surprised — but gave Jacob free rein to order the appropriate tests.

PROBLEM-BASED LEARNING

really helps you think independently: You spend less time in lecture-style format and more time conducting research and being an independent thinker. It helps you form the clinical mindset you'll need when working with a patient to solve a specific problem. It's much more realistic — I felt like my transition to the workplace was seamless.

Scrutinizing the patient's chart revealed she was a former smoker, and a CT scan confirmed the presence of the lung nodule. Within two weeks she was wheeled into an operating room for a lung resection; she's since made a full recovery. In fact, Jacob still sees her as a patient.

Experiences like this are why Jacob attended Feinberg's Physician Assistant (PA) Program. Here, he tells *Northwestern Medicine* magazine about how his Feinberg education shaped his professional life.

WHAT ATTRACTED YOU TO THE ROLE OF PA?

I always knew I wanted to get into healthcare. I wanted to care for patients from initial diagnosis to treatment, but I didn't want to spend the next 13 years of my life studying. I love medicine but my faith and family come first. I wanted to find a healthy medium.

HAS BEING A PA LIVED UP TO YOUR EXPECTATIONS?

I've been really satisfied with the career choice. As a PA you have so much autonomy. At my job, I perform a lot of the care a patient receives — the involvement I have with patients is incredible. For example, a woman could come in and say, "I can't move my shoulder past my head. I can't reach for anything overhead." I can work through the diagnostic process, find she has severe osteoarthritis, determine she needs a shoulder replaced, be with her during the surgery, be the first person she wakes up to in the recovery room, start her in physical therapy, see her at follow-up appointments, and finally see her off when she's done with therapy and can actually give her grandchildren a hug again.

HOW HAS FEINBERG PREPARED YOU FOR YOUR CAREER?

I owe everything to God and the Northwestern program. The problem-based learning format is different than any other school — I had offers to interview at other prestigious universities, but I committed to Northwestern because of the style of the program.

Problem-based learning really helps you think independently: You spend less time in lecture-style format and more time conducting research and being an independent thinker. It helps you form the clinical mindset you'll need when working with a patient to solve a specific problem. It's much more realistic — I felt like my transition to the workplace was seamless.

The dedication of the faculty was another reason I chose Northwestern. It didn't feel like the faculty were just lecturers; they were people who were interested in having a relationship with me. I always had anxiety about taking the boards, but the reassurance I received from faculty was tremendous: They prepared me for the test, reminded me to not over-think it, and I was able to become a better test-taker.

They also were always encouraging the PA students to get involved in the City of Chicago. When I was a student we networked with a variety of organizations, and it's been tremendous to see the program grow and get more involved.



Sincer Jacob, '13 PA-C, works as a PA for Midwest Orthopaedics at Rush in Chicago.



Photo courtesy of Lynn Doglio

2000-present

Center for Genetic Medicine

17 YEARS OF GROWTH

Founded in 2000 with just a few faculty, Northwestern's Center for Genetic Medicine (CGM) has grown in size and significance paralleling expanded comprehension of the human body's 25,000 genes. The CGM was formed at a time when exciting advances in genetics were being made: Dolly the sheep had only recently been cloned (1997), and the Human Genome Project to identify and map all of the genes in the human body was still underway (it was completed in 2003).

Today, the CGM includes more than 150 faculty members, stores 13,000 patient samples and oversees two core facilities providing state-of-the-art technology to scientists, including next-generation sequencing and bioinformatic analysis and gene-edited animal models for human disease using CRISPR/Cas9.

Pictured above: the CGM's cryopreservation services, introduced in 2007. This process of freezing germplasm for stable, long-term storage in liquid nitrogen is a safe method for preserving viable pre-implantation embryos or sperm that can be easily recovered to revive a mouse line.

MORE ONLINE AT MAGAZINE.NM.ORG.

