

Summer 2015 Volume 02, Number 03

Northwestern Medicine Magazine

A publication for the alumni and friends of Northwestern University Feinberg School of Medicine, Northwestern Memorial HealthCare, and the McGaw Medical Center of Northwestern University

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Attacking
Huntington's
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From All Sides

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ADITYA KANESA-THASAN, PAUL JURGENS AND MICHAEL JUNG ARE ALL SMILES DURING FEINBERG'S MD GRADUATION CONVOCATION AT THE NAVY PIER GRAND BALLROOM IN MAY. THE 168 MEMBERS OF THE CLASS RECEIVED THEIR DOCTOR OF MEDICINE DEGREE DURING THE SCHOOL'S 156TH COMMENCEMENT.

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BIG WIN FOR KIDS

Shanley returns to Chicago to lead the
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Northwestern Medicine Leadership



As August marked the end of another fiscal year, we were both privileged to take a break from our regular schedules to celebrate with faculty, staff and employees many achievements and accolades across the Northwestern Medicine academic health system and medical center. We maintained high rankings among America's best hospitals and medical schools, were recognized for continued excellence in nursing, won a number of significant research grants and broke ground on a new biomedical research building. In short, there was much to celebrate for the 25,000 talented individuals who played an integral role in these accomplishments.

In *U.S. News and World Report's* 2015 - 2016 America's Best Hospital Survey, Northwestern Medicine hospitals continued to be well represented, and we are now nationally ranked in 14 specialties. Northwestern Memorial Hospital achieved Honor Roll status for the fourth consecutive year and continues to be ranked first in both Illinois and the Chicago Metro area. Northwestern Medicine Central DuPage Hospital and Northwestern Medicine Lake Forest Hospital both improved their standing in the regional results.

And for the eighth consecutive year, the Feinberg School of Medicine was rated as one of the top 20 research-oriented medical schools in the country in the survey conducted by *U.S. News & World Report*,

with our women's health program ranking 9th in the nation, internal medicine 13th and pediatrics 15th.

Essential to the clinical rankings is the caliber of our nursing care. Just this year Northwestern Memorial Hospital, Northwestern Medicine Central DuPage Hospital and Northwestern Medicine Lake Forest Hospital all once again successfully achieved Magnet® redesignation status. Only seven percent of hospitals nationwide hold this designation from the American Nurses Credentialing Center; even fewer successfully achieve Magnet redesignation status. Along with Northwestern Medicine Delnor Hospital, every hospital in our academic health system has Magnet status. This is an outstanding accomplishment and positions us to attract top nurses who are crucial to providing outstanding care.

In our research laboratories, the important work of our scientists and investigators, which requires ongoing funding to move forward, continues to be rewarded by multi-year grants, including:

- » a four-year, \$27.2 million grant from the National Institutes of Health's National Center for Advancing Translational Sciences to make treatments more accessible to patients;
- » a five-year, \$17.5 million grant from the National Institutes of Health for a multidisciplinary project to invent, develop and test an implantable drug delivery system to protect high-risk individuals from HIV infection; and
- » a five-year, \$11 million competitive grant from the National Cancer Institute for the continued leadership of a Specialized Programs of Research Excellence (SPORE) in prostate cancer, one of only eight in the country.

In addition, we broke ground on the new Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center, which represents a significant step in

our expansion of the research enterprise. This would not be possible without the numerous benefactors who have supported the We Will campaign, including Louis Simpson and Kimberly Querrey. Their \$75 million gift in support of this project shows how strongly they believe in the work we are doing at Northwestern. In the future, we envision that the new building will help us provide more opportunities, mentors and resources for trainees at all levels to conduct research and support the medical school's efforts to recruit world-class physician-scientists to advance programs such as epigenetics, pharmacogenomics and precision medicine.

We do not take our recent accomplishments for granted and appreciate all of the hard work and dedication of the men and women who helped to achieve them. We also understand there is much more to do to attain our strategic vision to become a great academic health system and medical center. Thank you for your ongoing support.

With warm regards,

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

Dean M. Harrison
President and CEO
Northwestern Memorial HealthCare

Campus News

Class of 2015 Celebrates MD Commencement

WRITTEN BY: Sarah Plumridge

See the graduation video and slideshow online at magazine.nm.org.



Feeling anxious and excited, Aderonke Bamgbose Pederson, '15 MD, gathered with the 167 other members of the Class of 2015 at Chicago's Navy Pier Grand Ballroom for the 156th commencement on May 18.

"Commencement means success, for not just myself, but for everybody who helped get me here," says Dr. Pederson, who will be attending Northwestern for her residency in psychiatry. "I see it as a testament that a lot can be accomplished with enough effort, and I feel encouraged to strive to do even better in the future."

Eric G. Neilson, MD, vice president for Medical Affairs and Lewis Landsberg Dean, greeted guests and introduced Morton Schapiro, president of Northwestern University.

Schapiro exhorted the graduates to think about "the challenges that you've overcome and the obstacles you've faced, think about the sacrifices you've made and pat yourselves on the back."

He encouraged graduates to reach out to family, friends, former teachers and professors who helped and supported them on their way to becoming doctors and share their successes.

This year's commencement speaker was Barry Collier, MD, vice president for medical affairs and David Rockefeller Professor at Rockefeller University. Dr. Collier's research focuses on molecular interactions between blood cells and blood vessels, with the goal of developing new therapies for thrombotic diseases such as heart attack and stroke.

He called on the graduates to be compassionate physicians and to follow the tenets of medical humanism, including respecting and protecting patients' dignity, celebrating human diversity and appreciating the complexity of the modern human condition.

He concluded, "As you begin your careers today, I encourage you to go forward with confidence and self-assurance now that you've received the superb education from many great physicians and scientists of the age and from a dedicated and caring institution that served the people among one of the world's great cities. You are truly well prepared; you will succeed."

John Thomas, Jr., PhD, senior associate dean for Medical Education, presented the members of the Class of 2015. As



ONE HUNDRED SIXTY-EIGHT MEMBERS OF THE CLASS OF 2015 RECEIVED THEIR DOCTOR OF MEDICINE DEGREE ON MAY 18. IT WAS A DAY FILLED WITH ANTICIPATION, EXCITEMENT AND SMILES. SEE THE GRADUATION VIDEO AND SLIDESHOW ONLINE AT MAGAZINE.NM.ORG.

graduates crossed the stage, they received their doctoral hood and diploma from their college or faculty mentor, or a family member who is a physician.

Paul Devlin, '15 MD, was nominated to give the senior class message: "Today is a great day and we need to embrace it," Dr. Devlin says. "Cherish this time surrounded by your classmates, your family, your friends, the faculty and administration, and be thankful. When I look back, I see the fond memories that I have shared with all of you. With confidence, I can say that there is nowhere else I would have rather been or anything else I would have rather done than spend the last four years at Northwestern with all of you."

Thirty of this year's graduates were inducted into the Alpha Omega Alpha Medical Honor Society, and 13 graduates were recognized for their work to attain the Latin honor of Magna Cum Laude in Scientia Experimentalis and six graduates received Cum Laude in Scientia Experimentalis. For their academic efforts, nine graduates each received Summa Cum Laude and Magna Cum Laude and 10 graduates received Cum Laude.

Students graduating with joint degrees included 13 graduates earning a Master's Degree in Public Health, four graduates receiving a Master's Degree in Medical Humanities and Bioethics, and 13 completing a doctorate in the Medical Scientist Training Program. The Class of 2015 also had two graduates with joint degrees in business administration and one with a joint degree in healthcare quality and patient safety. **M**

PA Graduates Ready to Begin Healthcare Careers

WRITTEN BY: Anita Chase

The 29 members of the Physician Assistant Program Class of 2015 at Northwestern University Feinberg School of Medicine came together with family and friends on May 16, in Thorne Auditorium, to take their final step in the program—as graduates.

Diane B. Wayne, '91 MD, vice dean for Education, addressed the assembly and acknowledged the hard work of the scholars. She then introduced the commencement speaker, **Lisa Werner, '13 MS**, an accomplished PA graduate who works at Christ Community Health Services in Memphis, Tenn., which serves over 57,000 patients, with more than 160,000 annual visits.

Werner reflects the rich and diverse life paths of many of the PA students who train at Northwestern. She came from a background of community and humanitarian service, working in places as varied as the highlands of Guatemala, to Lawndale on the west side of Chicago, and Kabul, Afghanistan, before being accepted into the Feinberg program. As a PA student, she was awarded the National Health Services Corps Scholarship. Then and now, she serves as an inspiration to others.

"I get to take care of people who struggle every day. People who struggle to make ends meet, to buy their own medicines, to choose, at times, between insulin and food, some who struggle to deal with severe chronic pain because there is no specialist who will see them without insurance," Werner explains. "It is a privilege to serve individuals such as these. In return, I am invited into some of the most private thoughts, secret fears, and sometimes the most honest moments some of them have had in a very long time.

"My friends, you have the magnificent privilege to be invited into such places—don't miss the fragile and fleeting opportunities to show compassion and

meet deep needs. Take care of your patients well."

Following Werner's remarks, Michael MacLean, MS, PAC, director of the PA program, spoke to the class before leading them in the recitation of the Physician Assistant Oath.

"You have each completed the initial phase of your career," says MacLean. "Your Feinberg education has prepared you well; however, now it is time to go out and make a difference in the lives of patients and help to improve the communities and cities in which you will be practicing."

After the graduates were hooded and received their diplomas from Dr. Wayne, four awards were presented to students and faculty: **Laura Ann Guyman, '15 MS**, received the Class of 2015 Academic Achievement Award, and Physician Assistant Distinguished Preceptor Awards were presented to **Steven R. Edelstein, MD**; **James D. Pecard IV, PA-C**; and **Deborah Gulson, MD**.

Finally, Class of 2015 speaker **Scott Crawford, '15 MS**, addressed his peers before the convocation met in the Rubloff Atrium for the celebratory reception. **FM**

THE TWENTY-NINE MEMBERS OF THE PA CLASS OF 2015 THREW THEIR MORTAR BOARDS HIGH IN THE AIR IN JOYFUL CELEBRATION OF THEIR GRADUATION FROM FEINBERG.



Northwestern Physical Therapy Graduates Prepare for New Roles

WRITTEN BY: Anita Chase

Seventy-five students from Northwestern University's Physical Therapy and Human Movement Sciences (NUPTHMS) Class of 2015 assembled at Thorne Auditorium on Saturday, April 18, with family, faculty and well-wishers to receive their DPT diplomas.

Professor and chair of PTHMS, Julius Dewald, PT, PhD, greeted the graduates and congratulated them on their hard work, then introduced Feinberg's vice dean for Regulatory Affairs, Robert Rosa, MD, to expound upon the responsibilities and rewards of being a medical professional.

Anthony Delitto, PhD, PT, FAPTA, professor in the Department of Physical Therapy and associate dean of research for the School of Health and Rehabilitation Sciences at the University of Pittsburgh, gave the commencement speech. Dr. Delitto, a six-time winner of the Orthopaedic Section, American Physical Therapy Association's Steven J. Rose Award for Excellence in Clinical Research, presented "Advice from an Old Railroader" to the 87th convocation.

Afterward, Babette Sanders, PT, DPT, MS, FAPTA, associate professor and assistant chair for Curriculum Affairs, and Marjorie Johnson Hilliard, PT, MS, EdD, associate professor and associate chair for Professional Education, presented the graduates with their diplomas.

Several individuals collected additional honors: [Dorine Aziz](#) received the Clinical Education Award and [Benjamin Beutler](#) accepted the Leadership Award. Three DPT graduates: [Benjamin Binder-Markey](#), [Lindsay Garmirian](#) and [Rosalind Heckman](#)—were recognized as the Dean's Feinberg DPT/PhD Scholars. Scholarship winners included: [Dorine Aziz](#)—Diversity Scholarship; [Benjamin Beutler](#), [Taylor Molitor](#), [Alyssa Montanaro](#) and [Katelyn Skinner](#)—Elizabeth Wood/Dorothy Voss PT Scholarship; and [Kyle Denlinger](#)—Sally C. Edelsberg Scholarship in Physical Therapy.



FELLOW STUDENTS CLAP FOR CATHERIYA CURRAN, '15 DPT (LEFT), WHO SERVED AS CLASS SPEAKER FOR THE GRADUATING CLASS OF 75 DURING THE PT PROGRAM'S 87TH CONVOCATION.

In addition, the graduates were recognized for the successful completion of an original research study. Projects covered a variety of areas concerning stroke patients' abilities and rehabilitation, abdominal strength in recreational runners, physical activity of children in an urban Chicago neighborhood, and the effect of mouthguards on aerobic capacity and heart rate variability.

Closing the ceremony, [Catheriya Curran](#), '15 DPT, delivered the graduating class message. After pausing in the lobby for pictures with relatives and friends, all proceeded to the colorful Crystal Gardens at Navy Pier for the reception.

The Feinberg Department of PTHMS continues to be a leader in the field of physical therapy education. NUPTHMS remains in the top 10 in the annual *U.S. News and World Report* rankings. [M](#)

Faculty Awards and Honors

Lee M. Jampol, MD, Louis Feinberg, MD, Professor of Ophthalmology, was awarded the Macula Society's highest honor, the Michaelson Medal, and gave the Michaelson lecture at the 38th Annual Macula Society Meeting in February.



The honor is given every three years in the name of I.C. Michaelson, MD, whose research on the development and pathophysiology of the retinal vasculature laid the groundwork for future retina scientists. Dr. Jampol has worked at Feinberg for more than 30 years, studying inflammatory diseases of the retina, cystoid macular edema, pharmacology of the retina and central serous chorioretinopathy, and served as chair of the Department of Ophthalmology from 1983 to 2010. Dr. Jampol was president of the Macula Society from 1994 to 1996.

The newest Feinberg School of Medicine faculty members of the Alpha Omega Alpha (AOA) medical honor society are:

- » Michael Abecassis, MD, MBA, chief of organ transplantation and founding director of the Comprehensive Transplant Center
- » Frank Miller, '88 MD, '93 GME, professor of radiology
- » Rukhsana Mirza, MD, MS, '06 GME, assistant professor of ophthalmology
- » John Varga, MD, John and Nancy Hughes Distinguished Professor of Rheumatology and director of the Northwestern Scleroderma Program.

The following faculty members were recognized at the 2015 Feinberg Honors Day:

- » George H. Joost Outstanding Teaching Awards: R. Kannan Mutharasan, '03 MD,

'10 GME, assistant professor of medicine-cardiology, and Eugene Silinsky, PhD, professor of pharmacology, for outstanding teaching in a large group setting

- » M3/M4 Clinical Teaching Award: Robert Hirschtick, MD, associate professor of medicine-general internal medicine and geriatrics, for excellence in the clinical teaching of medical students
- » Michael M. Ravitch Award: Rishi Agrawal, MD/PhD, assistant professor of pediatrics-hospital-based medicine, for his outstanding teaching in a small-group setting.

Michel Kliot, MD, has been appointed interim chair of the Department of Neurological Surgery. Dr. Kliot is a professor in the department, a neurological surgeon at Northwestern Memorial Hospital and an expert in peripheral nerve disorders. Kliot succeeds Andrew Parsa, MD, PhD, who passed away in April.



Amy Kontrick, MD, assistant professor of emergency medicine, was named the national Clerkship Director of the Year by the Clerkship Directors in Emergency Medicine (CDEM), an academy of the Society for Academic Emergency Medicine. Dr. Kontrick stewarded the development of a required EM clerkship for Feinberg M4s in 2002, a rotation that has matured into a student favorite. She has incorporated numerous educational best



practices and spends countless hours advising those pursuing a career in emergency medicine.

Xunrong Luo, MD, PhD, associate professor of medicine-nephrology, microbiology-immunology and surgery-organ transplantation, has been selected to receive the American Society of Transplantation (AST) Basic Science Investigator Award, which goes to mid-career investigators who have made substantial contributions to the field of transplantation medicine. Her research focuses on preventing the lifelong need to take immunosuppressive drugs.



Stephen Miller, PhD, director of the Interdepartmental Immunobiology Center, Judy Gugenheim Research Professor of Microbiology-Immunology, and professor of dermatology, has been selected to receive the Alumni Fellow Award from Penn State. This is the highest recognition given to Penn State alumni and is a university-wide, permanent designation.



Amy S. Paller, MD, '83 GME, Walter J. Hamlin Professor of Dermatology and chair of the Department of Dermatology, has been appointed to the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) advisory council. NIAMS' mission is "to



support research into the causes, treatment and prevention of arthritis and musculoskeletal and skin diseases; the training of scientists to carry out the research; and the dissemination of information on research progress in these diseases."

Daniel Pinto, PT, PhD, assistant professor in the Department of Physical Therapy and Human Movement Sciences, was awarded a fellowship from the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis for his research: "Relationship of sedentary behavior with QALYs in community dwelling adults in the United States with or at risk for knee osteoarthritis." Dr. Pinto is an investigator in the area of health services research, with an interest in identifying the effectiveness and efficiency of conservative interventions for the treatment of musculoskeletal conditions. He is the recent recipient of the Northwestern University-Patient-centered Intervention and Engagement Training (NU-PATIENT) K12 grant. Dr. Pinto serves as an editorial board member for the Journal of *Orthopedic and Sports Physical Therapy and Physiotherapy Practice and Research*.



ROBERT SCHLEIMER, PHD (LEFT), RECEIVED THE TRIPARTITE LEGACY FACULTY PRIZE, AND DAVID ENGMAN, MD, PHD, '95 GME, WAS NAMED A MENTOR OF THE YEAR AT RESEARCH DAY.

Robert Schleimer, PhD, chief of the Division of Medicine Allergy-Immunology and the Dr. Roy Patterson Professor of Medicine, was awarded the Tripartite Legacy Faculty Prize in Translational Science and Education at the 11th Annual Lewis Landsberg Research Day in April. This annual faculty award demonstrates

excellence in research that emphasizes translational approaches, teaching, mentoring and leadership.

The Medical Faculty Council Mentors of the Year were: **Jonathan Licht, MD**, former chief of the Division of Medicine-Hematology/Oncology, and **David Engman, MD, PhD, '95 GME**, professor of pathology and microbiology-immunology.

Shohreh Shahabi, MD, professor of obstetrics and gynecology-gynecologic oncology, joined the Feinberg School of Medicine as chief of the Division of Gynecologic Oncology in May. She also assumed a leadership role as a member of the Lurie Cancer Center's Executive Committee and the Clinical Cancer Center's Executive Council.



Athanasios Vasilopoulos, PhD, assistant professor of radiation oncology, has been named the 2015 Lynn Sage Foundation Scholar. Dr. Vasilopoulos focuses his research on the genetic and biochemical connections between sirtuin genes and carcinogenesis, as well as tumor cell resistance. He studies the potential mechanistic relationship between these sirtuins and specific targets and/or signaling pathways involved in the development of age-related diseases such as cancer.



James S.T. Yao, MD, PhD, professor emeritus in the Division of Vascular Surgery, has received the René Leriche-Prize 2015 from the International Society of Surgery/Société Internationale de Chirurgie. This prize is awarded to the surgeon who has made the most significant contribution to surgery of the arteries, veins or heart. The executive committee cited Dr. Yao's pioneering work with vascular laboratory techniques as well as his many contributions toward the understanding of peripheral vascular problems and non-invasive diagnostic techniques. **M**



Groundbreaking Launches Simpson-Querrey Biomedical Research Center

WRITTEN BY: Nora Dunne

PHOTOGRAPHY BY: Nathan Mandell

See the groundbreaking video
and slideshow online at
magazine.nm.org.



APPROXIMATELY 300 GUESTS ATTENDED THE SPECIAL GROUNDBREAKING CEREMONY OF THE LOUIS A. SIMPSON AND KIMBERLY K. QUERREY BIOMEDICAL RESEARCH CENTER ON MAY 8. TO MARK THE OCCASION, DIGNITARIES RECEIVED LARGE ENGRAVED SHOVELS, WHILE THE OTHER ATTENDEES RECEIVED SMALLER KEEPSAKE SHOVELS AS A MEMENTO.

On May 8, 1925, Northwestern University broke ground on its first Chicago campus building. Exactly 90 years later, the Feinberg community gathered to celebrate its newest expansion, the Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center.

"This is a landmark moment in our history, and one that will impact health for generations to come, here in Chicago and around the country," says **Eric G. Neilson, MD**, vice president for Medical Affairs and Lewis Landsberg Dean. "Today, we build on a legacy of 156 years of innovation and discovery and open a bold new chapter in the history of Northwestern University."

Leaders from the university, Northwestern Medicine, Ann & Robert H. Lurie Children's Hospital of Chicago, and the city of Chicago joined Dean Neilson at the groundbreaking ceremony for the 600,000-square foot, 14-story building, which will be connected to the immediately adjacent Robert H. Lurie Medical Research Center. It will house nine laboratory floors dedicated to biomedical research.

"Absolutely nothing is done in the hospital or clinic today that didn't start as an experiment somewhere in the laboratory. Biomedical research informs patient care," explains Dean Neilson. "Our building will help draw talented faculty, students and postdoctoral fellows to

Chicago and will provide an opportunity to improve human health."

The Stanley Manne Children's Research Institute will occupy four floors in the new research center. "Together we're going to be focusing on very important areas for the population that we share: genetics, heart disease, cancer and neurology, just to name a few," says Pat Magoon, president and CEO of Ann & Robert H. Lurie Children's Hospital of Chicago. "With today's groundbreaking, we're a step closer to achieving that objective."

The building will also support collaborations between scientists at Feinberg and other schools at Northwestern University, and add more than 2,500 construction jobs and 2,000 permanent, full-time positions.

"This center cements Chicago's leadership in the world," says Rahm Emanuel, mayor of Chicago. "Chicago as a city now not only has the technology, not only has the talent, not only has the training to create the jobs of today in the healthcare field, but also the cures for the diseases of tomorrow."

A \$75 million naming gift from benefactors Louis A. Simpson and Kimberly K. Querrey enabled construction of the building, which is projected to open in late 2018. It is designed to accommodate up to an additional 15 laboratory floors in the future. **M**

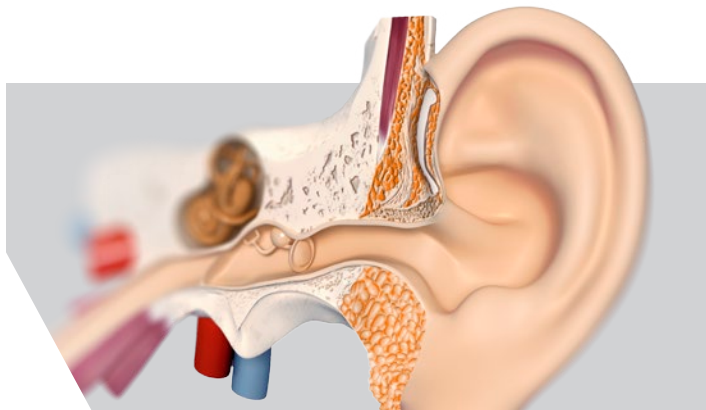


LEADERS FROM NORTHWESTERN UNIVERSITY, NORTHWESTERN MEDICINE, ANN & ROBERT H. LURIE CHILDREN'S HOSPITAL OF CHICAGO AND THE CITY OF CHICAGO CELEBRATED BREAKING GROUND ON THE NEW LOUIS A. SIMPSON AND KIMBERLY K. QUERREY BIOMEDICAL RESEARCH CENTER IN MAY.



FEINBERG DEAN ERIC G. NEILSON, MD, WITH BENEFACTOR KIMBERLY K. QUERREY. QUERREY AND HUSBAND LOUIS A. SIMPSON DONATED \$92 MILLION IN SUPPORT OF THE NEW BIOMEDICAL RESEARCH CENTER THAT WILL BEAR THEIR NAMES.

Research Briefs



Auditory Pain Pathway May Protect against Hearing Loss

Northwestern Medicine scientists believe they have identified the ear's own pain system that protects it from very loud or damaging noise. A newly discovered connection from the cochlea to the brain warns of intense incoming noise that causes tissue damage and hearing loss.

The pathway is different from the one that transfers information about sound to the brain and is populated by a single set of neurons activated only by noxious or dangerous levels of noise.

Because humans are living longer, hearing loss is the most common degenerative condition. The discovery offers an entirely new way of looking at the painful and intractable hearing conditions hyperacusis and tinnitus.

The study was highlighted Feb. 20 in *Nature Reviews Neuroscience* and published in *Current Biology*.

"When sensory hair cells in the ear die, they are not repopulated. That's why hearing loss is irreversible," says study senior author Jaime García-Añoveros, PhD, associate professor of anesthesiology, physiology and neurology. "You need to be able to detect dangerous sound the way your nerve cells alert you to the danger of putting your hand on a hot iron." **IM**

Research funded by grants R21DC006089 and F31DC012013 from the National Institute of Deafness and Other Communication Disorders and R01NS044363 from the National Institute of Neurological Disorders and Stroke, all of the National Institutes of Health, and N00014-14-1-0709 from the Office of Naval Research.



Telomere Changes Predict Cancer

A distinct pattern in the changing length of blood telomeres, the protective end caps on our DNA strands, can predict cancer years before actual diagnosis, according to a new study from Northwestern Medicine and Harvard University published April 30 in *EBioMedicine*.

The pattern—a rapid shortening followed by a stabilization three or four years before diagnosis—could ultimately yield a new biomarker to predict cancer development with a blood test.

Scientists took multiple telomere measurements over a 13-year period in 792 individuals. Initially, scientists discovered telomeres in persons developing cancer looked as much as 15 years chronologically older.

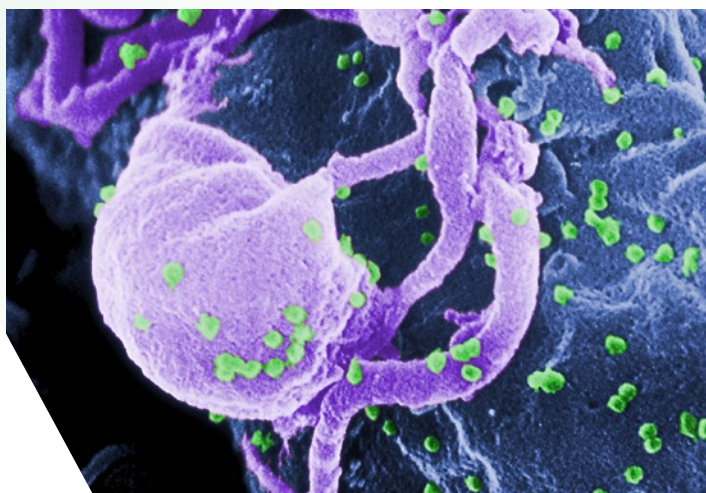
"Because we saw a strong relationship in the pattern across a wide variety of cancers, these procedures could be used to eventually diagnose a wide variety of cancers," says Lifang Hou, MD, PhD, the lead study author and associate professor of preventive medicine-cancer epidemiology and prevention.

The study is believed to be the first to look at telomere length at more than one point in time before diagnosis. That's significant because cancer treatment can shorten telomeres.

The older the person, the more times each cell has divided and the shorter the telomeres. Because cancer cells divide and grow rapidly, scientists would expect the cell to self-destruct. But somehow, cancer finds a way to halt that process.

If scientists can identify how cancer hijacks the cell, Dr. Hou says, perhaps treatments could be developed to cause cancer cells to self-destruct without harming healthy cells. **IM**

The research was supported by grants R01ES021733 and R01ES015172 from the National Institute of Environmental Health Sciences of the National Institutes of Health.



HIV's Sweet Tooth Is Its Downfall

After HIV invades an activated immune cell, it craves sugar and nutrients to replicate and fuel its growth.

Northwestern Medicine and Vanderbilt University scientists discovered the switch that turns on the immune cell's abundant sugar and nutrient pipeline. Then they blocked the switch with an experimental compound, thereby starving HIV to death.

The study was published May 28 in *PLOS Pathogens*.

"It's essential to find new ways to block HIV growth, because the virus is constantly mutating," says corresponding study author Harry Taylor, PhD, research assistant professor of medicine-infectious diseases.

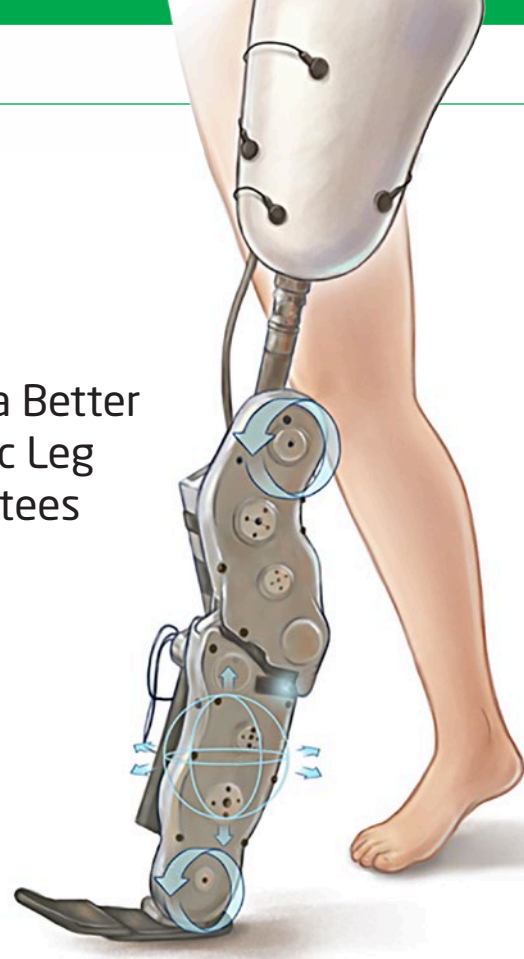
The compound also slowed the proliferation of the abnormally activated immune cells. Current HIV medications do not affect the excess activation and growth of immune cells, which is believed to contribute to the life-long persistence of HIV and leads to excess inflammation that causes premature organ damage—even when the virus is suppressed by current medicines.

Taylor wants to identify more compounds for development into future medicines that will starve HIV—without harming cells.

The discovery may also have applications in treating cancer, which also requires abundant sugar and other nutrients from the cell to grow and spread. **IM**

This research was supported in part by Northwestern Medicine's HIV Translational Research Center, the National Institute of Mental Health grant U54-MH084659, National Institute of Diabetes and Digestive and Kidney Diseases grant 5R21DK094735, the National Center for Research Resources grant 5KL2RR024977 and the National Cancer Institute grant CA060553, of the National Institutes of Health.

Building a Better Prosthetic Leg for Amputees



Scientists from Feinberg and the Rehabilitation Institute of Chicago have developed a bionic leg that gives patients with above-knee amputations better control over movement.

The new knee-to-ankle prosthesis, detailed in a paper published in the *Journal of the American Medical Association (JAMA)*, non-invasively decodes natural electric signals that are generated from muscle contractions to make walking easier.

"Bionic limbs allow for more natural walking patterns, and they have the potential to recover from trips or stumbles. But for these limbs to be useful, they have to be safe and have intuitive control systems," says corresponding author Levi Hargrove, PhD, assistant professor of physical medicine and rehabilitation.

Currently available leg prostheses can't easily transition between different terrains, such as walking on level ground, going up or down ramps, or climbing stairs. To switch from one kind of movement to another, patients have to slow down, stop, press buttons on a controller or make exaggerated movements like rocking back and forth.

Hargrove and his colleagues engineered a control system that enables prostheses to automatically anticipate and respond with the kind of movement an individual wants to make.

Hargrove's group needs to conduct an in-home clinical trial, which has already begun with support from the U.S. Army, and should be completed within four years. **IM**

This study was funded by the Telemedicine and Advanced Technology Research Center, an office of the headquarters of the United States Army Medical Research and Materiel Command, under award W81XWH-09-2-0020.

Media Spotlight

1 WHIPLASH INJURIES COME WITH CHRONIC PAIN: SCIENTISTS TRY TO IDENTIFY PROBLEMS EARLY WITH MRI

SCIENCE WORLD REPORT - APRIL 1, 2015

Researchers at Northwestern Medicine have discovered that about 25 percent of those recovering from whiplash injuries will deal with long-term pain and disability for months or years. "For a long time, whiplash has been treated as a homogenous condition. Our study has shown these patients are not all the same; they have different clinical signs and symptoms," says lead investigator **James Elliott, PT, PhD**, assistant professor of physical therapy and human movement sciences at the Feinberg School of Medicine.

2 MORE SURVIVE CHILD CANCER; HEALTH PROBLEMS PERSIST

WEB MD - APRIL 1, 2015

About 70 percent of adults who survived childhood cancer have a mild or moderate chronic condition. And nearly one-third has a severe, disabling or life-threatening condition. "The fact that many of the indicators of the chronic

conditions we examined increased with age was not altogether surprising. However, when you look at the age of these survivors, the magnitude of these conditions at relatively young ages is quite striking," says lead researcher **Siobhan Phillips, PhD**, assistant professor of preventive medicine-behavioral medicine, at Feinberg.

3 4 SKIN CONDITIONS THAT CAN SIGNAL OTHER HEALTH PROBLEMS

FOX NEWS (NATIONAL) - APRIL 9, 2015

In many cases, the skin conditions eczema, psoriasis, stasis dermatitis and vitiligo are linked to processes occurring throughout the body, and this means they can become risk factors that set you up for other types of illness or injury, says **Jonathan Silverberg, MD, PhD, MPH**, assistant professor of dermatology, medical social sciences and preventive medicine at Northwestern University. "The connections are not something patients should ignore or overlook."

4 CHICAGO-AREA DOCTORS AID VICTIMS OF EARTHQUAKES IN NEPAL

CHICAGO TRIBUNE - MAY 13, 2015

Scott Cordes, MD, assistant professor of clinical orthopaedic surgery, and **Victoria Brander, MD**, associate professor of clinical physical medicine and rehabilitation, both from the Feinberg School of Medicine, went to Nepal with the

1

2

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APRIL

MAY

Feinberg Affiliates among "America's Best Hospitals" in 2015 U.S. News Ranking

Three Northwestern Medicine® hospitals have been recognized by *U.S. News & World Report* in its 2015-2016 ranking of America's Best Hospitals. For the fourth consecutive year, Northwestern Memorial Hospital has been named to the prestigious Best Hospitals Honor Roll, ranking 11th in the nation, 1st in Illinois and 1st in the Chicago Metro Region.

Northwestern Medicine Central DuPage Hospital was ranked 6th in both Illinois and the Chicago Metro Region, and Northwestern Medicine Lake Forest Hospital was ranked 19th in Illinois and 16th in the Chicago Metro Region.

"We strive for excellence in all that we do and these rankings reflect our drive as a growing health system to be among the best in the nation," says Dean M. Harrison, Northwestern Memorial Health-Care's president and CEO. "We applaud the talented physicians, nurses and staff who have earned this recognition. Their exceptional efforts help to provide the very best in high-quality patient care while supporting our mission to always put our Patients First."

The Best Hospitals Honor Roll highlights 15 hospitals out of nearly 5,000 nationwide for their expertise in treating the most challenging patients in at least six medical specialties. Northwestern Memorial was nationally ranked in 13 out of 16 specialties—with top 10 recognition in six specialties—including:

- » For the third consecutive year, Northwestern Memorial has been recognized as a top 10 program for endocrinology & diabetes, ranking 7th in the nation.
- » Northwestern Memorial's urology program was ranked 8th in the country, climbing one spot from the 2014-2015 rankings.
- » Northwestern Memorial was ranked as the 9th best cardiology & heart surgery program in the country and entered the top 10 for the first time.

volunteer medical group, Operation Walk Chicago, to help treat victims of the devastating earthquake that occurred on April 25. Dr. Cordes continued to help through a second quake on May 12, which caused even more extensive damage.

5 HOLD UP, NEW MOMS: BEFORE EATING YOUR PLACENTA, CONSIDER THIS NEW STUDY

THE WASHINGTON POST - JUNE 4, 2015

Should new mothers be eating their afterbirth? Many say yes, praising potential health benefits like mood improvement, nutritional fortitude, increased energy and better milk production. But according to a new paper published by **Crystal Clark, MD, MSc**, assistant professor of psychiatry and behavioral sciences at the Feinberg School of Medicine and a psychiatrist specializing in reproduction-related mood disorders at the Asher Center for the Study and Treatment of Depressive Disorders, which examined all previous studies on the subject, there isn't any real evidence to support those benefits.

6 WHY NORTHWESTERN SAYS 4-D PRINTING WILL WOW YOU

CRAIN'S CHICAGO BUSINESS - JUNE 16, 2015

A group of nanotech researchers, including two from Northwestern University, have won an \$8.5 million grant from the U.S. Department of Defense to create 4-D printing technology, which will be key to developing next-generation

products that involve working at a microscopic scale, from semi-conductors to diagnostic tests. "The technology will let us take different parts—nanoparticles—and assemble those into a 3-D form with near-perfect control over placement of each part," says **Milan Mrksich, PhD**, a professor in the McCormick School of Engineering and of cell and molecular biology.

7 THIS IS THE ONLY SUNSCREEN ARTICLE YOU NEED TO READ

TIME MAGAZINE - JUNE 17, 2015

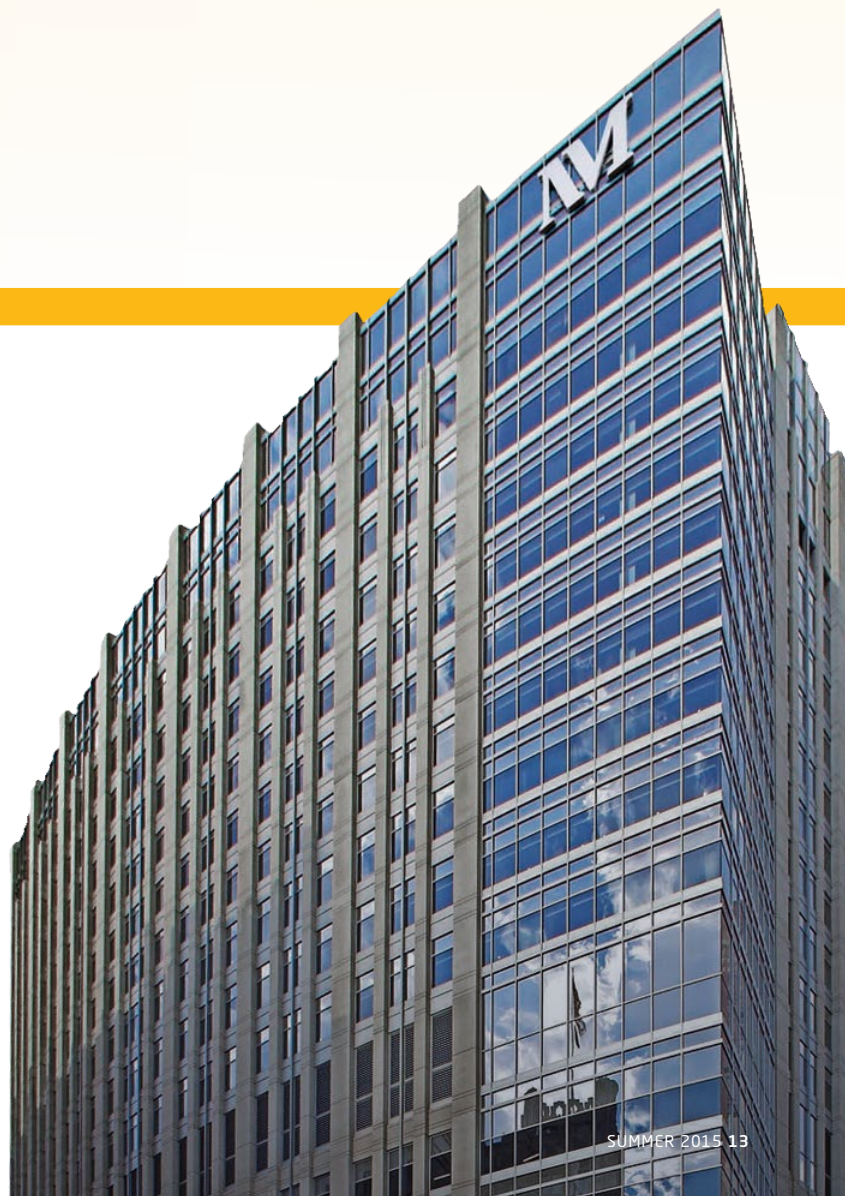
According to a new survey in *JAMA Dermatology*, most people don't understand much of what is written on a sunscreen lotion label. Researchers at the Feinberg School of Medicine surveyed 114 people who came to the dermatology clinic to test their knowledge. Even though 93% of them had purchased a bottle in the last year, most people showed important gaps in their understanding about UVA and UVB rays, SPF numbers and how much sunscreen is needed. "People think that SPF equals everything," says **Roopal Kundu, MD**, associate professor of dermatology at Northwestern and one of the study's authors. **M**



- » Northwestern Memorial was ranked 9th nationally for orthopaedics, representing the breadth of musculoskeletal care across the Northwestern Medicine.
- » Northwestern Memorial was ranked 10th in the country for neurology & neurosurgery, making it the highest ranked neuro program in Illinois and Chicago for the 9th consecutive year.

In addition, the Rehabilitation Institute of Chicago (RIC) has once again been named the No. 1 Physical Medicine and Rehabilitation hospital in the country, for the 25th year in a row. The global leader in rehabilitation, RIC has been ranked No. 1 longer than any other specialty hospital in the nation.

Also as announced in June by *U.S. News*, Ann & Robert H. Lurie Children's Hospital of Chicago ranks No. 11 among only 12 children's hospitals nationwide to qualify for the Honor Roll. Children's hospitals that made the Honor Roll were awarded this distinction because they scored high in at least three specialties — Lurie Children's has four specialties in the top 10: gastroenterology (5), neonatology (7), neurology (8) and urology (9). **M**



New Center for Data Science and Informatics ramps up medical research

WRITTEN BY: Cheryl SooHoo

for
Medical
Discovery

Byte by byte, big data continues to become bigger and even bigger-er. It is estimated that 2.5 quintillion (1 followed by 18 zeros) bytes of data are created every single day. The amount of data created in all areas of biomedical research is staggering, with many bits of information propagating from multiple directions. Today's investigators are just beginning to incorporate data from myriad sources, including: "omic" or molecular-based data such as genomics, proteomics and metabolomics; imaging and signal data; clinical data from patient encounters; and population data found in regional and national data sets such as Medicare and the Framingham Heart Study.

At Northwestern Medicine, the potential for mining big data for groundbreaking medical discoveries is great—and has become even greater. In January, a new Center for Data Science and Informatics (CDSI) was launched. Housed within NUCATS, the CDSI encompasses and expands on the existing strength of the Northwestern Biomedical Informatics Center (NUBIC) by formally including the emerging area of data science. This strategy will further efforts to convert big data into big knowledge at Northwestern Medicine.

In addition to CDSI resources, the Galter Health Sciences Library, also part of NUCATS, can leverage massive amounts of bibliographic data for trend analyses to assess the full impact of Northwestern research. The library also offers new user-friendly statistical and bioinformatics tools such as SPSS, SAS, STATA, Partek Genomics Suite and Golden Helix SNP—as well as training on how to use them—so scientists can conduct their own data analyses.

"Big data is for this decade what mapping the human genome was for the last," says Donald M. Lloyd-Jones, MD, ScM, senior associate dean for clinical and translational research, chair of the Department of Preventive Medicine and director of NUCATS. "Every discipline is producing massive amounts of information. Untangling that big data with data science is at the frontier of biomedical discovery and clinical care, and that's where we want to be by creating the CDSI."

CHARTING NEW FRONTIERS

When cardiologist Sanjiv J. Shah's, moniker for a group of heart patients he was studying made it to the frontlines of care, he took it as an early measure of success. "A medical resident called me and said, 'Dr. Shah, I admitted a huff puffer last night!'" recalls the associate professor of medicine at Feinberg. "His use of the term validated the work we were doing to better classify and treat these patients."

In 2007 Dr. Shah, a 2000 Feinberg School of Medicine alumnus, returned to Northwestern intent on starting the first clinical program in the country, if not the world, for patients with heart failure with preserved ejection fraction (HFpEF). A common and



Discovered three distinct groups of HFpEF patients using big data analytics and devised tailored therapeutic strategies to improve survival.

growing cardiovascular condition, it remains difficult to identify and treat, in part, due to a one-size-fits-all medical approach. HFpEF expert Shah dubbed the condition “Huff-Puff” Syndrome both for the sound of the acronym and the shortness of breath many of these patients develop. To set up his clinic, Shah needed a systematic method for finding huff puffers.

“These patients are not easy to find,” he explains. “Many different providers care for them and there are no easy diagnostic indices like a low ejection fraction or elevated cholesterol readings to hang your hat on.”

So he enlisted the services of the Northwestern University Clinical and Translational Sciences (NUCATS) Institute. With the help of NUCATS, Shah mined the Northwestern Medicine Enterprise Data Warehouse (NMEDW) to target individuals who met his specified HFpEF clinical criteria. Every day the NMEDW, a repository of clinical and research data generated by the Feinberg School of Medicine and Northwestern Memorial HealthCare (NMHC), would reveal a few names. Soon Dr. Shah found his patients—and much more.

Since 2008, Northwestern Medicine’s unique HFpEF outpatient clinic has seen more than 1,300 individuals with the heart condition. Dr. Shah has not only been able to deliver more personalized care

“

Big data is for this decade what mapping the human genome was for the last.

”

but also to make important clinical observations that could vastly improve patient outcomes. In the January 2015 issue of *Circulation*, Dr. Shah detailed the first study to conduct high-density phenotypic classification (phenomapping) of HFpEF. Using big data analytics, the investigators discovered three distinct groups of HFpEF patients: each has significantly different clinical profiles and levels of risk for hospitalization or death that demand tailored therapeutic strategies. These findings are a revolutionary departure from the current standard of care that lumps these patients into one broad HFpEF category.

From the get-go, Shah employed bioinformatics and big data analytics to accelerate his discovery of a novel classification system for HFpEF. It’s an approach that the recently established Center for Data Science and Informatics (CDSI) plans to foster with many more investigators at Feinberg and beyond.

FUELING MEDICAL DISCOVERY

Electronic health record (EHR) systems cross most people’s minds when they think of big data generators in biomedicine. Indeed,

electronic charts produce copious amounts of digitally available information with every patient visit. Add data from healthcare claims, imaging studies, clinical outcomes and molecular assays – and the data get real big, real fast. By aggregating and sifting through large amounts of information, the hope is that patterns and predictors of health and disease will rise to the surface. They will, in turn, improve the speed and quality of translational research. In the near future, computerized simulations of patient populations, or “synthetic cohorts,” could replace the need to use real people in research studies.

“Traditional science focuses on exhaustively studying a small sample and generalizing findings to the larger population,” says Justin B. Starren, MD, PhD, chief of health and biomedical informatics in the Department of Preventive Medicine, deputy director of NUCATS and director of the CDSI. “Big data flips that concept around. Give me everything on everybody and then I will filter it down to figure out where I should best focus my research efforts.”

The NMEDW currently stores close to 70 billion observations on 4.9 million Northwestern Medicine patients. From its inception in 2007, the data warehouse has served as a single platform for Feinberg School of Medicine research data and NMHC clinical operations reporting (from financials to quality control). Its joint governance and dual-use model sets it apart from others and provides a premier informatics infrastructure for the CDSI. Says Starren, “We are leaders in our ability to fully integrate both healthcare and research data.”

DIGGING DEEPER FOR QUALITY CARE

Early intervention with antibiotics and blood pressure stabilization works wonders against sepsis, a serious and potentially deadly bloodstream infection. The problem: sepsis can be difficult to recognize, often hiding behind other health complaints from pneumonia to a skin infection. Most of the time, individuals don’t even know they have sepsis. And when they land in the emergency room, it is not a given that the healthcare team will arrive at a timely diagnosis.

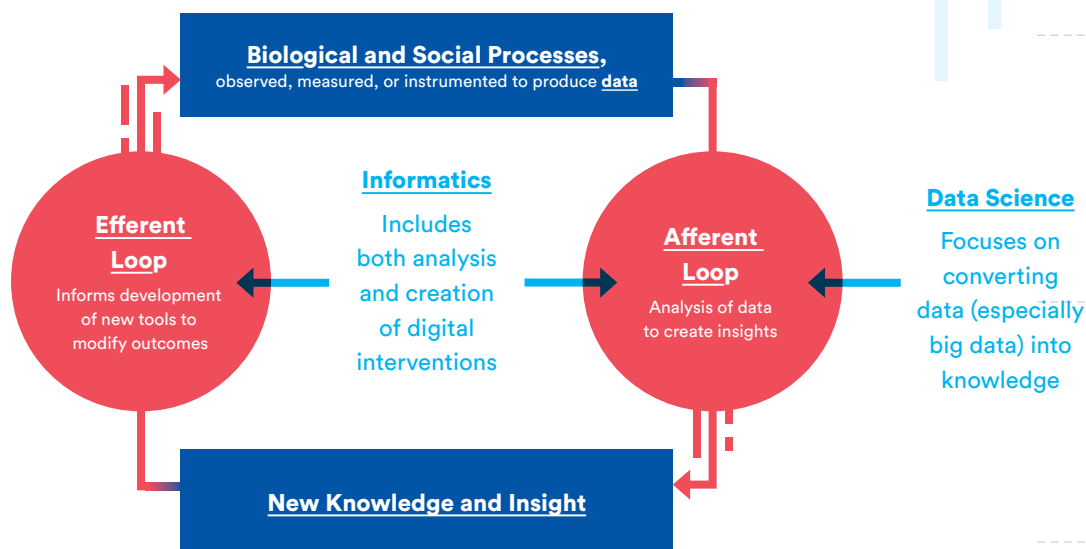


Looking to improve sepsis care in the emergency department (ED), Emilie S. Powell, MD, '09 GME, assistant professor of emergency medicine, joined forces with NUCATS' data analysts. Mining the NMEDW for sepsis patients, she wanted to tease out how their condition went from pretty good to really bad before they ended up in intensive care. "The challenge with sepsis is that a patient could look well when they enter the ED but quickly become sick," says Dr. Powell. "We wanted to identify barriers to treating with evidence-based guidelines to see where we were missing the boat and look for areas of opportunity."

Powell and the NUCATS team developed an algorithm combining diagnostic codes and clinical parameters. They identified 376 severe and/or septic shock patients who came to Northwestern Medicine via the ED between 2009 and 2010 and then examined aspects of their care from the taking of vital signs at triage to lab results. Partnering with David H. Salzman, '05 MD, '09 GME, MEd, assistant professor of emergency medicine and medical education, Powell used big data to develop an in situ simulation, complete with an actor portraying a sepsis patient, to

PhD, assistant professor in Preventive Medicine, for example, has developed text-mining algorithms to summarize or select content from EHRs and biomedical literature. In fact for Shah's HFpEF clinical trials, Jonnalagadda uses natural language processing and machine learning to scour the NMEDW for provider notes that contain the words "heart failure" or "HF" (along with other inclusion/exclusion criteria) to find suitable study candidates. Interested in how team dynamics impact care, Nicholas Soulakis, PhD, assistant professor of preventive medicine, uses big data to develop networks of provider-patient connections. Among his findings: on average, 112 NMH employees will interact with a cardiovascular patient's electronic chart during a seven-day hospital stay.

Relationship between Data Science + Informatics



educate and train ED staff at Northwestern Memorial Hospital (NMH). Insights from Powell's project are benefiting the training of emergency medicine residents as well as the education of medical school students and graduate students in public health.

THE FUTURE OF SCIENCE

Big data is meaningless and potentially misleading without the resources (people and technology) to mine, model and make sense of trends. As it gets off the ground, the new CDSI will work to provide investigators at Northwestern Medicine, NUCATS and clinical partners with increasingly sophisticated services and tools to capture, search, integrate and analyze big data.

Already Feinberg's data scientists are advancing their own field through a number of research initiatives. Siddhartha Jonnalagadda,

Big data, it appears, has much to offer.

"More than two-thirds of Feinberg researchers we surveyed about the need for data science at Northwestern stated it will be absolutely critical for future research," explains Dr. Starren. "The use of big data is the future of science. Computation has now joined theory and experimentation as a new third pillar of scientific progress and will be essential to accelerating discoveries going forward." **NM**

A man with a mustache, wearing a light-colored lab coat over a striped shirt and a dark tie, stands with his arms crossed on the right side of the image. The background is a vibrant, stylized illustration of a natural scene. On the left, a large tree trunk has three green geckos climbing it. In the center, a blue pond contains several pink flamingos, a white swan, and a blue swan with two small ducklings. To the right, an owl is perched on a branch. In the bottom left corner, there are two cartoon cows, one orange and one white. The text "BIG WIN FOR KIDS" is written in large, white, outlined letters across the center of the image.

BIG WIN FOR KIDS

Shanley returns to Chicago as chair of the Department of Pediatrics

WRITTEN BY: Martha O'Connell
PHOTOGRAPHY BY: Jim Prisching

A native Chicagoan, Tom Shanley had an inkling in his youth that he wanted to be a pediatrician and work at what was then Children's Memorial Hospital.

A former college quarterback, he still has the speed, stamina, snap judgment and leadership skills that are needed for his comprehensive roles across the Feinberg School of Medicine and Ann & Robert H. Lurie Children's Hospital of Chicago.

As of Aug. 1, he is the Founders' Board Centennial Professor at Northwestern, and at Lurie Children's he is chair of the Department of Medicine and president of the Pediatric Faculty Foundation.

He returns home after 11 years of leading the transformation of clinical care, translational research and faculty collaboration at the University of Michigan Medical School. Dr. Shanley focuses on moving science and patient care ahead faster and changing processes and methods to accelerate discoveries and diagnoses. He served as the school's associate dean for clinical and translational research, director of the Michigan Institute for Clinical Health Research and director of Pediatric Critical Care Medicine at C.S. Mott Children's Hospital.

Today at age 52, he is an internationally renowned physician and researcher in pediatric critical care. Being tapped to help lead Lurie Children's, one of the nation's crown jewels in pediatrics, and understanding the trust placed in him, he simply says, "I am humbled."

SOMETIMES, IMPATIENCE PAYS OFF

Shanley calls himself "an impatient person," a trait that actually makes him well-suited to critical care, where patients' physiologic responses change rapidly. He is a quick thinker who changes care strategies as necessary to ensure optimal therapeutic responses.

"I think my impatience stems from being results-driven and competitive by nature. I like to see things happen quickly and successfully and efficiently," he explains.

However, as a pediatrician and the father of four, he has learned the importance of patience and allowing time for patients' health to be restored.

He settled on pediatrics during his medical school and residency training because he saw kids repeatedly bounce back from difficult illnesses in contrast to adults, who often got sicker because they engaged in unhealthy behaviors. "I kind of like the 'purity,' if you will, of the children," he says.

CURRICULUM VITAE

5

years as chair of the
Pediatric Research
Foundation

10

teaching awards at three
medical schools since 1993

>100

published papers



Unfortunately, not everything always ends well in the ICU. When a young life is cut too short, Dr. Shanley is dedicated to helping families through the tragic process.

TINY FOCUS

In his youth, Shanley combatted psoriasis and bacteremia from an osteomyelitis infection and sought to understand what was happening on a cellular level. As a teenager, he was enamored with biology and knew he wanted to go into medicine.

Post-residency, he became disturbed and vexed when children died from sepsis. He felt that a piece of the puzzle was missing and pursued specific data about the function of the immune system that would be valuable in making treatment decisions. Mimicking the curiosity he had as a teen, the physician-researcher was spurred to understand how and why disease states progressed in young people.

Answers and solutions were developed over nearly two decades when he collaborated with researchers at three medical schools scrutinizing inflammatory responses and genomics. He and fellow Michigan scientists broke through last year with a micro-fluidic device that determines the state of the immune system's functional response, provides a better prediction of outcomes and measures biomarkers in near real-time that could help investigators group patients in different clinical trials.

Currently in use at Mott Children's Hospital, the device, roughly the size of a microscope slide, is a bedside diagnostic tool for intensivists. His team worked with mechanical engineers and computational analysts to develop the predictive blood assay test that measures cytokine levels, small proteins essential for cell signaling.

"The amount you can take from a premature neonate is highly limited, so a device that requires only five micro-liters of blood to get analytic information is quite innovative and potentially transformative," Shanley says.

Mott Children's uses the device through Emergency Use Authorization issued by the FDA. Shanley plans to implement use of the device at Lurie Children's and wants to save more lives and test it on a large-scale population nationwide.

Another related tool created with his Michigan team isolates cells in the blood and measures whether they are functioning normally. The device pinpoints which cells are abnormal so specific medications might be administered to correct them and bolster the patient's immune system. This capability is critical for patients in the ICU who are often fighting off infections.

DESTINED FOR NORTHWESTERN

Maybe it was inevitable that Shanley would one day return to Northwestern.

Growing up in Glen Ellyn with Irish and Polish parents, he attended Benet Academy. He graduated magna cum laude with a bachelor's in chemistry from Carleton College, where he quarterbacked the Minnesota school's football team and played baseball.

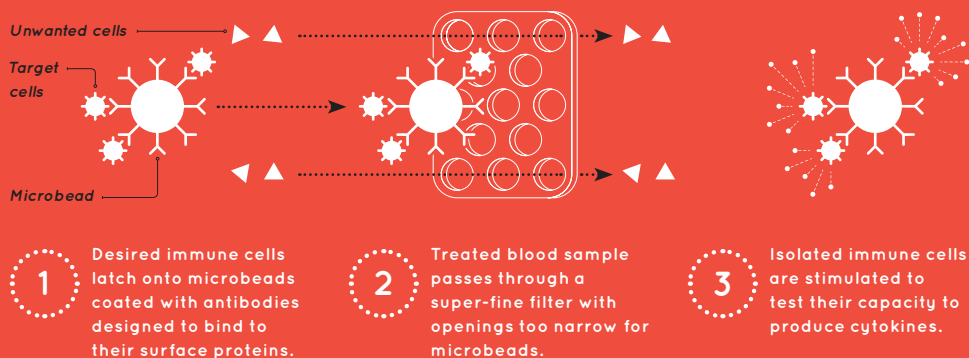
He was admitted to Feinberg's MD/PhD program but had to decline because he needed more financial support, which was not available at the time. He attended the University of Chicago Pritzker School of Medicine. About 15 years ago, he considered a position as chief of Critical Care at Children's Memorial (now Lurie Children's Hospital) but dropped out of the running because of the physical separation between the medical school and the pediatric research and hospital campuses.

In 2014, Northwestern and Shanley met again at the Northwestern University Clinical and Translational Sciences Institute (NUCATS). Shanley and NUCATS connected because he sits on the steering committee of the NIH's National Center for Advancing Translational Sciences (NCATS). Formed in 2012 to speed delivery of new treatments to patients, NCATS funds the Clinical Translational Science Award (CTSA) Consortium, comprised of 62 academic medical centers.

All CTSA members, including

NUCATS, received a nine-month NIH grant to standardize training for study teams to achieve Good Clinical Practice in clinical trials for academic medical centers and pharmaceutical companies, and implement a competency-based

DIAGRAM MICRO-FLUIDIC BLOOD ASSAY TEST



Critically ill patients with inadequate immune system responses and consequently low cytokine levels are at high risk for organ failure. Similar approaches already in use require blood quantities too large for most pediatric patients to give.



“ I like to see things happen quickly and successfully and efficiently. ” —Tom Shanley, MD

curriculum so errors are minimized. Shanley, who is co-PI of the national project, will hold the final meeting for this working group in September and estimates that recommendations will be released next year.

“We need a research workforce that can move things along the translational spectrum with high quality and efficiency. It is mind-boggling to me that we don’t have some standardization for training to conduct clinical trials,” he says. “This effort will accelerate the pace so that fundamental discoveries get to patients quicker.”

MOLDING CHILD ADVOCATES

Shanley considers himself a kids’ advocate everywhere—at the bedside, in the lab, with families, and especially with legislators who make funding decisions about pediatric care and research.

“I view the care of our children as our future security from a national standpoint. I hope the faculty at Northwestern will continue to work with me in being a leading voice for children in Chicago and nationwide,” he says.

Dr. Shanley instills that mission in residents, fellows and medical students, and has earned accolades for his above-and-beyond approach to pediatrics. Since 1993, he has received 10 teaching awards from residents and students at three medical schools. He wants his charges to understand care in inpatient and outpatient settings and across different socio-economic backgrounds.

Recently, he has emphasized teaching students to wade through data from electronic health records and real-time monitoring and pull relevant information for effective treatment plans. As an ICU physician, he is extensively experienced in team-based care and communication processes and will reinforce that model throughout pediatrics.

BEYOND STREETERVILLE

Dr. Shanley is eager to leverage the entire network of the medical school and its clinical affiliates to bring better pediatric patient care and research. This includes taking advantage of increased opportunities between hospitals to conduct pediatric clinical trials and share advances in therapies.

Adult critical care specialists are interested in discoveries that could potentially be adapted for older patients.

An ardent researcher who has published more than 100 papers, he will enhance collaboration in yet another leading role as chief research officer of the Stanley Manne Children’s Research Institute, the research arm of Lurie Children’s in Lincoln Park.

“We will be looking for opportunities to overlap clinical care with research programs so that new ways of care are moving from small, single-site studies into studies stretching throughout the network of Northwestern affiliates,” he says.

Dr. Shanley is a member of the Society for Pediatric Research and chaired its Pediatric Research Foundation for five years through 2014. He is currently one of two Society for Pediatric Research trustees to the International Pediatric Research Foundation. In 2018 and 2019, he will serve as program chair for the Pediatric Academic Societies meeting, the largest annual gathering of academic pediatricians across every subspecialty. He was also a member of the strategic planning group for the Eunice Kennedy Shriver National Institute of Child Health and Human Development’s Pediatric Trauma and Critical Illness Branch.

His plate is full, so wife Maureen, a pediatric nurse who headed Mott’s dialysis unit, is focused on making their new home in Lincoln Park. They devote spare time to their children—Lauren, 25, Molly, 22, Ashleigh, 21, and Matthew, 19—scattered throughout the country at work and universities.

Shanley makes decisions by surrounding himself with smart, well-informed people and listening to everyone’s perspectives, especially people at the front lines of care. “Then I do have to harken back to my quarterback days and be a leader who makes decisions, but my decisions are based on including everyone,” he explains.

In fact, Dr. Shanley takes his approach to medicine straight from a football playbook—quick thinking, innovative strategy and team mentality. “I have a great deal of satisfaction being able to preserve a life and work comprehensively with an effective team.” **M**

BROAD EXPERTISE, BEST SOLUTIONS



Scientists across disciplines, departments and schools at Northwestern University are teaming up to accelerate Northwestern Medicine research and bring innovative ideas to fruition. Faculty from chemistry, engineering, communications and more are working to tackle unanswered questions in healthcare and medicine.

"The most intractable problems in medicine today require inquisitive minds that can approach a situation from a different set of perspectives, providing more specificity and precision," says Eric G. Neilson, MD, vice president for Medical Affairs and Lewis Landsberg Dean. "When we tap into the rich pool of expertise that exists in the University's various schools, we can develop the most creative and well-rounded solutions."

Here we share a number of projects in which Northwestern faculty across myriad fields are working together to advance the progress of patient care, treatments and outcomes.

Tapping Northwestern's Best and Brightest to Advance Medical Research

WRITTEN BY: Sarah Plumridge

THE INTERFACE BETWEEN MATERIALS & BIOLOGY



Combining disciplines in biology, chemistry and engineering, synthetic biologists at Northwestern are working to make non-biological materials for industrial and medical purposes.

"Cells have an amazing ability to make interesting and complex things," says Milan Mrksich, PhD, professor of cell and molecular biology and professor of biomedical engineering and chemistry at the McCormick School of Engineering and Applied Sciences, Feinberg School of Medicine, and Weinberg College of Arts & Sciences. "We can take an organism, a microbe, plant or cell and genetically reprogram it to make a molecule or protein that is useful."

Mrksich has developed a novel assay that can evaluate tens of thousands of enzyme reactions in cells within a day or two. This method helps define reaction conditions and identify the components needed to produce the highest yield of molecules and speed



MILAN
MRKSICH,
PhD

up the process for finding effective drug therapies.

Mrksich's colleague, Michael Jewett, PhD, assistant professor of chemical and biological engineering at McCormick, works to develop and optimize cell-free systems to create new therapies. A cell-free system avoids the need to balance a cell's life processes, such as importing nutrients and exporting wastes, and the production of the molecule of interest.

"This is a really powerful approach and Northwestern is the intellectual home for developing these methods," Mrksich says.

MERGING PHYSICAL SCIENCES & ONCOLOGY



THOMAS V.
O'HALLORAN,
PhD

Northwestern University received a five-year, \$9.6 million grant from the National Cancer Institute as part of a new center, the Chicago Region Physical Science-Oncology Center (CR-PSOC), that unites physical scientists and cancer researchers from Northwestern, the University of Chicago, and University of Illinois at Chicago to solve problems in cancer.

Thomas V. O'Halloran, PhD, Charles E. and Emma H. Morrison Professor in

Chemistry at Weinberg, and Jonathan D. Licht, MD, former chief of medicine-hematology/oncology at Feinberg, will lead the CR-PSOC and together the team will study changes in the epigenome and the metallome, the metal ion content of the cell, which support cancer development.

Specifically, CR-PSOC investigators will use physical science approaches and novel imaging methods to determine whether changes in chromatin folding result in aberrant patterns of gene expression that drive cancer progression. The scientists will translate these advances into a deeper understanding of cancer biology and into therapies.

APPLYING NANOTECHNOLOGY TO MEDICINE

C. DAVID
JAMES,
PhD



MELINA R.
KIBBE, MD



CHAD MIRKIN,
PhD



LEONIDAS
PLATANIAS,
MD, PhD



ALEXANDER
STEGH, PhD

For 10 years, the National Cancer Institute has funded collaborative work between scientists at the Robert H. Lurie Cancer Center of Northwestern University and the International Institute for Nanotechnology at Northwestern to explore how nanotechnology can improve cancer diagnosis and treatment.

Led by Chad Mirkin, PhD, professor of medicine at Feinberg and chemistry at Weinberg, and Leonidas Platanias, MD, PhD, director of the Lurie Cancer Center, the Northwestern University Center of Cancer Nanotechnology Excellence (NU-CCNE) joins clinicians, cancer biologists, engineers and clinicians.

"This is a very translational, extremely critical area of biomedical research," says Dr. Platanias. "Important discoveries happen when you bring people from different fields together for a common goal."

For example, in one recently published study supported by the NU-CCNE, scientists conjugated gold nanoparticles with a small RNA molecule to suppress cancer-causing genes in mice with glioblastoma multiforme (GBM), a deadly and incurable type of brain tumor.

In a third phase of funding beginning this fall, the NU-CCNE will focus on three major projects, in addition to pilot projects with junior faculty:

- » **Design Rules for Spherical Nucleic Acids that Target Cancer:** Milan Mrksich and Mary Hendrix, PhD, president and scientific director of the Stanley Manne Children's Research Institute at Ann & Robert H. Lurie Children's Hospital of Chicago
- » **Spherical Nucleic Acids for Metabolic Reprogramming of Malignant Glioma:** Alexander Stegh, PhD, assistant professor of neurology and medicine, and C. David James, PhD, professor of neurological surgery and biochemistry and molecular genetics, both at Feinberg

- » **Spherical Nucleic Acids as Immunotherapeutic Agents for Prostate Cancer:** Chad Mirkin and Bin Zhang, MD, PhD, associate professor of medicine-hematology/oncology and microbiology-immunology at Feinberg.

In addition to using nanotechnology to create therapies for cancer, Melina R. Kibbe, MD, professor of surgery-vascular at Feinberg, and Samuel I. Stupp, PhD, director of the Louis A. Simpson and Kimberly K. Querrey Institute for BioNanotechnology in Medicine (SQI), are working together to develop nano- and microscale therapies to prevent restenosis, the recurrence of blood vessel narrowing.

"Our technology would benefit patients undergoing any vascular intervention, including balloon angioplasty, stenting, or bypass grafting," explains Dr. Kibbe.

"Because these highly designed therapies can be targeted to multiple different cell types, our research can have a broader impact on the fields of preventive cardiology, cancer and rheumatology, among other diseases. Since no similar therapy currently exists in the clinical arena, our smart technology would be paradigm-shifting."

GLOBAL FIGHT AGAINST HEPATITIS C



C. ROBERT
MURPHY, MD

Hepatocellular carcinoma (HCC), a highly lethal cancer with more than 80 percent of cases occurring in the developing world, is typically caused by chronic viral infections including hepatitis C. Robert Murphy, MD, director of the Center for Global Health, Kara Palamouni, MBA, research assistant

professor at Kellogg School of Management, Sally McFall, PhD, research associate professor of biomedical engineering at McCormick, and Robert Elghanian, PhD, research assistant professor of biomedical engineering at McCormick, are developing diagnostic tests to detect and monitor chronic hepatitis C infections for use in low- and middle-income countries. They hope that earlier diagnosis will reduce HCC mortality.

PARTNERING TO HALT NEURO- DEGENERATIVE DISEASES

SAMUEL
I. STUPP,
PhD



RICHARD
SILVERMAN,
PhD



There is an enormous need for a therapeutic strategy for slowing or stopping Parkinson's disease (PD) progression, the second most common neurodegenerative disease. Preclinical studies in the lab of D. James Surmeier, PhD, chair of the Department of Physiology at Feinberg, implicated a relatively rare type of calcium channel in the disease. This research has been supported by epidemiological studies, leading to a National Institutes of Health-sponsored, \$23-million clinical trial in North America, directed by Tanya Simuni, MD, professor of neurology, to determine if the FDA-approved calcium channel antagonist isradipine can slow disease progression. One potential problem with isradipine is its lack of selectivity. Surmeier and Richard Silverman, PhD, professor of chemistry at Weinberg, have teamed up to develop a next-generation drug that overcomes this shortcoming.

In addition, over the past decade, Sam Stupp's laboratory has focused on using nanostructures to create bioactive biomaterials that mimic the architecture of natural extracellular matrices for use in regenerative medicine; targets include the regeneration of musculoskeletal tissues as well as brain tissue, spinal cord and peripheral nerves.

To apply this knowledge to neurodegenerative disorders such as Parkinson's disease, Stupp, professor in the McCormick School of Engineering, is working with Dimitri Krainc, MD, chair of the Department of Neurology, to study the effect of a nanofiber gel on human dopaminergic neurons (neurons in the midbrain that are the main source of dopamine, the chemical messenger that controls muscle movement).

They took induced pluripotent stem cells (iPS) from patients with genetic and sporadic Parkinson's disease, differentiated the iPS cells into dopaminergic neurons and encapsulated them in the nanofiber gel. The team has seen some promising in vitro results that indicate this material could be used to improve the survival and formation of neuronal networks of iPS-derived dopaminergic neurons. The ultimate goal is to develop it into a therapy for patients.



D. JAMES
SURMEIER,
PhD

REPRODUCTIVE BIOLOGY BRINGS SCIENTISTS TOGETHER ACROSS FIELDS

Interdisciplinary projects in the Center for Reproductive Studies work to advance reproductive biology with the help of investigators in bioengineering, chemistry and medicine. By understanding the biology of reproduction, scientists can develop future medical treatments for infertility, pregnancy-related disorders, diseases of the reproductive tract and gynecological cancers.

Kelly Mayo, PhD, director of the Center for Reproductive Science at McCormick, studies the molecular mechanisms regulating normal reproductive function, with

relevance to reproductive disorders that impact fertility. His team has used imaging technologies on mouse genetic models to visualize cell-signaling systems in ovaries to gain insights about different cell types in the developing follicle.

The laboratories of Thomas O'Halloran, PhD, director of the Chemistry of Life Processes Institute at Weinberg, and Teresa Woodruff, PhD, director of the Women's Health Research Institute at Northwestern University, collaborate to find the roles of zinc fluxes in oocyte maturation and egg fertilization using newly synthesized chemical probes. Their recent study shows there are thousands of zinc-loaded vesicles in the oocyte that serve as the source of the zinc sparks that are released from the egg upon fertilization. Their work will potentially help infertile couples have a healthy pregnancy.



TERESA
WOODRUFF,
PhD

ENGAGING COLLEGE FRESHMEN IN HEALTH BEHAVIOR CHANGES



BONNIE
SPRING,
PhD

Bonnie Spring, PhD, director of Northwestern's Center for Behavior and Health, professor of preventive medicine and at Weinberg, is launching a project this fall to prevent college students' health loss.

The NUYou project will enroll 500 incoming Northwestern freshmen, who will use specially designed smartphone applications, social media and incentives to maintain or improve positive health

behaviors. Students will be assessed annually to evaluate the effectiveness the NUYou intervention.

Spring, along with Northwestern students, computer scientists and Daniel Shor, PhD, clinical director of Counseling and Psychological Services in the Division of Student Affairs at Northwestern, used rapid iterative design processes to optimize the technologies. The result is a suite of interventions that will allow students to manage their time, receive relevant and timely health recommendations, connect with each other for support via social media, and challenge one another to create a health culture at Northwestern.

SOCIAL SCIENCE PLAYS CRUCIAL ROLE IN RESEARCH

Bruce Lambert, PhD, director of the Center for Communication and Health in the School of Communication, works with faculty at Feinberg to address problems arising in medicine.

"I'm a social scientist and not a clinician, so collaborations with Feinberg are essential to do my work," he says.

For the past four years, Lambert has joined forces with **Michael Wolf, PhD, '02 MPH**, professor of medicine-general internal medicine and geriatrics, Center for Healthcare Studies and Medical Social Sciences, to design and implement a health literacy intervention for patients with type II diabetes. Currently in trials at an University of Illinois at Chicago clinic, the intervention consists of patients getting redesigned information before, during and after they receive medications. The goal is to help patients take their medication more safely and effectively.

Lambert also works with Howard Kim, MD, an instructor in the Department of Emergency Medicine, to study the prescribing frequency of opioids and benzodiazepines, since both medications slow breathing and when taken together can suppress respiration or impair a person's reflex to breathe. After they collect preliminary data, the team will design an intervention to discourage physicians from prescribing these drugs together.

In an effort to better understand HIV, Brian Mustanski, PhD, associate professor in the Department of Medical Social Sciences and director of the IMPACT LGBT Health Program, is working on a study called RADAR that brings together experts in virology, genetics, social

science and public health to understand biological, individual, relational, network and community-level drivers of the disease.

Mustanski is working with Noshir Contractor, PhD, director of the Science of Networks in Communities Research Group at Northwestern University, and Michelle Birkett, PhD, research assistant professor of Medical Social Sciences. The team will longitudinally measure the social, sexual and drug networks of young men who have sex with men (YMSM) and analyze how these networks may be driving HIV. They have already produced a new software program that allows for the user-friendly collection of network data.

Other RADAR projects include characterizing the developmental trajectories of HIV risk and substance use, as well as conducting innovative analyses examining the influences of romantic partners on the participants' health behaviors, led by Dan Mroczek, PhD, professor of psychology at Weinberg and medical social sciences at Feinberg, and Michael Newcomb, PhD, assistant professor of medical social sciences.

MICHAEL WOLF,
PhD, '02 MPH



BRIAN
MUSTANSKI,
PhD

FOSTERING TRANSLATIONAL RESEARCH BETWEEN BASIC SCIENTISTS & CLINICIANS

ALI
SHILATIFARD,
PhD



DAVID R.
GIUS, PhD



JEFFREY
RAIZER, MD



VADIM
BACKMAN,
PhD



SHOREH
SHAHABI,
PhD

In 2015, the Robert H. Lurie Cancer Center at Northwestern University launched its first Translational Bridge Program, an award to propel basic science research into clinical trials. Postdoctoral fellows design and execute projects targeting specific cancer types under the mentorship of a laboratory investigator and a clinician.

The first four projects include:

- » **Ovarian Cancer:** Vadim Backman, PhD, professor of biomedical engineering at McCormick, Shohreh Shahabi, MD, professor of obstetrics and gynecology-gynecologic oncology at Feinberg, and postdoctoral fellow Lusik Cherkezyan, PhD, will use a biophotonics technology invented in the Backman lab, called Partial Wave Spectroscopic microscopy, or nanocytology, which enables the sensing of genetic/epigenetic changes in cells at the nanoscale, to diagnose ovarian cancer at an earlier stage.

- » **Breast Cancer:** David R. Gius, MD, PhD, professor of radiation oncology and pharmacology at Feinberg, and Cesar Santa-Maria, MD, assistant professor of medicine-hematology/oncology at the Lurie Cancer Center, are working to better understand the relationship between the SIRT3 gene and luminal B breast cancer. They suggest that reactive oxygen species and SIRT3 could potentially be used in identifying new therapeutics.
- » **Brain Cancer:** Jeffrey Raizer, MD, professor of neurology at Feinberg, partnered with Thomas V. O'Halloran, PhD, and Elden Swindell, PhD, postdoctoral fellow, to elucidate the anti-tumor activity of a targeted nano-liposomal delivery vehicle ("nanobins") loaded with arsenic trioxide in a brain tumor (glioma) mouse model. They can use the information gathered about the kinetics of drug delivery to gain a deeper insight into how these nanobins may be used in glioma treatment.
- » **Lymphoma:** Ali Shilatifard, PhD, chair of the Department of Biochemistry and Molecular Genetics at Feinberg, has teamed up with Jane Winter, MD, professor of medicine-hematology/oncology, and Amir Behdad, MD, assistant professor of pathology, to study how mutations in the expression of the protein MLL4 lead to lymphomas. They will test antibodies developed by Shilatifard's lab on human lymphomas and observe MLL4 expression.

IMPROVING HEALTHCARE SYSTEMS THROUGH ENGINEERING



SANJAY
MEHROTRA,
PhD

Research projects from Feinberg's Center for Engineering and Health are building tools to improve healthcare delivery. Sanjay Mehrotra, PhD, the center's director and professor of industrial engineering and management at McCormick, said that they are partnering with clinicians, health scientists, engineers and mathematicians to create safer medical care.

Mehrotra and his team created a prototype of a "smart" pill bottle. When triggered, the camera-based technology takes a picture of the bottle and its contents. The team will test the technology



DAVID
MOHR,
PhD

with HIV patients to manage their medication regimen. Participants include David Mohr, PhD, director for the Center for Behavior Intervention Technologies at Feinberg, C. Hendricks Brown, PhD, director of the Center for Prevention Implementation Methodology at Feinberg, and Richard D'Aquila, MD, director of the Northwestern HIV Translational Research Center.



A T T A C K I N G

H U N T I N G T O N ' S

D I S E A S E

E F F E C T S F R O M

A L L S I D E S

A Multidisciplinary Team Takes on a Devastating Disorder

WRITTEN BY: Nora Dunne

Huntington's disease is unlike any other neurodegenerative disorder. While more common diseases such as Parkinson's and Alzheimer's typically manifest when patients are in their 60s and 70s, Huntington's strikes patients in their 30s and 40s. It progresses faster and has more symptoms, including involuntary dance-like movements called chorea, mood swings and dementia. It's also hereditary. Parents with the disease have a 50 percent chance of passing it on to their children. There is no cure.

"To effectively manage Huntington's disease you really need a neurologist, psychiatrist, social worker and geneticist. You can imagine that it's not easy to get all of that in a one-stop shop," says **Danny Bega, MD, '14 GME**, director of Northwestern Medicine's new Huntington's disease clinic.

The multidisciplinary clinic, part of the Parkinson's Disease and Movement Disorders Center at Feinberg, launched this spring to be that one-stop shop, a place where patients can receive comprehensive care to manage their symptoms and improve their quality of life.

"Symptom onset begins at that peak time when people are starting their family, hitting their stride at work," says Bega, who is a movement disorders neurologist and an assistant professor in the Ken and Ruth Davee Department of Neurology. "It's not easy for patients—or their families—to deal with."

There are an estimated 30,000 patients with Huntington's disease in the United States. Statistically, that works out to nearly 1,000 patients in the Chicagoland area alone. Though Dr. Bega and his colleagues don't have a cure for the disease yet, they can help patients from across the country by treating their symptoms.

"Thanks to our multidisciplinary approach, we are better at making the short time that people with this disease have—whether it's 10 years or 15 years—higher quality," Dr. Bega says.

To holistically improve life for these patients, coordination is critical. For example, Dr. Bega and the other neurologists at the clinic don't just treat a patient's movement symptoms, they work with a psychiatrist to make sure his therapies don't inadvertently worsen other facets of the disease. They also refer patients and their families to the clinic's genetic counselor, **Lisa Kinsley, '09 MS, CGC**.

"Genetic counseling can help provide family members with accurate risk information, implications of presymptomatic testing and options for family planning," says Kinsley, who is an alumna of the Northwestern University Graduate Program in Genetic Counseling. "I help make sure the patient and family feel informed and supported throughout this difficult diagnostic and testing process."

If a patient with Huntington's disease wants to have children, Kinsley can walk them through family planning options such as in



DANNY BEGA, MD, '14 GME, IS DIRECTOR OF NORTHWESTERN MEDICINE'S NEW HUNTINGTON'S DISEASE CLINIC.

vitro fertilization with preimplantation testing that checks for the mutated gene that causes the disease. Children of patients can be tested once they are 18, when they can legally give consent.

"If they do have the disease, there's nothing we can do to prevent it. Sometimes people decide not to find out," explains Dr. Bega. "There are a lot of ethical and social issues that need to be taken into account with this disease."

TO FIND A CURE

Because Huntington's disease isn't as prevalent as other neurodegenerative disorders, scientists typically receive less funding to study it. But that doesn't mean a cure isn't within reach. While diseases such as Parkinson's are caused by a combination of factors, including multiple genes and environmental exposures, every Huntington's patient has essentially the same genetic mutation.

"We know the gene, we know what it does, we know what's causing the problem," Dr. Bega says. "If we're ever going to solve a neurodegenerative disease, this would be the one."

With a team of basic science researchers at the forefront of Huntington's disease discovery, Northwestern is equipped to contribute to a solution.

Dimitri Krainc, MD, PhD, Aaron Montgomery Ward Professor, chair of the Department of Neurology, and a leading scientist in the field, previously discovered how a mutation in the HTT gene, which makes a protein called huntingtin, leads to the dysfunction of brain cells early in the disease, possibly even before symptoms appear. His research identified the underpinnings that serve as the foundation for the development of new treatments.

"This abnormal protein accumulates within the brain, destroying brain cells," Dr. Krainc explains. "Developing therapeutic agents for all neurodegenerative diseases requires an in-depth understanding of the mechanisms that link the underlying biology and the resulting neuronal dysfunction."

The new clinic will partner with basic science researchers on both Northwestern University campuses to help translate the new discoveries to patients.



TANYA SIMUNI, MD, IS DIRECTOR OF THE PARKINSON'S DISEASE AND MOVEMENT DISORDERS CENTER, WHICH HOUSES THE HUNTINGTON'S DISEASE CLINIC. DIMITRI KRAINC, MD, PHD, CHAIR OF THE DEPARTMENT OF NEUROLOGY, PREVIOUSLY DISCOVERED A MUTATION IN THE HTT GENE THAT LEADS TO THE DYSFUNCTION OF BRAIN CELLS.

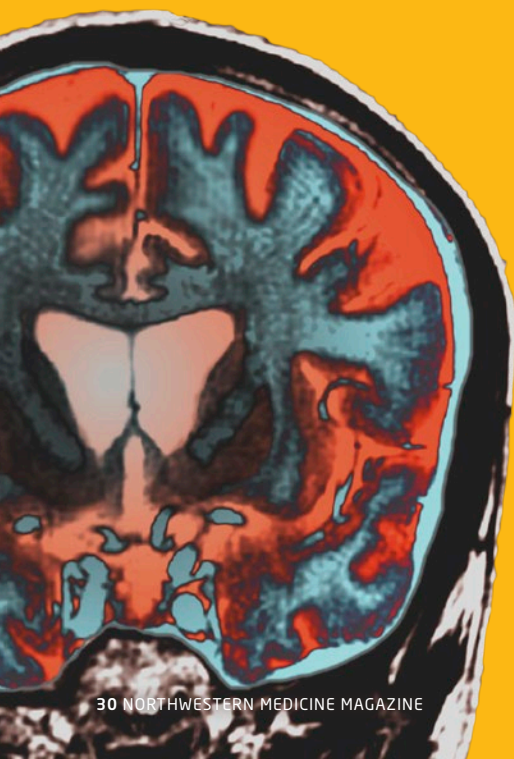
"The clinic will build on the tremendous strength of Northwestern scientists conducting preclinical Huntington's disease research," says Tanya Simuni, MD, Arthur C. Nielsen Professor of Neurology and director of the Parkinson's Disease and Movement Disorders Center, which houses the clinic. "It will be the mechanism for translating their discoveries into clinical research, leading to better therapies and, ultimately, to cures for the thousands of patients and families living with the disease."

In the more immediate future, the clinic is going to participate in a worldwide prospective observational study called Enroll-HD, which aims to include at least a third of the world's population of Huntington's patients. Sponsored by the CHDI Foundation, a not-for-profit biomedical research organization devoted to Huntington's disease, the study has no planned end date. Investigators hope to learn a lot by following how the disease appears and changes over time in different people, and to use that information to design future studies.

IMPROVING LIFE FOR PATIENTS AND THEIR FAMILIES

Patient-family education is another goal of the clinic. On Sept. 26, the clinic will hold its first symposium for patients with Huntington's disease and their loved ones. Drs. Krainc and Bega, along with other staff from the clinic, will discuss new research, how the brain changes in the disease, and best practices for disease management. There will also be breakout sessions for attendees to ask questions about the neurologic, genetic, psychiatric, social and rehabilitation sides of the disease.

"The field of movement disorders, Huntington's disease especially, is about building relationships with patients that are long term. In many cases, we see them every three months or so for the rest of their lives," Bega explains. "It's an honor to be involved in the day-to-day aspects that make the lives of patients and their families better." **TM**



Alumni President's Message



Dear Fellow Alumni:

We have learned through surveys and conversations that our alumni hold enduringly positive

memories of their medical school educational experience at Northwestern University and are thrilled with its growing visibility and prestige. However, as a result of time, distance and competing priorities, many have become disconnected. While equally enthusiastic about the Feinberg School of Medicine, current students and recent graduates are entering an increasingly complex and competitive workplace and, in some cases, are uncertain about what the Medical Alumni Board actually does. These points play importantly into my thinking about the goals of the Alumni Board over the next two years and beyond. In brief, we want to enhance the Board's visibility and positive impact on Feinberg students and alums, as well as on the school's national and international standing and ability to attract top talent.

As an organizational bridge between the school and its alums, the Board's objectives must be aligned with, complement and enhance those of the Feinberg School of Medicine. Toward this end, President-elect **Jim Kelly, '73 MD**, and I met with Dean Eric Neilson and Alan Krensky, vice dean for Development and Alumni Relations, to begin to map out long-term goals. The successful partnership between the Alumni Board and the Feinberg Center for Global Health is an outstanding example of what can be accomplished when a strong school program is aligned with enthusiastic and committed alumni. Of note is the three-hour CME session in global health that was offered for the first time during Alumni Weekend in April, with



JIM KELLY, '73 MD



RISHINDRA (RISHI) REDDY, '00 MD



GARY RUSK, '69 MD



JEFF SHERMAN, MD, '84 GME

such positive feedback that it will be repeated next year. An alumni opportunities page has been created on the Center's website to share clinical volunteer opportunities that exist with our affiliated partners in Belize and Bolivia. In progress is a program to help build medical training programs in a number of countries. And finally, we are exploring an educational telemedicine program that will create an online library of resources.

To help ensure the continuity of effort in the context of the Board's rotating membership, Jim Kelly and I have worked closely together and have decided that Jim will chair the Committee on Alumni Engagement, which is responsible for identifying new Board members. We envision this as a continuing responsibility of the president-elect, such that this individual can hit the ground running in assuming the future role as president.

The Alumni Board Leadership Team also includes:

- **Rishindra (Rishi) Reddy, '00 MD** - incoming chair of the Mentoring Committee (**Bonnie Typlin, '74 MD**, the prior chair, will continue to serve as co-chair),
- **Gary Rusk, '69 MD** - incoming chair of the Fundraising Committee (**Jimmy Hill, '74 MD, '79 GME**, the prior chair, will continue to serve as co-chair), and
- **Jeff Sherman, MD, '84 GME** - incoming chair of Strategic Initiatives (previously chaired by me).

This leadership team met during a Chicago retreat in late August to outline future plans. One outcome was a commitment to fundraising for scholarship support. Among all potential donors to the school, it is our alumni who are in a unique position to understand and appreciate the impact of scholarship support and graduating debt-free. Please take time to read the graduation stories in this issue, and I want to thank all of you who contributed to the White Coat Fund.

Finally, our new and improved Medical Alumni Association website has just been launched. ML Farrell, our director of Alumni Affairs, Jim Kelly and I welcome your input. Contact us with your ideas or questions. And please let us know if you are interested in joining the Board.

Sincerely,

Bruce Scharschmidt, '70 MD (HPME)
Medical Alumni Association Board President

Progress Notes

'50s

Robert "Bob" D. Jacobs, '55 MD, writes, "Greetings, classmates. It has been 60 years since graduation, and at the urging of my daughter, I am finally sending this update. I was very happy practicing pediatrics on the San Francisco peninsula, reluctantly retiring in 2005. My wife, Ruth, who was charge nurse on the orthopedics ward at Wesley while I was a medical student, passed away in 2010, after a busy life involved in Burlingame, Calif., civic affairs and taking care of me and our two daughters, Vicki and Lauren. In the fall of 2013, I moved to Stoneridge Creek, a retirement community in Pleasanton, Calif. My best wishes to my classmates, and I would be happy to hear from you."



David "Dave" Oberlin, '56 MD, joined the medical service of the U.S. Army in Jan. 1956, and was on active duty for the last six months of his senior year. He interned at William Beaumont Army Medical Center, El Paso, Texas, and completed his orthopaedic residency in the Letterman Program, with training at Shriners Hospital for Children in Los Angeles. He spent 3 1/2 years at Irwin Army Hospital in Fort Riley, Kan., 13 months in Korea and a year at Fort Ord, Calif. He left the service on June 30, 1966, and then practiced for 34 years in Chico, Calif., before moving to Southern California in 2004.

'60s

William Faller, '65 MD, served as a pathologist in the U.S. Army from 1970 to 1973, and continued in the active reserves until 1991.

His father, Adolph Faller, Jr., '33 MD, was also in the military. Adolph joined the Illinois National Guard after both of his parents emigrated to the U.S. from Germany in the 1930s. He was on active duty from April 1941 to December 1945. During his service, he was awarded the Bronze Star for meritorious service during the period of June 20 to August 1, 1944. The citation states that as commanding officer of the 13th Mountain Medical Battalion, Lieutenant Colonel Faller "displayed unusual initiative and sound judgment in moving two motorized medical companies into the combat areas just before the dry weather road was closed due to the monsoon rain. By his exceptional leadership, his units were able to maintain constant medical supply and wounded evacuation service to the...Chinese Division during the battles for Kamaing and Mogaung, Burma." He was also recognized by the Chinese and decorated as an honorary officer of the British Empire for his efforts in the North Burma campaign.

Donald C. Parker, '65 MD, moved to Miami to begin his internship and then residency in anesthesiology at Jackson Memorial Hospital after graduation.



During this time, he was involved in research related to diving physiology in both humans and dolphins, the results of which were published in *Science*. He joined the Navy in July 1969, and served at the Naval Hospital in Philadelphia where he treated soldiers returning from conflict, until his discharge in 1971. Throughout his life, he was inspired by their bravery and dedication, and was proud of his service to his country. After his discharge, he returned to Miami where he continued his career as an anesthesiologist at Mercy Hospital.

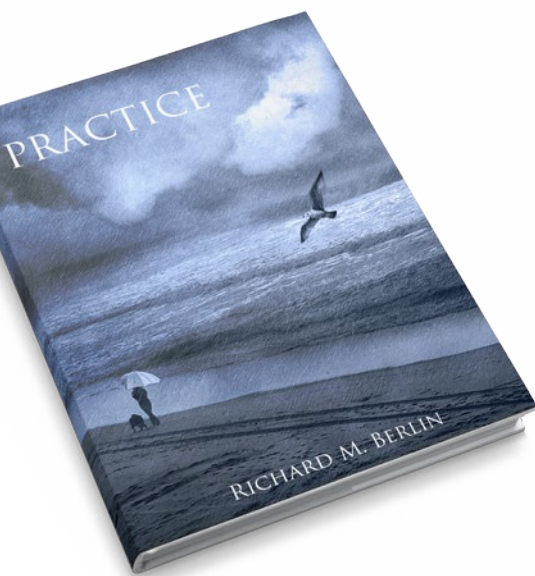
In addition to being a respected physician, since he was a young man he had been inspired to become an astronomer. While he also maintained interests in diving and competitive sailing, his true passion was astrophotography. In fact, he became a world-renowned astronomer, studying the solar system and pioneering many of the methods used in digital planetary imaging today. (*More information online.*)

Jeffrey M. Ignatoff, '67 MD, '75 GME, completed his residency training in urology at Northwestern and then remained on faculty in the Department of Urology. He completed 30 years of practice, primarily in the Evanston Hospital system, then retired 10 years ago to Savannah, Ga. After a few years, Dr. Ignatoff was offered an opportunity to join the faculty of Mercer University School of Medicine as an associate professor in the division of biomedical sciences. He writes, "Mercer had just initiated the Savannah campus as a four-year medical

school, and my areas of involvement are part time—including small group tutorial sessions in the first two preclinical years in several organ-based phases. Initially, this prompted some fairly serious review on my part, as the phases comprehensively contain both basic science and clinical topics. I also had the opportunity to assist the anatomy faculty as instructor in the gross anatomy lab and am involved with the clinical skills courses taken by the first- and second-year students—similar to the physical diagnosis course we had at Northwestern. The ability to mentor these bright young physicians in training has been among the most fulfilling endeavors of the latter part of my career.” (*More information online.*)

'70s

Louis H. Martone, '70 MD, of Pittsburgh, opened a private practice in dermatology in 1976, where he continues to work full time. He recently enjoyed his 45th reunion at Northwestern.



Richard M. Berlin, '76 MD, announced the publication of his third poetry collection, “Practice.” Dr. Berlin, a psychiatrist, uses his work to bring doctors closer to patients through creative writing. His previous books have won prizes, including: “Secret Wounds,” selected by USA Book News 2011

Awards as the best poetry book of the year, and “How JFK Killed My Father,” winner of the Pearl Poetry Prize. Additional awards include the 2010 John Ciardi Poetry Prize from BkMk Press and finalist awards from the ForeWord Book Review Prize and the Eric Hoffer Award.

F. Douglas Carr, '78 MD, vice president and medical director at the Oregon West Network for PeaceHealth Medical Group, was appointed chief medical officer at New West Medicare.

Martha L. Rhoades, '78 MD, is looking forward to retiring July 1, 2016. She has been working part time at Billings Clinic for a few years now, where she represents psychiatry on the Montana State Domestic Violence Fatality Review Commission. Dr. Rhoades writes, “Away from work, I have been married 29 years and we have one son. I love growing iris, hiking, horseback riding and skiing here in Montana.”

'80s

Jay Jamieson, '80 MD, spent 1983 to 1985 in the National Health Service Corps, then one year from 1986 to 1987, as a medical missionary in the squatter villages of Manila, Philippines.

Jeffrey “J. A.” McErlean, '80 MD, writes: “At the very end of my second year at NUMS (as it was known in its day), I incurred a service obligation with the U.S. Public Health Service/Indian Health Service. The rationale for my action was partly noble and idealistic, as my father had worked for the National Park Service in the early 1950s, and my mother regaled me with tales of travelling the Southwest during the early years of their marriage. Perhaps the most real, in-your-face reason, however, was that both of my parents passed away suddenly and prematurely at the end of my undergraduate years. As the oldest child, I was faced with a choice: claim the lion’s share of an estate diminished by 1970’s-era taxation encountered in the

wake of my parents’ passing, leaving fiscal crumbs for two younger sisters in their quest for higher education, or Plan B. Plan B evolved into my service obligation.

“I was married in June 1980, a week before my scheduled official graduation date, with full disclosure to my young bride that there would be an adventure awaiting us after completion of my rotating internship at Evanston Hospital, in the form of a two-year payback obligation to the Indian Health Service for support and scholarship provided to me during my last two years at NUMS.

“So, just a few days after finishing my internship, my young bride and I packed our new 1981 Jeep Cherokee with all our worldly belongings, including a new Samoyed puppy, and made the five-day drive to San Carlos, Ariz., to work with the San Carlos Apaches.” *More information online.*



Lydia Sarro, '81 MD, writes: “My husband, Joe, and I recently had the great pleasure of hooding our daughter, Julia Bartolomeo, as she received her MD (magna cum laude), from Boston University School of Medicine. Julie started her residency in family medicine at Boston Medical Center in June. I am particularly proud that she has chosen a career in primary care. A week prior to this happy event, we celebrated as our younger daughter, Cara, received her doctorate in physical therapy from Northeastern University. I know she will have a rewarding and meaningful career taking care of patients as well. She, like her sister, loves living in Boston, and as her parents, we are thrilled to have them both living just a few hours away from our home in Western Mass. I have continued to practice general pediatrics with the same group for almost 29 years. Many of the parents in my practice were once my patients. That is one of the great joys of pediatrics!”

Renate D. Savich, '82

MD, writes: "I have been very active in neonatal global health initiatives throughout the world. I have taught neonatal resuscitation in China, Indonesia and Mexico. I am on the steering committee for the American Academy of Pediatrics Helping Babies Breathe Initiative (HBB). HBB is a neonatal resuscitation curriculum for resource-limited circumstances, developed on the premise that assessment at birth and simple newborn care are things that every baby deserves. The initial steps taught in HBB can save lives and give a much better start to many babies who struggle to breathe at birth. HBB is an initiative of the American Academy of Pediatrics and has many partners, including the U.S. Agency for International Development (USAID), The Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), Saving Newborn Lives/Save the Children and the Millennium Villages Project." (*More information online.*)



Rosalyn Singleton, '82 MD, finished her pediatric residency in 1985. She writes: "Being the daughter of a beekeeper, I was privileged to receive a National Health Service Corps Scholarship. My husband and I have spent the past 30 rich years in the Indian Health Service and tribal health, initially in Arizona, and now have been in Alaska for 27 years. I spent my fledgling years as a pediatrician on the Navajo reservation along with fellow Northwestern grad, **Pat O'Connor, '82 MD, '85 GME**.

"During those years, I made occasional calls to Dr. Stan Shulman and the Northwestern pediatric infectious disease team for consults on difficult meningitis and bone and joint infections. Over the years, I've watched first-hand the dramatic impact of Hib, hepatitis A and B, and pneumococcal vaccines in decreasing child morbidity and mortality. What a delight to reconnect with Dr. Shulman last year when he was giving a talk at the American Academy of Pediatrics National Convention!"

Scott Cordes, '83 MD, '88 GME, assistant professor of clinical orthopaedic surgery, and **Victoria Brander, '86 MD, '90 GME**, associate professor of clinical physical medicine and rehabilitation, both at Northwestern University Feinberg School of Medicine, were featured in the May 14 *Chicago Tribune* with Operation Walk Chicago for providing trauma services to earthquake disaster victims in Nepal. Established in 2005 by Northwestern professor Dr. David Stulberg and Dr. Brander, Operation Walk Chicago doctors helped treat an estimated 1,200 victims from the April 25 earthquake.

Timothy Herrick, '83 MD, finished two years of family and travel medicine with Oregon Health and Science University's Department of Family Medicine. There, he shared responsibility for resident global experiences, student rural experiences and led his clinic's effort to attain their health maintenance quality metrics. He also co-authored a chapter on travel medicine for the next "Taylor's Family Medicine." Dr. Herrick is married to **Joan Burlingham Herrick, '82 PT**, and father of two great kids.

Larry Kwak, '83 MD, '84 PhD, chairman of the Department of Lymphoma and Myeloma and co-director of the Center for Cancer Immunology Research at the M.D. Anderson Cancer Center, was appointed director of the Toni Stephenson Lymphoma Center at City of Hope, Duarte, Calif.

Munish Gupta, '86 MD, '91 GME, professor, vice chair of the Department of Orthopaedic Surgery, chief of orthopaedic spine surgery, and co-director of the Spine Center at the University of California-Davis, was appointed professor and chief of spine surgery in the Department of Orthopaedic Surgery at Washington University School of Medicine.



Wayne Saville, '86 MD, vice president of clinical development oncology at Tocagen Inc., was appointed vice president of clinical oncology at Xencor, Inc.

Charles S. Modlin, '87 MD, transplant surgeon and urologist at the Cleveland Clinic, walked 26 miles in May to raise awareness of the 26 million Americans living with kidney disease. He writes, "I know all too well what kidney disease does to a person and how it impacts the community. While I can treat patients with kidney disease, most of these individuals would be much better off avoiding kidney disease in the first place. I'm walking to raise awareness and support those who have kidney disease in our state."

Charles Blanke, '88 MD, of Portland, Ore., is professor of medicine at the Knight Cancer Institute at Oregon Health and Science University. He is also chair of SWOG (formerly the Southwest Oncology Group), one of the National Cancer Institute's five large-scale cooperative groups that test new cancer treatments and prevention programs. He climbed Mount Kilimanjaro in February to raise awareness of the importance of cancer clinical trials and to bring attention to dwindling federal funding for the NCI and its clinical trials network. He has been an avid rock climber and amateur mountaineer for 30 years.



'90s

Upon completion of her Ob/Gyn residency training, **Regina de Leon Gomez, '95 MD**, served as a lieutenant commander in the U.S. Public Health Service Commissioned Corps/Indian Health Service at the Phoenix Indian Medical Center in Phoenix, from 1999 to 2002. She received the U.S. Public Health Service Citation for Exemplary Performance of Duty in 2001. Dr. Gomez writes, "This was one of my best experiences and has served me well throughout my years as an Ob/Gyn."

'00s



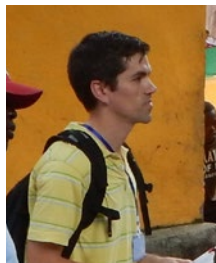
Josh Cohen, '07 MD, and **Jackie Cohen, '06**, welcomed twins, Harper Riley (girl) and Hayden Gideon (boy), in November. They're already sporting Northwestern's colors!

Julian D'Achille, '08 MD, graduated from the general surgery residency program at Tufts Medical Center on June 19. He started a fellowship in plastic surgery at Louisiana State University, New Orleans, in July.

'10s

Jefferson Jones, '11 MD, '11 MPH, joined the USPHS after a residency as an epidemic intelligence service officer with the CDC. He has been proud to serve his country during Ebola, dengue fever and measles outbreaks, as well as in confronting obesity. He writes that it is a great program for anyone interested: www.cdc.gov/eis/index.html.

Michael Yarrington, '14 MD, married Amy Jia, '11, in May.



GME

Carl L. Backer, MD, '85, '87 GME, of Chicago, was selected as president-elect of the Congenital Heart Surgeons' Society. His two-year term begins in 2016. Dr. Backer, a professor of surgery at the Feinberg School of Medicine, has been division head of pediatric cardiovascular-thoracic surgery at Ann & Robert H. Lurie Children's Hospital of Chicago since 2008.

Dale Coy, MD, '89, '92 GME, of Barrington, Ill., a physician at Advocate Good Shepherd Hospital, wrote "Morton's Fork: A Doctor's Dilemma" (Windy City Publishers, 2012). The novel reveals the emotional toll that the Affordable Care Act is taking on the nation's physicians and argues that medical-legal reform is necessary for the legislation to succeed.

Kenric Murayama, MD, '92 GME, program director at Abington Memorial Hospital, joined the University of Hawaii at Manoa's John A. Burns School of Medicine as chair of the Department of Surgery in June.

Samir Desai, MD, '99 GME, of Houston, is an assistant professor of medicine at Baylor College of Medicine. He wrote "Medical School Scholarships, Grants & Awards: Insider Advice on How to Win Scholarships" (MD2B, 2014). Dr. Desai has mentored several award and scholarship winners and is committed to helping medical students overcome career challenges. He provides regular updates on award and scholarship opportunities on his website (www.medschoolawards.com/).

Diana Kerwin, MD, '00 GME, founder of Texas Alzheimer's and Memory Disorders (part of Texas Health Physicians Group), was appointed medical director of the memory care program at Presbyterian Village North in Dallas.

Daniel K. Choi, MD, '11, '14 GME, of Chicago, became a pediatric hematologist and oncologist and faculty member at the University of Illinois at Chicago College of Medicine in Aug. 2014. His practice focuses on the care and treatment of children with

all types of cancer and blood disorders. In June, he completed a fellowship in pediatric hematology and oncology at Northwestern's McGaw Medical Center and Ann & Robert H. Lurie Children's Hospital.

PT

Susan Davis, '77 BSPT, has a private practice in New Jersey, Joycare Onsite, LLC, where she provides physical therapy to pets in their home, in clinics, animal shelters, farms and zoos. She published a book in 2013 titled, "Physical Therapy and Rehabilitation for Animals: A Guide for the Consumer."



Molly McCool Jones, '08 DPT, of Colorado Springs, is an outpatient neurological physical therapist through University of Colorado Health. In June 2014, she earned her board specialty certification as a neurologic clinical specialist.

DDS

Hugh Ryan, '52 DDS, of Downers Grove, Ill., enlisted in the U.S. Army Air Corps shortly after Pearl Harbor. He was underweight to get into the service, so he ate 28 bananas on check-in day and passed his physical. He trained in a Boeing-Stearman Model 75 biplane. He flew that same airplane two years ago at the age of 89. Ryan recently went on an Honor Flight, which transports veterans to Washington, D.C., to visit the war memorials. (*More information online.*)

Harry L. Sheehy, '81 DDS, of Chicago, wrote "The People's Cardinal" (Image Creation, 2014). The novel looks into the future of the Catholic Church, examining the dangers it faces if it does not meet the needs of the faithful in a rapidly changing modern world. He had studied to become a Jesuit priest. **M**

Progress Notes

Awards and Honors

'40s

Hugh S. Collett, '47 MD, was awarded an honorary baccalaureate degree from Great Basin College in Elko, Nev., in May, and was the commencement speaker. He helped found the community college, the first in Nevada, and has been on its advisory board for 48 years. Dr. Collett was also selected as a 2015 Distinguished Nevadan by the Board of Regents of the Nevada System of Higher Education for significant achievements contributing to the cultural, scientific or social advancement of Nevada and its people. His name will be engraved in the University of Nevada's Reno Honor Court.

'70s

Bill McCarberg, '76 MD, assistant adjunct clinical professor at the University of California in San Diego, was appointed president of the American Academy of Pain Medicine.



Barbara Pettitt, '76 MD, currently the director of medical student education for the Department of Surgery at Emory University School of Medicine, received the Olga Jonasson Distinguished Member Award from the Association of Women Surgeons (AWS) last fall, presented to a member who exemplifies its ideals. Recently promoted to

full professor, Dr. Pettitt is active on multiple medical school committees and several national surgical education task forces.

In June, she made her fifth annual surgery trip to the Central Highlands of Haiti with Emory faculty and students.

David L. LaMasters, '77 MD, '77 GME, a neuroradiologist at Neuroradiology Consulting in Dallas, was inducted as a fellow in the American College of Radiology (ACR). ACR Fellows demonstrate a history of service to the College, organized radiology, teaching or research. Dr. LaMasters is a member of the ACR, the American Society of Neuroradiology, the Radiological Society of North America and the Texas Radiological Society.

Langdon L. Miller, '79 MD, principal at Sound Clinical Solutions, was appointed president and chief medical officer at Cleveland BioLabs, Inc.

'80s

Janice Buelow, '84 BSN, vice president of programs and research at the Epilepsy Foundation, was appointed as one of the first members of the Patient-Centered Outcomes Research Institute's new advisory panel on communication and dissemination research.

Scott Zeller, '86 MD, chief of psychiatric emergency services at Alameda Health System, San Leandro, Calif., has been named the U.S.A. "Doctor of the Year"

by the National Council for Behavioral Health of Washington, D.C. This award honors the contributions of individuals living with mental illnesses and addictions, as well as those treating and supporting them.

Dr. Zeller created and led a multicenter guidelines project for best practices in the Evaluation and Treatment of Agitation. In addition, his Alameda Model addresses the



problem of individuals spending long hours in the ER—resulting in reduction of delays by more than 80% and unnecessary hospitalizations by more than 75%.

'90s

Patrick Geraghty, '91 MD, of St. Louis, associate professor of surgery and radiology and co-director of the Limb Salvage Center at Washington University School of Medicine, received the 2015 Hero with a Heart Award in March at the Heartworks St. Louis Gala. He is a vascular surgeon who performs lifesaving surgery for people with complex connective tissue disorders.

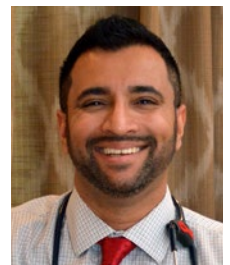
Connie Savor Price, '95 MD, '98, '01 GME, has been promoted to chief medical officer (CMO) at Denver Health, where she has been since July 2002, most recently as chief of infectious disease and medical director of infection control and prevention. She is also a professor of medicine in the Division of Infectious Diseases at the University of Colorado School Of Medicine.

As CMO, she will lead physician and provider services, oversee the medical staff office and work with clinical operations, quality and ambulatory care to ensure cost-effective, high-quality patient care. She will continue as an active clinician and researcher.

'00s

Danny G. Thomas, '02 MD, '02 MPH, attending physician in pediatric emergency medicine at the Children's Hospital of Wisconsin, has been elected

to the AOA by medical students at the Medical College of Wisconsin. Also, this year his concussion research has been published in *Pediatrics*, and featured in the *New York Times* and on NPR's "Morning Edition" and "All Things Considered." **M**



Unsung Heroes of the Earthquake

the People of Nepal

Alumnus Dr. William (Bill) Gilligan volunteered to go to Kathmandu in early May as part of an Operation Walk Chicago surgical team, just 10 days after the devastating earthquake hit Nepal.

By William J. Gilligan,
'62 MD, '67 GME

V



The worst earthquake in Nepal since 1934 occurred on April 25, 2015, causing more than 9,000 deaths, 22,000 injured and 450,000 people to become homeless. Nepal Orthopaedic Hospital (NOH) in Kathmandu immediately became inundated with an overwhelming number of casualties that had sustained multiple injuries, the vast majority of which required surgery. Those with open fractures were admitted for immediate care. Those with closed fractures were splinted, sent home and told to return in five to seven days for definitive care.

Immediately after the quake, NOH reached out to Operation Walk Chicago (OP Walk) for financial and staffing assistance. OP Walk, a charitable organization that does total joint replacements in third world countries, had made several trips to NOH in the past. OP Walk founders, Dr. David Stulberg and Dr. Vicky Brander, both Feinberg School of Medicine staff members, with the help of Northwestern Medicine's Global Health Institute, carried out a successful fundraising effort and quickly assembled and dispatched a surgical team to Nepal.

Along with Scott Cordes, '83 MD, '88 GME, another Northwestern Medicine orthopaedic surgeon, and four other team members, we embarked for Kathmandu on May 5, where for the next 10 days we helped the valiant, but overwhelmed, NOH surgeons operate upon the many victims of the quake. Upon our arrival, we found the destruction in many parts of Nepal to be catastrophic. Rubble and ruins were everywhere. So many of the Nepalese people, who had so very little to begin with, lost all of what they had, including family and housing. However, their spirit was awe-inspiring ... quiet, stoic, patient, uncomplaining, appreciative. In spite of their losses they rallied around one another, generously helping their neighbors dig out from the rubble.

The hospital was filled to capacity, with more than 150 patients spilling outside to beds under makeshift tarps and tents, awaiting surgical repair of their fractures. The three operating rooms were primitive but adequate. The OR staff was very capable and helpful. Adding to the drama and fright of the effort was a second earthquake, magnitude 7.3, on May 12 that occurred while our team was in the middle of an operation. The staff, who had previously been terrified and traumatized by the first quake, made certain the operation was successfully completed before they beat a hasty retreat from the hospital to safety.

Having been a surgeon on several previous Operation Walk Chicago trips to third world countries, I have found these experiences to be exhausting, but wonderfully satisfying and remarkably refreshing. All of us in medicine embarked upon our careers with a mission to help and care for others. All too often the daily chores of medical practice can begin to dull these lofty and inspirational goals. Going to Nepal and helping these people in the midst of devastating circumstances has provided a remarkable and meaningful reawakening of why I became a physician.

It was truly an honor and a privilege to be among my five colleagues as we cared for the wonderful people of Nepal—the heroes of the earthquake. **M**

Anatomy Training Led to Success in Skull Base Surgery

*Peter Costantino,
'84 MD, '90 GME, credits
Northwestern University
with paving the road for
him to become a surgeon.*



"I look at medical schools in general now, and though they do anatomy, they do not do it to nearly the degree they did when I was a student," he says. Not only did Dr. Costantino take anatomy as a first-year medical student, but he also continued dissecting cadavers for the next three years as a technical assistant. "This allowed me to gain an enormous amount of anatomic experience," he says.

Dr. Costantino's exposure to anatomy—coupled with dynamic faculty in head and neck surgery, neurosurgery and plastic surgery—convinced him of his desire to enter the field of surgery. "I really never considered any other specialty," he confesses.

After medical school, he performed two years of general surgery and then four years of otolaryngology, both at the McGaw Medical Center of Northwestern University. In 1990, he went to the University of Pittsburgh, where he completed a one-year fellowship in cranial-based surgery, which at the time was a brand-new field. "It was kind of an amalgamation between head and neck surgery, neurosurgery and plastic surgery, whereby we were removing tumors behind the eye sockets at the base of the brain," he explains. Often, this required disassembling the facial skeleton before excising the tumors, then piecing it all back together.

Afterward, as repayment for medical school, Dr. Costantino served four years in the Air Force at Wilford Hall Medical Center at Lackland Air Force Base in San Antonio, as director of medical education in otolaryngology. He then returned to Chicago to become chief of head and neck cancer at what was then the new Cardinal Bernardin Cancer Center at Loyola University. In 1997, he was recruited to Mount Sinai Hospital in New York as co-director of the microsurgery training program.

Three years later, Costantino left to run a medical device company, but found that he was "utterly miserable doing it." In fact, he sometimes called friends to ask if he could scrub in on surgical cases because he missed the operating room.

He then returned to Mount Sinai for a year before he transitioned to St. Luke's-Roosevelt Hospital Center (affiliated with

Dr. Peter Costantino (left), executive director and senior vice president of the New York Head & Neck Institute of North Shore-Long Island Jewish Health System, reviews patient images with a colleague during surgery.

Columbia University), where he spent a decade as director of cranial-based surgery.

"Everything that I am as a surgeon came from my training process. I was very fortunate to have some amazing mentors and instructors at Northwestern and afterward," says Costantino, 56, who since Nov. 2010 has served as executive director and senior vice president of the New York Head & Neck Institute of North Shore-Long Island Jewish Health System.

TRAINING FUTURE SURGEONS

Since 2000, Dr. Costantino has created several training programs, including three fellowships for fully trained head and neck surgeons: two at St. Luke's-Roosevelt Hospital Center (facial plastic surgery and cranial-based surgery) and the third at Mount Sinai (reconstructive microvascular surgery).

He is in the process of developing a new residency in otolaryngology for the medical school at Hofstra University on Long Island. He and others are also spearheading the second—and the largest—residency for physician assistants and nurse practitioners in this specialty, which will be housed at both Hofstra and New York Head & Neck Institute.

"The highest calling, of course, is taking care of patients. But it is a step beyond that when you can help train other surgeons and caregivers," Dr. Costantino explains. "There is a genuine level of satisfaction knowing that someone you have helped train is making a difference in a patient's life."

His primary surgical expertise is in all forms of cranial-based surgery, especially removing recurrent nasopharyngeal cancer. It occurs in the back of the nasal cavity, and early on often invades the base of the skull. The Asian population is particularly susceptible.

"Previously, this cancer has been considered either surgically untreatable or the surgery was extremely disfiguring and morbid," Dr. Costantino says. "However, we have developed surgical methods for recurrent tumors, using telescopes inserted through the nostrils. Our success rate is comparable to open procedures, but with much lower complication rates and no facial disfigurement."

He also performs endoscopic pituitary tumor removal, facial nerve construction with microneurosurgery, and cranial reconstruction. In 2006, he successfully replaced half the skull of ABC television journalist Bob Woodruff, who sustained a traumatic brain injury while covering the war in Iraq. Likewise, last year, Dr. Costantino removed a recurrent sinus cancer from former Buffalo Bills quarterback and Pro Football Hall of Famer Jim Kelly, with no subsequent evidence of any cancer.



Through the decades, Dr. Costantino has developed and commercialized several new biomaterials, spurred by an abstract he stumbled upon in the library while in medical school. The paper described a cement invented by the American Dental Association that could convert into hydroxylapatite, the form that calcium takes in the body to make bone hard. "The researchers were using the cement to glue in fillings," he recalls.

Over the ensuing years, Costantino and his colleagues conducted a series of animal studies on the material, altering it for use in the reconstruction of the craniofacial skeleton. Human clinical trials followed. Today, BoneSource is offered by Stryker Corporation. "Since 1996, the cement has been used in many thousands of patients, if not more," Dr. Costantino explains. In fact, one of those patients is his wife, Laurie, whom he met in 1995, the year after another surgeon employed BoneSource to reconstruct her skull following a brain tumor removal.

Furthermore, Dr. Costantino helped develop a sheeting material called AlloDerm, constituted from the skin of deceased donors, from LifeCell Corporation. He was the first to use AlloDerm to reline the surface of the brain case (dura).

Outside medicine, Costantino focuses on his wife and four children, ranging in age from seven to 23, and enjoys playing baseball and tennis. **M**

In Memoriam

Rosalind Zucker Ahrens, '60 CERT, of Greenville, N.C., died March 26, 2015.

Roger Barron, '72 MD, of Santa Rosa, Calif., died March 22, 2013.

William D. Boyce, '43 MD, of Escondido, Calif., died March 30, 2015.

J. Paul Brenchley, '66 DDS, of Mesa, Ariz., died Aug. 4, 2014.

James G. Calene, '55 MD, of Tucson, Ariz., died Aug. 5, 2013.

Clarence D. Craig, '55 DDS, of Grand Junction, Colo., died Nov. 25, 2014.

Jean Cuthbertson, '47 CERT, of Peoria, Ill., died April 6, 2015.

Theodore R. Deems, '51 MD, of Albany, Ore., died Feb. 16, 2015.

Brice J. Devos, '59 DDS, of Oak Harbor, Wash., died Aug. 30, 2014.

Frank A. Duncan Jr., '51 DDS, of Auburn, Ind., died Oct. 29, 2014.

Brian L. Dunsworth, '49 DDS, of Edmonton, Alberta, died Dec. 4, 2014.

Lindon C. Durham, '59 DDS, of Three Forks, Mont., died Aug. 28, 2014.

Edwin C. Errington, '51 DDS, of Woodstock, Ga., died Sept. 27, 2014.

Philip R. Frederick, '48 MD, '49 GME, of Salt Lake City, died April 14, 2015.

Thomas A. Garside, MD, '67 GME, of Davenport, Iowa, died April 22, 2015.

J. Michael Gross, '63 MD, of Ojai, Calif., died Feb. 6, 2015.

Kenner F. Hawkins, '47 DDS, of Portsmouth, Va., died Nov. 14, 2014.

Michael R. Hirsch, '52 MS, '53 MD, of Henderson, Nev., died June 28, 2012.

Harold R. Hudson, '47 DDS, of East Alton, Ill., died Nov. 4, 2014.

Robert K. Jones, '49 MD, of Blue Hill, Maine, died April 26, 2015.

Monty P. Karoll, '78 BSM, '80 MD, '84 GME, of Quincy, Ill., died March 11, 2015.

Karl Larsen, '60 MD, of Iowa City, Iowa, died Nov. 9, 2013.

Albert F. Martin, '52 BSM, '55 MD, '57 GME, of St. George, Utah, died April 30, 2015.

Mary Ellen Masleid, MD, '88 GME, of Merrillville, Ind., died March 19, 2015.

John W. McCallister, MD, '50 GME, of Sarasota, Fla., died Feb. 14, 2015.

John S. McCulloch, '55 DDS, of Reno, Nev., died Nov. 16, 2014.

Donald P. Morgan, '49 MS, '53 MD, of Cedar Rapids, Iowa, died April 22, 2015.

Donald C. Parker, '65 MD, of Coral Gables, Fla., died Feb. 22, 2015.

Lowell F.A. Peterson, '51 MD, of Rochester, Minn., died May 28, 2012.

Karl H. Pinto, '55 DDS, of Delray Beach, Fla., died July 13, 2014.

Philip K. Radtke, '77 DDS, of New Buffalo, Mich., died Aug. 2, 2014.

Thomas E. Schwark, '60 BSM, '63 MD, of Baltimore, died April 24, 2015.

Jan H. Stafl, '80 BSM, '81 MD, of Eugene, Ore., died April 26, 2015.

Mary B. Stauffer, '63 CERT, of Lake Bluff, Ill., died Jan. 31, 2015.

Rodney D. Steinmetz, '52 MD, of Tampa, Fla., died Jan. 17, 2015.

Richard A. Sullivant, '55 MD, of Folsom, Calif., died May 29, 2013.

Conrad Tasche, '59 MD, '67, '70 GME, of Chicago, died March 20, 2015.

John W. Travis, '55 MS, '55 MD, of Kansas City, Mo., died March 18, 2015.

Robert W. Whitener, '54 MD, of Greensboro, N.C., died Jan. 31, 2015.

Kenneth J. Zubrick, '60 MD, '62, '66, '67 GME, of Mountain View, Calif., died April 21, 2014.

Dick A. J. Brown, '58 MD, of Needham, Mass., died May 19, 2015.

H. Royden Jones, Jr., '62 MD, of Wellesley, Mass., died June 4, 2013.

Craig W. Larimer, '43 MD, of Colorado Springs, Colo., died May 20, 2015.

Fredrick Wood, Jr., '51 MD, of Kenosha, Wis., died May 4, 2015.

Upcoming Events

OCT

OCTOBER 2-3, 2015

[Association for Academic Surgery 2015 Fall Courses](#)

Robert H. Lurie Medical Research Center
303 E. Superior, Chicago.
For more information, call 312-695-4853.

OCTOBER 6, 2015

[20th Annual Drug Discovery Symposium](#)

Robert H. Lurie Medical Research Center
303 E. Superior, Chicago.
For more information, call 847-467-2991.

OCTOBER 15, 2015

[Language, Aging and Neurodegeneration: A Translational Imaging Approach](#)

McGaw Pavilion, Kellerman Classroom
240 E. Huron, Chicago.
For more information, call 312-908-9023.

OCTOBER 21, 2015

[16th Annual Ben L. Boynton Lecture](#)

Rehabilitation Institute of Chicago,
Magnuson Auditorium
345 E. Superior Street, Chicago.
For more information, call 312-238-6207.

NOV

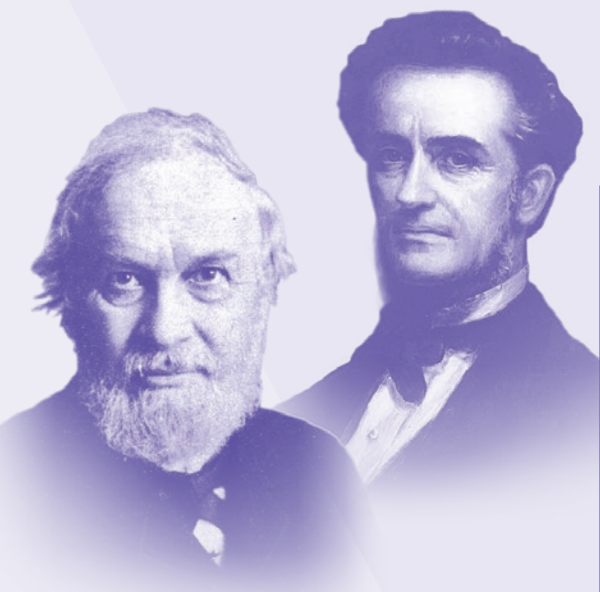
NOVEMBER 16, 2015

[5th Annual Les Turner ALS Symposium: A Celebration of Research and Patient Care Education](#)

Prentice Women's Hospital,
Conference Room L
250 E. Superior, Chicago.
For more information, call 312-908-5035.



MORE EVENTS AT
MAGAZINE.NM.ORG



Recognizing the Founders of the Medical School at Northwestern University

The first “graded” medical studies in the country began at Lind University in Chicago, the precursor to today’s Northwestern University Feinberg School of Medicine. In honor of Founders’ Day in August, some of the school’s founders were highlighted in the magazine’s history blog at magazine.nm.org. The first post spotlights Dr. Nathan Smith Davis, a man who believed a more rigorous course of study, including clinical experiences, was needed before an individual could practice medicine. The next one highlights founder Edmund Andrews. Along with four young colleagues, these two men developed a new curricular model. Dr. Davis worked for more than 40 years as dean and professor at the new institution. Dr. Andrews was the college’s first professor of surgery; he continued in this position actively or emeritus until his death.

Potential Expansion of Northwestern Medicine Health System

In late May, Northwestern Memorial HealthCare (NMHC) and KishHealth System (KishHealth) in DeKalb, Ill., announced that they had entered into affiliation discussions. In August, KishHealth signed the definitive agreement. Pending regulatory approval, the Northwestern Medicine system would increase patient access to more than 90 locations spanning eight Illinois counties. Currently, KishHealth offers 25 care sites, including the 98-bed Kishwaukee Hospital in DeKalb and Valley West Hospital, a critical access facility located in Sandwich. The system also includes an aligned physician group, cancer center and behavioral health, hospice and home health services.

Northwestern University

NUCATS

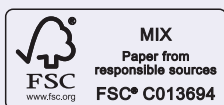
Clinical and Translational Sciences Institute

NUCATS Awarded \$27.2 Million to Transform Scientific Discovery into Treatments

Northwestern University has received a four-year, \$27.2 million grant from the National Institutes of Health (NIH) to renew the Northwestern University Clinical and Translational Sciences (NUCATS) Institute.

The new Clinical and Translational Science Award (CTSA), funded by the NIH’s National Center for Advancing Translational Sciences (NCATS), will prioritize making research more accessible to patients by involving them in clinical trials.

“It takes too long for new scientific discoveries to get to places where they can make a meaningful impact on patients,” says Donald Lloyd-Jones, MD, ScM, senior associate dean for Clinical and Translational Research and director of NUCATS. “We’re trying to break down major hurdles in the middle of the translational pipeline—where we conduct clinical trials with real people to see whether a new medical device or drug actually works in the real world.”



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THANKING THOSE WHO GIVE SO GENEROUSLY

2015 Reunion Giving Honor Roll

Available online
September 18, 2015

The medical school's Reunion Giving Honor Roll will be available on September 18, 2015, at feinberg.northwestern.edu/reunion-giving-honor-roll.html.

This report features all MD alumni who celebrated a 5th through 60th reunion in 2015 and made gifts to their class's reunion giving initiatives during the past fiscal year (September 1, 2014-August 31, 2015). All reunion gifts directly support our medical students.

If you have questions, please contact Larry Kuhn at larry-kuhn@northwestern.edu or 312-503-1717.

Many thanks to our inspiring supporters!

We hope you will continue to give to your class fund at any time; however, please note that, as of September 1, 2015, the Reunion 2015 giving cycle for MD classes ending in 5 and 0 officially closes, and the Reunion 2016 giving cycle for MD classes ending in 6 and 1 opens.