Winter 2014-15 Volume 02, Number 01

A publication for the alumni and friends of Northwestern University Feinberg School of Medicine Magazine



Curious Kid, Unconventional Scientist

Acclaimed scientist to lead the new Department of Biochemistry and Molecular Genetics and halt cancer.

р.14

Zeroing In On 2014 Activities & Accomplishments р.24

Quality Care By Design

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Northwestern Medicine

Magazine

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CURIOUS KID, UNCONVENTIONAL SCIENTIST

Ali Shilatifard is chair of the new Department of Biochemistry and Molecular Genetics

ZEROING IN ON 2014 ACTIVITIES & ACCOMPLISHMENTS

QUALITY CARE BY DESIGN

New Outpatient Facility Meets Growing Healthcare Trend



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Northwestern Medicine Leadership



Happy New Year! Looking back, we were fortunate to have enjoyed many achievements this past year, though celebrating the 5th anniversary of the Northwestern Medicine strategic plan is a milestone that was particularly remarkable. Together with the Feinberg School of Medicine, we have made significant progress toward achieving the goals of our plan: to deliver exceptional care; advance medical science and knowledge; and develop people, culture and resources. Our success to date is directly attributable to the collective commitment of the boards of trustees and senior physician and executive leadership of Northwestern University, the Feinberg School of Medicine and Northwestern Memorial HealthCare.

In previous editions of Northwestern Medicine Magazine, Dr. Neilson has described the significant growth in our research activities, which will soon achieve another important milestone when we break ground for the new biomedical research building on the site of the former Prentice Women's Hospital. This state-ofthe-art facility will add 600,000 more square feet of lab space, allowing us to attract an additional \$150 million in research funding. Research expansion will support the Feinberg School of Medicine's cardiovascular, cancer, and neurodegenerative diseases departments' ability to maintain their reputation as national leaders in their respective fields and support our ability to expand into emerging areas of biomedical research.

Similarly, our health system has grown to provide greater access for our patients closer to where they live and work. Today more than 25,000 physicians, nurses, staff and volunteers come together to deliver care at



NORTHWESTERN MEDICINE CAMPAIGN PROGRESS

more than 65 locations across Chicago and its suburbs. We have taken a thoughtful approach to managing our growth. Whether we are evaluating a potential affiliation with other health systems or developing new ambulatory care sites, our primary objective is to ensure they will strengthen our ability to provide our patients with safer, more effective care wherever they access Northwestern Medicine.

One of our newest facilities, the outpatient care building that recently opened on the Chicago campus and is highlighted on page 24, exemplifies our growth strategy. As you will read, it is designed to support the latest medical technologies as well as to bring together complementary specialists to foster better collaboration to support better care outcomes for our patients.

As a result of our disciplined planning and ongoing collaboration with our partners across the Evanston and Chicago campuses of Northwestern, we are well positioned to advance our shared discovery, education and clinical missions during this period of significant change in the healthcare marketplace.

We look forward to 2015 with great confidence for the many shared successes yet to come.

Best,

tan Marina

Dean M. Harrison President and CEO Northwestern Memorial HealthCare

Campus News

Three Trustee Gifts to help Fund New Biomedical Research Building

WRITTEN BY: Andrea Arntsen-Harris

Northwestern University Feinberg School of Medicine recently received gifts totaling \$6 million from three Northwestern University Trustees in support of the new Biomedical Research Building. Dr. Andrew E. and Mrs. JoAnn Senyei have committed \$3 million, the Weinberg family has provided \$2 million, and Howard J. Trienens has pledged \$1 million in generous, unrestricted support.

A top fundraising priority for We Will. The Campaign for Northwestern Medicine, this 12-story facility will create additional space to conduct lifesaving biomedical research. Located in downtown Chicago, the new building will help to attract the world's best medical researchers focused on finding tomorrow's cures. The facility will double the research enterprise and provide crucial space for investigators working in the areas of cancer, heart disease, neurodegenerative disorders, diabetes and others.

The new 600,000-square-foot building—to expand to 1.2 million square feet and 25 stories upon completion—will connect floor-by-floor with the Robert H. Lurie Medical Research Center. Construction will be phased, with the building ultimately standing as the world's tallest medical research facility. Northwestern expects to attract \$150 million a year in new research funding, create 2,000 full-time jobs, and generate an additional \$3.9 billion in economic activity in Chicago over the next 10 years.

ANDREW AND JOANN SENYEI

Andrew Senyei, '79 MD, and his wife JoAnn, have been steadfast supporters of Northwestern University for more than 10 years. The couple has supported the President's Fund, the Bienen School of Music, and a Feinberg professorship within the Department of Obstetrics and Gynecology. Dr. Senyei is a Trustee and member of the newly formed Northwestern Medicine Campaign Cabinet.

"Attracting world-class medical researchers requires world-class facilities. The new research building will significantly improve our ability to attract and also retain the next generation of research leaders. It will also allow us to be more competitive for National Institutes of Health funding, which is an important part of growing and maintaining our excellence in a highly competitive world," says Dr. Senyei.

"Northwestern's amazing rise in research stature from when I was a medical student to today is incredibly impressive and inspiring," he continues. "Witnessing the passion and performance of both the faculty and the students has inspired us to help continue the trajectory of excellence for the next generation."

DAVID WEINBERG

The Weinberg family has a distinguished history of philanthropy at Northwestern University. David Weinberg serves in several volunteer roles in addition to providing sustaining gifts to support biomedical research. He is vice chair of the University's Board of Trustees and former chair of its Northwestern Medicine Committee. He also serves as vice chair of the Northwestern Medicine Campaign Cabinet.

"One of the great features of academic medical centers like Northwestern is translational research—taking discoveries from the lab to the patient's bedside," he explains. "The Biomedical Research Building will attract extraordinary physician-scientists who can both make a difference today and develop the treatments, procedures and protocols that will improve the lives of future generations."

HOWARD TRIENENS

Howard Trienens is a University Trustee and an alumnus of the undergraduate business program ('45 BBA) and the Law School ('49 JD). His generosity has extended across Northwestern—including athletics, the college and law school annual funds, and the library. In 1999, in memory of his late wife Paula, Mr. Trienens created the Howard & Paula Trienens Fund to support the continued growth and development of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University.

"This new building represents the future for several of my interests: research at Northwestern, growth of the Chicago economy and improvements in medical practice," says Trienens.

The philanthropic leadership of these three medical school supporters forecasts great things for the future as we prepare to break ground for this state-of-the-art research facility in spring 2015. №

3-D Printed Models Provide Lifelike Simulations for Training Pediatric Surgeons

WRITTEN BY: Nora Dunne PHOTOGRAPHY BY: Nora Dunne and Lauren Davis

Using 3-D printing technology, **Katherine Barsness**, **MD**, **'11 MS**, associate professor in surgery and medical education, may have solved a common catch-22 for pediatric surgeons: To deftly perform tricky surgical procedures in a newborn chest cavity no bigger than an egg, they need practice with the real thing.

"The overwhelming majority of surgeons just train in the operating room," says Dr. Barsness. "Everybody has a learning curve when they're developing new skills, a time when they make mistakes while trying to master a certain technique. Unfortunately, a learning curve places patients at risk."

To prevent consequential errors from occurring on real patients, Dr. Barsness has created life-sized, reusable models of a newborn's ribcage in collaboration with engineers from Feinberg's Innovations Lab and the McCormick School of Engineering and Applied Sciences. With the models, training pediatric surgeons receive uniquely authentic simulation-based education.

McCormick's Segal Design Institute produces the models with 3-D printers, which turn digital files into three-dimensional solid objects one very thin layer of material at a time. The resulting plastic ribcages become anatomically correct replicas of an infant's chest cavity when covered with a synthetic silicone skin and filled with tissue.

Through the Northwestern Simulation training facility, students use the models to practice performing complicated minimally invasive procedures to repair rare birth defects.

"It's invaluable to practice on something that looks this realistic. It's an experience that will only benefit my patients in the future," says Matthew Landman, a pediatric surgery fellow at Children's Hospital Colorado.

He was one of 38 visiting second-year fellows from the United States and Canada to attend a gold-standard pediatric surgical training hosted by Dr. Barsness in September through the Accreditation Council for Graduate Medical Education.

Landman and other fellows, who had never worked with 3-D printed models before, said they participated in the course to learn techniques through lifelike simulations that they don't have at their own institutions. Barsness also leads training courses throughout the year for practicing surgeons.

For beginning surgeons, the Innovations Lab prints plaster molds to make silicone organs that are placed in the ribcage. More advanced surgeons work with fetal bovine tissue which would normally be thrown out by commercial slaughterhouses. The bovine tissue is surgically configured to mimic neonatal congenital defects such as tracheoesophageal fistula, an abnormal connection between the windpipe and the stomach. These conditions are so rare that surgeons may encounter them only a few times a year and, potentially, fall out of practice.



TRAINEES USE 3-D MODELS TO PRACTICE PERFORMING COMPLICATED MINIMALLY INVASIVE PROCEDURES TO REPAIR RARE BIRTH DEFECTS.



Created using 3-D printing, this plastic ribcage becomes an anatomically correct replica of an infant's chest cavity when covered with a synthetic silicone skin and filled with tissue.

Katherine Barsness (right), MD, '11 MS, associate professor in surgery and medical education, leads a pediatric surgical training course using the models for visiting second-year fellows.

Dr. Barsness believes that models like hers will eventually become the norm for surgical training, instead of having trainees practice in the operating room or work on live animals. However, she points out several challenges that prevent that future from becoming an immediate reality.

"First is dedicated time for education outside the operating room. We need programs to let their trainees leave clinical duties for dedicated simulation-based education," she says. "Second, there are very few pediatric surgeons in the world who are trained to conduct this type of education." Funding is another issue. Though materials for printing the ribcage cost only about \$200, the printers themselves are a significant investment, as are the resources to support them. But she says acceptance of the models—proving their value—is the biggest struggle right now.

>>>

"That acceptance is predicated on data. So our next step is to show that using the simulation models really does improve physicians' performances in the operating room," says Dr. Barsness.

Her lab has already published the promising results of initial studies,

through papers in the Journal of Pediatric Surgery and the Journal of Laparoendoscopic & Advanced Surgical Techniques, among others.

The work is funded by Jeffrey C. Maling and Rebecca L. Johnston, and the Children's Research Fund Junior Board of the Stanley Manne Children's Research Institute. M

Faculty Awards and Honors

Jeremiah Stamler, MD, founding chair and professor emeritus of the Department of Preventive Medicine-Epidemiology, was named the 2014 recipient of the American Heart Association's Eugene Braunwald Academic Mentorship Award. The award recognizes an individual whose academic career includes a long-term record of successful mentoring of promising young academicians. Dr. Stamler devoted his professional career to researching the cause and prevention of cardiovascular disease.

He has received numerous awards and honors from the AHA, including the establishment of the Jeremiah Stamler, MD,



JEREMIAH STAMLER, MD

New Investigator Award. Other significant honors include the Donald Reid Medal from the Joint Committee of the London School of Hygiene and Tropical Medicine and the Royal College of Physicians; the National Cholesterol Award at the First National Cholesterol Conference; the James D. Bruce Memorial Award for Distinguished Contributions in Preventive Medicine from the American College of Physicians; and election to the Center for Science in the Public Interest's Nutrition Hall of Fame. Shira N. Dinner, MD, assistant professor in medicine-hematology/oncology, was selected to participate in the American Society of Hematology Clinical Research



Training Institute (CRTI) program. This education and mentorship program is designed to prepare current hematology and hematology/oncology fellows and junior faculty for careers in patient-oriented clinical research.

Dane Chetkovich, MD, PhD, associate professor in the Ken and Ruth Davee Department of Neurology and physiology, and Brian Mustanski, PhD, associate professor in medical social sciences and psychiatry and behavioral sciences, have accepted invitations to join two National Institutes for Health's Center for Scientific Review study sections. Members are selected based on demonstrated competence and achievement in their scientific disciplines. Part of their responsibility is to survey the status of research in their fields.

Mustanski has joined the Behavioral and Social Consequences of HIV/AIDS Study Section through June 2020, and Dr. Chetkovich



(right) joins the Clinical Neuroplasticity and Neurotransmitters Study Section for a term through June 2018.

Students, faculty members and alumni gathered to celebrate the Walter S. and Lucienne Driskill Graduate Training Program in Life Sciences at the Third Annual Driskill Day, held in September.



RICHARD MILLER, PHD

At the event, Richard Miller, PhD, professor in pharmacology, received the Faculty Teaching Award and Greg Smith, PhD, associate professor in microbiologyimmunology, received the Faculty Service Award.



GREG SMITH, PHD

Mark C. Hersam, PhD,

the Bette and Neison Harris Chair in Teaching Excellence and professor of materials science and engineering at the McCormick



School of Engineering and Applied Science, professor of chemistry in the Weinberg College of Arts and Sciences, professor of medicine-pulmonary at the Feinberg School of Medicine, and director of Northwestern's Materials Research Center, has been named a 2014 MacArthur Fellow.

Hersam is developing novel nanomaterials for use in information technology, biotechnology, energy (solar cells and batteries), and flexible electronics for personalized health monitoring. Hersam and his research lab have been working primarily with carbon nanotubes and graphene, but the support of the MacArthur award will allow the lab to diversify its materials set to other elements in the periodic table.

His numerous awards have included the Beckman Young Investigator Award, the National Science Foundation CAREER Award, a Sloan Research Fellowship, the Presidential Early Career Award for Scientists and Engineers (PECASE) and six Teacher of the Year Awards.

The Patient-Centered Outcomes Research Institute (PCORI) and the Agency for Healthcare Research and Quality (AHRQ) announced that AHRQ has selected the research team that will conduct a five-year, \$20-million project funded by PCORI to evaluate the effectiveness of different treatment strategies for women with uterine fibroids.

Erica E. Marsh, MD, assistant professor in obstetrics and gynecology-reproductive endocrinology and infertility, with Northwestern Fertility and Reproductive Medicine, serves as the principal investigator for Northwestern's portion of the research project.

Health & Medicine Policy Research Group, a Chicago-based non-profit founded in 1981 by Quentin Young, '48 MD, working to improve the health of all Illinoisans by promoting health equity, has announced the recipients of the 2014 HMPRG Awards representing leaders in the fields of medicine, policy, public health and advocacy whose work promotes social justice and challenges inequities in health care. Northwestern University Feinberg School

of Medicine professor James W. Collins, Jr., MD, MPH, received the Research Award.

Dr. Collins, professor of pediatrics-neonatology and medical director of the Neonatal Intensive Care Unit at Ann & Robert H. Lurie Children's Hospital of Chicago, is the co-recipient of the HMPRG Research Award with his research partner Richard David, MD,



Alisha Thomas, '05 MD, instructor of clinical family and community medicine, received the 2014 Illinois Family Medicine Teacher of the Year Award from the Illinois Academy of Family Physicians (IAFP). Dr. Thomas was nominated for this award by her students in the Education-Centered Medical Home (ECMH) program. When the new curriculum



launched, she was one of the first three pilot ECMH mentors.

The Teacher of the Year Award recognizes a physician who has made outstanding contributions to the field of teaching family medicine by developing and implementing innovations in family medicine education and who inspires new family physicians through dedication, mentoring and support.

Four New Administrators at Lurie Cancer Center

Under the leadership of Leon Platanias, MD, PhD, recently named director (see page 8), four new administrators have been appointed at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University:



Francis J. Giles, MB, MD, FRCPI, FRCPath, professor in medicinehematology/oncology, has been appointed deputy director, overseeing Northwestern Medicine's clinical research cancer programs and developmental therapeutics initiatives. Dr. Giles is a global leader

in the field of developmental therapeutics, with a special emphasis on personalized therapies for cancer patients;



Milan Mrksich, PhD, professor in cell and molecular biology, has been appointed associate director for research technology and infrastructure and will be responsible for oversight of the Lurie Cancer Center's 15 shared resource facilities. Dr. Mrksich's

research combines synthetic chemistry with materials science to study important problems in cell biology;



Mark Agulnik, MD, associate professor in medicine-hematology/oncology and director of the Hematology/Oncology Fellowship Program, has been appointed director of the Clinical Research Office (CRO). Dr. Agulnik is a leader in the field of medical

oncology, with a focus on sarcomas, head and neck cancers, and endocrine cancers;



Kathleen Green, PhD, Joseph L. Mayberry, Sr., Professor of Pathology and Toxicology, professor of dermatology, director for Northwestern's PhD training Cluster in Cancer Biology and the National Cancer Institute-funded Carcinogenesis Training Program,

secretary of the American Society for Cell Biology and deputy editor-in-chief of the *Journal of Cell Science*, has been named associate research director for basic sciences research. Dr. Green's research is focused on understanding the molecular basis of how cells stick together and how to regulate chemical signals important for development and differentiation. **M**

Leon Platanias Appointed Director of Lurie Cancer Center

WRITTEN BY: Nora Dunne PHOTOGRAPHY BY: Northwestern Memorial HealthCare

Leonidas Platanias, MD, PhD, has been appointed director of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University, a position he has served in interim since January 2014.

Dr. Platanias joined Northwestern University Feinberg School of Medicine in 2002 as the Lurie Cancer Center's first deputy director and the Jesse, Sara, Andrew, Abigail, Benjamin and Elizabeth Lurie Professor of Oncology in Medicine-Hematology/Oncology.

"Leon has already contributed greatly to the Lurie Cancer Center, through both his leadership and his scientific achievements," says Eric G. Neilson, MD, vice president for Medical Affairs and Lewis Landsberg Dean. "As permanent director, he will continue in that vein, driving the center's expansion and maintaining its reputation as a premiere venue for research, clinical care and collaboration."

Platanias will oversee both the clinical operations in the Lurie Cancer Center and growing basic science research programs, including those to translate basic and clinical research into personalized medicine.

"I am very excited about the future of the Lurie Cancer Center and of Northwestern Medicine," says Dr. Platanias. "We are developing programs that bridge basic science and clinical care and will establish Chicago as a global leader in the delivery of personalized cancer treatment. We are extremely fortunate to have the enduring support of remarkable philanthropic partners in all our endeavors, and I am particularly grateful to Ann Lurie whose continuous passionate commitment to the Lurie Cancer Center has a profound impact on cancer research and the clinical care of our patients."



AS DIRECTOR, **LEONIDAS PLATANIAS, MD, PHD,** WILL CONTINUE TO LEAD THE ROBERT H. LURIE COMPREHENSIVE CANCER CENTER OF NORTHWESTERN UNIVERSITY.

Before arriving at Feinberg, Dr. Platanias was chief of the Division of Hematology/ Oncology at the University of Illinois at Chicago. He earned his medical degree from the University of Patras Medical School in Greece before taking on a research fellowship at the National Heart, Lung, and Blood Institute at the National Institutes of Health (NIH). He completed a residency in internal medicine at the State University of New York, Downstate Medical Center, and a fellowship in hematology-oncology at the University of Chicago Hospitals.

Dr. Platanias's molecular biology and biochemistry research, spanning more than 20 years and highlighted in more than 250 published papers, focuses on signaling pathways in cancer cells and developing therapies that target those pathways to treat malignancies. He is well known for his work involving cytokines, which are specific proteins within the blood that have the ability to fight cancer.

Among his many career honors, Dr. Platanias received the Seymour & Vivian Milstein Award for Excellence in Interferon and Cytokine Research in 2013. A member of various scientific societies, Dr. Platanias served as president of the International Society for Interferon and Cytokine Research in 2010-2011. He currently serves on the board of directors of the International Cytokine Society.

He is an associate editor of *Leukemia* and *Lymphoma* and the *Journal of Interferon* and *Cytokine Research* and he sits on the editorial board of the *Journal of Biological Chemistry.* He has been a chair or member of many review committees at the NIH, the Department of Defense, the Department of Veterans Affairs and the Leukemia and Lymphoma Society of America.

"I am very pleased that Leon was selected to carry forward the strong traditions of the Robert H. Lurie Comprehensive Cancer Center as its new director," says Ann Lurie, president of Lurie Holdings, Inc. "I am sure he is the right leader for these exciting times. He will be an exceptional advocate for the serious work ahead to find more enduring cures for cancer." M

Tackling Gender and Sex Issues in Medical Education

WRITTEN BY: Sarah Plumridge

Two Feinberg School of Medicine faculty helped create the Association of American Medical Colleges' (AAMC) first guidelines for medical schools on improving health care for people who are lesbian, gay, bisexual, transgender (LGBT), gender nonconforming or born with differences of sex development (DSD).

"This resource guide is important because these populations have been historically disproportionately harmed or neglected in the medical system," says Alice Dreger, PhD, professor of clinical medical humanities and bioethics and a member of the AAMC Advisory Committee on Sexual Orientation, Gender Identity, and Sex Development. "By being a part of this committee, I hope I am helping to seed a new generation of doctors who will know how to really help patients in these populations."

"Implementing Curricular and Institutional Climate Changes to Improve Health Care for Individuals Who Are LGBT, Gender Nonconforming, or Born with DSD" provides information about the role of academic medicine and the healthcare system in supporting the unique needs of individuals in these groups.

The guide also highlights resources and explains how to integrate this content into medical education, identifying 30 competencies that physicians should master.

"The publication is designed to bring medical education into the modern era by raising important competencies students and trainees should be able to display when providing care to patients," explains Scott Leibowitz, MD, also on the advisory committee and the head child and adolescent psychiatrist for the Gender and Sex Development Program at Ann & Robert H. Lurie Children's Hospital of Chicago.

As a specialist in patients with gender-related issues, Dr. Leibowitz is aware that many of these individuals have difficulty trusting that doctors will understand their identity and specific healthcare needs. He hopes that by educating other physicians about these issues, that both patients and doctors will feel more comfortable.

"To expect that physicians will learn these issues overnight is a challenging task," he says. "But if a patient can't trust a physician, who else can they turn to for the proper care?"

FEINBERG'S GENDER AND SEX EDUCATION

Even before the report came out, Feinberg has been working on implementing programs that address these recommendations.

In 2011, Dreger led a team examining how Feinberg could increase and improve the teaching of LGBT patient care and human sexuality. The white paper, coauthored with Jerry Chen, a fourth-year medical student, and Sarah B. Rodriguez, PhD, lecturer in the Department of Medical Humanities and Bioethics, provided a model for how medical schools can start to improve medical education around these issues.

Since then, Feinberg has established a Gender and Sexuality Task Force, identifying important aspects related to the medical school competencies and examining where they can be implemented in the curriculum. The goal is to encourage faculty to move away from thinking of patients in these groups as separate from the general patient population.

Dr. Leibowitz, who was a member of the task force, says, "Transgender health brings together many doctors across disciplines: behavioral health, primary care, endocrinology and sometimes even surgery. I can't think of another issue that brings together such varied groups of physicians and illustrates the need to collaborate and communicate on the behavioral, medical, and surgical healthcare needs of an individual. By incorporating these issues into the curriculum, we are moving Feinberg ahead of most medical schools." M

Research Briefs

First Blood Test to Diagnose Depression in Adults

The first blood test to diagnose major depression in adults has been developed by Northwestern Medicine scientists, a breakthrough approach that provides an objective, scientific diagnosis. The test measures the levels of nine RNA blood markers. RNA molecules are the messengers that interpret the DNA genetic code and carry out its instructions.

The blood test also predicts who will benefit from cognitive behavioral therapy based on the behavior of some of the markers. And the test showed the biological effects of cognitive behavioral therapy's success. The levels of markers changed in patients who had the therapy for 18 weeks and were no longer depressed.

"This clearly indicates that you can have a blood-based laboratory test for depression, providing a scientific diagnosis in the same way someone is diagnosed with high blood pressure or high cholesterol," says Eva Redei, PhD, professor of psychiatry and behavioral sciences at the Feinberg School of Medicine, who developed the test. "This test brings mental health diagnosis into the 21st century and offers the first personalized medicine approach to people suffering from depression."

The current method of diagnosing depression is subjective and based on non-specific symptoms such as poor mood, fatigue and change in appetite, all of which can apply to a large number of mental or physical problems.

Redei and David Mohr, PhD, a professor of preventive medicine and director of the Center for Behavioral Intervention Technologies at Feinberg, are co-lead authors of the study published Sept. 16 in *Translational Psychiatry*.

Redei previously developed a blood test that diagnosed depression in adolescents. Most of the markers Redei identified in the adult depression panel are different from those in adolescents.

The new blood test will also allow physicians to use lab tests to determine what treatments will be most useful for each individual.

"Currently, we know drug therapy is effective but not for everybody, and psychotherapy is effective but not for everybody," Mohr says. "We know combined therapies are more effective than either alone, but maybe by combining therapies we are using a scattershot approach. Having a blood test would allow us to better target treatment to individuals."

Another finding—the blood concentration of three of the nine RNA markers remained different in depressed patients and nondepressed controls, even if the depressed patients achieved remission after the therapy. This appears to indicate a vulnerability to depression.

"These three markers move us toward the ultimate goal of identifying predisposition to depression, even in the absence of a current depressive episode," says Redei, the David Lawrence Stein Research Professor of Psychiatric Diseases Affecting Children and Adolescents.

"Being aware of people who are more susceptible to recurring depression allows us to monitor them more closely," Mohr notes. "They can consider a maintenance dose of antidepressants or continued psychotherapy to diminish the severity of a future episode or prolong the intervals between episodes." M

The study was supported by grants R21 MH077234 and R01 MH059708 from the National Institute of Mental Health of the National Institutes of Health and by grants from the Davee Foundation.

Genetic Mutations Linked to Severe Epilepsy

Northwestern Medicine scientists discovered that genetic mutations in the KCNB1 potassium channel gene can result in severe early onset epilepsy.

They found the mutations in three children with epileptic encephalopathy, a group of disorders that cause seizures and difficulties with cognitive and motor development.

"KCNB1 potassium channels are critical for neurons to generate electrical signals and communicate with one another," says Jennifer Kearney, PhD, associate professor in pharmacology and a principal author of the study published in *Annals of Neurology*. "They normally dampen excitability of neurons. However, the mutations caused channel dysfunction that in turn causes excessive excitability, resulting in seizures and disrupted development."

The team conducted whole exome sequencing (WES)—sequencing the human genes that encode proteins—on a child with epilepsy, as well as her unaffected sister and parents. They found a mutation in KCNB1.



The same results applied to two other patients with similar dysfunction who had waited many years for a diagnosis.

"Diagnostic uncertainty is very challenging for families," explains Kearney, "so finally having a cause for the disorder is very valuable for alleviating stress and moving forward with knowledge that may improve medical management." M

This research was supported by Scripps Genomic Medicine, NIH-NCATS Clinical and Translational Science Award UL1 RR025774, the Shaffer Family Foundation, the Anne and Henry Zarrow Foundation and National Institutes of Health (NIH) grants U01 HG006476, R01 NS053792, R01 NS032387 and F31 083097.

Calcium Channel Discovery Unlocks Brain Therapy Options

Calcium isn't just for bones and teeth. It also has an important job in the brain, delivering signals to help neural stem cells function. But until now, scientists didn't know how calcium got into these cells.

Murali Prakriya, PhD, associate professor in pharmacology, and his lab identified the channel that brings calcium into cells to control neurogenesis, a carefully choreographed brain process in which neural stem cells replicate and become neurons, structures that play vital roles in memory, learning and recovery following brain injury.

"Knowing the mechanisms that control proliferation of neural stem cells can help us understand how we might apply stem-cellbased therapies for conditions like stroke and neurodegenerative diseases," says Prakriya. "Now that we know how calcium enters neural stem cells, we can target and manipulate that pathway to regulate the functions of calcium signaling in these cells."

The scientists identified a pathway called the calcium release-activated calcium (CRAC) channel, which they knew existed elsewhere in the body. But the study, published in the *Journal of Neuroscience*, made two new important discoveries.

"First we found that CRAC channels constitute the major route of calcium entry in neural stem cells," says Prakriya. "Second, we determined that the calcium that comes in through CRAC channels regulates proliferation of neural stem cells." Scientists can use this information to understand how mutations in this channel affect patients' cognitive abilities. In addition, suppressing CRAC channel activation might be a way to control brain tumor formation.



AN IMAGE OF A MOUSE BRAIN SECTION (LEFT) SHOWS THE SUBVENTRICU-LAR ZONE, THE MAJOR NEUROGENIC REGION. THE YELLOW BOXED AREA MAGNIFIED (RIGHT) ILLUSTRATES SINGLE CELLS. THE RED ONES ARE IN THE PROLIFERATIVE PHASE.

This study was supported by the National Institutes of Health grants NS057499 and Al097302 and the Brain Research Foundation.

Media Spotlight

TABLETS COULD BE USED AS A SEDATIVE FOR PRE-SURGERY KIDS

YAHOO! TECH - AUGUST 6, 2014

Playing with an iPad mini before going under anesthesia could relax some kids more than a sedative would, also making life easier for their parents and hospital staff, according to a recent study. "Anxiety is a major source of concern for children going to the hospital for anything, but especially for surgery, and it's also a major source of dissatisfaction for their parents," says lead author **Samuel C. Seiden, MD**, assistant professor in anesthesiology at the Feinberg School of Medicine.

MINDFULNESS TRAINING HELPS ALZHEIMER'S PATIENTS AND CAREGIVERS

THE NEW YORK TIMES - AUGUST 27, 2014

A new study has shown that training in mindfulness—learning how to focus on the present moment—may help improve the emotional well being of people with early-stage dementia due to Alzheimer's, and their caregivers. Patients and caregivers attended an eight-week mindfulness-training program. "We saw lower depression scores and improved ratings on sleep quality and quality of life for both groups," says study author **Ken Paller, PhD**, professor of psychology and fellow of the Cognitive Neurology and Alzheimer's Disease Center at Northwestern University.

MOST ASTHMATIC KIDS LACK HEALTH MANAGEMENT PLANS AT SCHOOL

FOX NEWS (NATIONAL) - SEPTEMBER 8, 2014

On the rare occasions when a child has died at school from an acute allergy attack or asthma attack, he or she usually did not have a health management plan, or a so-called 504 Plan, on file, says lead study author, **Ruchi Gupta, MD, MPH,** associate professor of pediatrics-academic general pediatrics and primary care, and a member of the Center for Community Health at the Feinberg School of Medicine.

NU RESEARCHERS SHED LIGHT ON DOMESTIC VIOLENCE AMONG SAME-SEX COUPLES

CHICAGO TRIBUNE - SEPTEMBER 19, 2014

Same-sex couples may experience more domestic violence than opposite-sex couples, a Northwestern Medicine review of research suggests. **Richard Carroll, PhD,** an associate professor



Feinberg Departments Rank High on NIH Funding List

AUGUST

WRITTEN BY: Nora Dunne

Seven departments at Northwestern University Feinberg School of Medicine rank in the top 10 in their discipline in a list of National Institutes of Health (NIH) funding to medical schools, with an additional four departments in the top 20, according to a recent report.

The rankings, calculated by the Blue Ridge Institute for Medical Research,

in psychiatry and behavioral sciences at Northwestern's Feinberg School of Medicine, and Feinberg PhD student, Colleen Stiles-Shields, found domestic violence rates among same-sex couples were upward of twice as high as those of opposite-sex couples.

NATION NEEDS TO ADDRESS END-OF-LIFE CARE

CHICAGO SUN-TIMES - SEPTEMBER 22, 2014

It's time for a genuine debate about end-of-life care; one we hope will bring real change to a healthcare system that fails to respect the final wishes of far too many of us. "I see so much unnecessary prolonging of the dying process," says **Kathy Johnson Neely, MD**, assistant professor in medicine-hospital medicine, at Northwestern University who serves on the palliative care team and is chair of Northwestern Memorial Hospital's medical ethics committee.

SCIENTISTS CREATE FIRST MOUSE MODEL FOR ALS DEMENTIA

FOX NEWS (NATIONAL) - SEPTEMBER 25, 2014

Scientists have created the first animal model of amyotrophic lateral sclerosis (ALS) dementia in mice, which they say will allow them to directly monitor test drugs to determine how they affect the brain. "This new model will allow rapid testing and direct monitoring of drugs in real time," says lead author, **Teepu**

Siddique, **MD**, professor of cell and molecular biology in the Ken and Ruth Davee Department of Neurology and the Department of Cell and Molecular Biology at the Feinberg School of Medicine.

ECZEMA TIED TO BONE FRACTURE RISK IN STUDY

FOX NEWS (NATIONAL) - SEPTEMBER 25, 2014

Compared to people without eczema, those with the skin condition had more than double the risk of having had a fracture or bone or joint injury, according to the study. "Adults with eczema have higher rates of injuries, including fractures and bone and joint injuries," says lead researcher **Jonathan Silverberg, MD, PhD, MPH,** an assistant professor of dermatology, medical social sciences and preventive medicine at Northwestern University.

EBOLA FEARS ARE TRIGGERING MASS HYPOCHONDRIA

NEW YORK MAGAZINE - OCTOBER 7, 2014

Ebola anxiety is so far proving to be a highly contagious thing. In a way, what we're seeing here is hypochondria manifested on a mass scale, says **Catherine F. Belling, PhD**, an associate professor in medical education-medical humanities and bioethics, at Northwestern University's Feinberg School of Medicine, who has written a book on hypochondria.



include grants awarded between Oct. 1, 2013, and Sept. 30, 2014. These rankings typically do not include contracts or other specialized mechanisms.

"Our faculty represent top scientists, physician-scientists and innovators in their fields who rely on NIH support," says Eric G. Neilson, MD, vice president for Medical Affairs and Lewis Landsberg Dean. "These rankings reflect their successful pursuit of scientific discovery, conducted as they mentor and train the next generation to likewise join biomedical research enterprise."

The rankings record overall funding to medical schools, as well as funding divided by academic department. The ten departments at Feinberg that rank among the top 20 in their area are:

RANK DEPARTMENT

| 3 | OBSTETRICS AND GYNECOLOGY |
|------|---|
| 4 | DERMATOLOGY |
| 4 | PREVENTIVE MEDICINE |
| 4 | PHYSIOLOGY |
| 8 | NEUROLOGY |
| 9 | PHYSICAL MEDICINE AND REHABILITATION |
| (15) | NEUROLOGICAL SURGERY |
| (19) | INTERNAL MEDICINE AND GERIATRICS |
| (19) | OTOLARYNGOLOGY |
| (20) | CELL AND MOLECULAR BIOLOGY |

Another department, Neurological Surgery, will rank 15th after the NIH issues grant assignment corrections.

"Our faculty continue to outperform our peers in securing NIH funding in a national environment where NIH funding has been essentially flat for the past decade," says Rex Chisholm, PhD, vice dean of Scientific Affairs and Graduate Education. "This is a reflection of the innovative research our faculty perform."

In the last decade, the NIH—the largest funder of medical research in the world only funded about one in six of the grant applications it received.

Overall, Blue Ridge ranked Feinberg 22nd for NIH funding among all medical schools in the United States, higher than any medical school in Illinois. M





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"For the medical school, 2014 was a tremendous year," said **Eric G. Neilson, MD**, vice president for medical affairs and Lewis Landsburg Dean. "Feinberg faculty published groundbreaking medical discoveries, while academic programs demonstrated continued excellence. We established a number of new and innovative programs and centers, recruited more world-class faculty and admitted students of the highest caliber. At the same time, the growth of the Northwestern Medicine health system cements our status as one of the nation's premier academic medical centers. I look forward to another year of noteworthy research discoveries and academic distinction in 2015."

The following stories spotlight some of the activities and accomplishments from the past year:





ACADEMIC NEWS

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• MEDICAL SCIENTIST TRAINING PROGRAM CELEBRATES 50 YEARS



In July, the Medical Scientist Training Program celebrated its 50th anniversary with a poster session and reception attended by students, alumni and faculty. The weekend also served to welcome the 14 members of the incoming class. More than 250 MD/PhD students have graduated from the medical school. While the first MD/PhD student attended in the 1920s, the program started in 1964 when Northwestern became one of the three original universities to receive National Institutes of Health funding.

O ALUMNI SUPPORT SCHOLARSHIPS

In fiscal 2014, more than 1,600 MD alumni pledged \$19 million for new current-use scholarships and estate commitments. Nearly 50 percent of medical students received scholarships and grants in fiscal 2014.

O FOURTH ANNUAL LES TURNER ALS SYMPOSIUM

National and local ALS researchers, experts, doctors and patients gathered Dec. 11 at the Feinberg School of Medicine's Fourth Annual Les Turner Symposium on ALS and NeuroRepair. The event featured data blitz sessions by many local ALS experts, a poster session and an "Ask the ALS Experts" panel for patients.

RESEARCH BREAKTHROUGHS

(Unless otherwise noted, Northwestern Medicine scientists have made these discoveries.)

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O NEW GLAUCOMA CAUSE DISCOVERED

Scientists have discovered a novel cause of glaucoma in an animal model and are now developing an eye drop to cure the disease in humans. In glaucoma, pressure builds due to poor fluid drainage from the anterior chamber of the eye, eventually destroying the optic nerve. Susan Quaggin, MD, director of the Feinberg Cardiovascular Research Institute, and her team identified the molecular building blocks needed to repair the eye's plumbing.

• BRAIN ABNORMALITIES LINKED TO CASUAL MARIJUANA USE

Young adults who used marijuana only recreationally showed significant abnormalities in two key brain regions that are important in emotion and motivation, according to Hans Breiter, MD, a professor in psychiatry and behavioral sciences. The research collaboration between Northwestern Medicine and Harvard Medical School showed that the more joints a person smoked each week, the more abnormal the shape, volume and density of these regions.



• ELECTRIC CURRENT MAY HELP TREAT MEMORY DISORDERS

Stimulating a particular region in the brain using magnetic pulses improves memory. The discovery opens a new field of possibilities for treating memory impairments caused by medical conditions and healthy aging. "We show for the first time that you can specifically change memory functions in adults without surgery or drugs," says Joel Voss, PhD, assistant professor of medical social sciences.

O HEART ATTACK DAMAGE SLASHED

After a heart attack, much of the heart muscle damage is caused by inflammatory cells that rush to the oxygen-starved tissue. But that destruction is halved when biodegradable microparticles are injected into the bloodstream within 24 hours, according to preclinical research from Northwestern Medicine and the University of Sydney in Australia. "This is the first therapy that specifically targets a key driver of the damage that occurs after a heart attack," says Daniel Getts, a visiting scholar in microbiology-immunology at Feinberg.

O DRUG HALTS PROTEIN KNOWN TO AFFECT AGING

In May, scientists published a study that identified a protein's key role in cell and physiological aging and have developed—in collaboration with Tohoku University in Japan—an experimental drug that inhibits the protein's effect. In a mouse model, the experimental drug helped the rapidly aging mice live more than four times longer than a control group, and their lungs and vascular system were protected from accelerated aging, according to Douglas Vaughan, MD, chair of the Department of Medicine.

O HEART DISEASE WARNING AT AGE 18

Elevated blood pressure as young as age 18 is a warning sign that cardiovascular disease may develop later in life. A 25-year large national study, led by Norrina Allen, PhD, assistant professor of preventive medicine, is the first to



identify different long-term patterns of blood pressure levels and resulting cardiovascular risk.

• SCIENTISTS FOCUS ON SYNAPTIC DEVELOPMENT IN FRAGILE X SYNDROME

Northwestern Medicine scientists have identified events that may contribute to delayed synaptic and neuronal development in fragile X syndrome, the most common known cause of autism. Using mouse models, the lab of Anis Contractor, PhD, associate professor in physiology and neurobiology, discovered that the normal maturation of the neurotransmitter GABA is delayed in fragile X. This may prevent the proper development of cells within the brain's cortex.

• TISSUE REGENERATION USING ANTI-INFLAMMATORY NANOMOLECULES

The research group of Arun Sharma, PhD, research assistant professor in urology, works on innovative approaches to tissue regeneration to improve the lives of patients with urinary bladder dysfunction. The team has developed a system that may protect against the inflammatory reaction that can negatively impact tissue growth, development and function.

POTENTIAL THERAPY FOR INCURABLE PEDIATRIC BRAIN TUMOR

In November, scientists announced the discovery of a new potential drug therapy for a rare, incurable pediatric brain tumor by targeting a genetic mutation. Using an experimental drug called GSKJ4, they delayed tumor growth and prolonged survival in mice with diffuse intrinsic pontine glioma (DIPG). The disease occurs when tumors form in the brainstem, which controls breathing, heartbeat and motor and sensory pathways. "New therapeutic approaches are desperately needed," says Rintaro Hashizume, MD, PhD, assistant professor in neurological surgery.

LONGER SURGERY MEANS HIGHER BLOOD CLOT RISK

The longer the surgery, the higher is the risk of a life-threatening blood clot forming. This finding from a large-scale, national study will enable surgeons and patients to better understand potential risks. It may also spur surgeons to take more aggressive preventative measures such as prescribing a blood thinner and splitting up longer surgeries. "The trend is much more pervasive and consistent than any of us believed it could be, across all procedures, specialties and hospitals," says John Kim, MD, associate professor in surgeryplastic and dermatology.

• FIRST MOUSE MODEL FOR ALS DEMENTIA

In September, scientists announced they had developed the first animal model for ALS dementia, a form of ALS that also damages the brain. The advance will allow research-



ers to see the brains of living mice at the microscopic level, under anesthesia. This will enable direct monitoring of test drugs to determine if they work, according to Teepu Siddique, MD, professor in neurology and cell and molecular biology.

O HOW MEMORY REWRITES THE PAST

Our memory rewrites the past with current information, updating our recollections with new experiences. "When

you think back to when you met your current partner, you may recall this feeling of love and euphoria," says Donna Jo Bridge, a postdoctoral fellow in medical social sciences. "But you may be projecting your current feelings back to the original encounter."

• VITAMIN D DEFICIENCY LINKED TO AGGRESSIVE PROSTATE CANCER

African American and European American men at high risk of prostate cancer have greater odds of being diagnosed with an aggressive form of the disease if they have a vitamin D deficiency, according to a study from Northwestern Medicine and the University of Illinois at Chicago. "Vitamin D deficiency could be a biomarker of advanced prostate tumor progression in large segments of the general population," says Adam B. Murphy, MD, assistant professor in urology.

• PROTEIN MAY PROVIDE EARLY BIOMARKER FOR PROSTATE CANCER

Elevated levels of WDR5, a protein associated with cell cycle regulation, may allow physicians to identify prostate cancer at its earliest stages. "If WDR5 is a driver protein, we may be able to develop a compound that would block a critical interaction and stymie the disease," says Debabrata Chakravarti, PhD, professor of obstetrics and gynecologyreproductive biology research.





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In August, scientists announced the discovery of a new origin for the abnormal involuntary movements associated with Huntington's disease, a neurodegenerative disorder. "This degeneration was thought to be a consequence of impaired delivery of a survival signal to the striatum, a region of the forebrain controlling movement," says D. James Surmeier, PhD, chair of the Department of Physiology. "We show that at least in the early stages of the disease...the problem stems from a misinterpretation of the survival signal."

O STOPPING THE SPREAD OF BREAST CANCER CELLS

The primary cause of death from breast cancer is the spread of tumor cells to other organs. Scientists have identified a new protein, hnRNPM, which plays a key role in reprogramming cancer cells to migrate and invade other organs. When that protein is removed, the ability of the cells to metastasize to the lung is dramatically decreased, according to Chonghui Cheng, MD, PhD, assistant professor in medicine-hematology/oncology.

RESTRICTING SURGICAL RESIDENTS' HOURS DOESN'T IMPROVE OUTCOMES

Controversial restrictions on hospital residents' duty hours imposed in 2011 did not improve surgery patients' outcomes or result in differences in surgical residents' performance on exams. "Our large study of U.S. hospitals suggests that these latest restrictions may actually have the unintended consequences of hurting patient safety, resident education and the doctor-patient relationship," says Karl Bilimoria, MD, '10 GME, director of the Surgical Outcomes and Quality Improvement Center.

• FINDINGS ON CAUSE, PROGRESSION OF ENDOMETRIOSIS

Changes to two previously unstudied genes are the centerpiece of a new theory regarding the cause and development of endometriosis, a chronic and painful disease affecting 1 in 10 women. The discovery suggests epigenetic modification, a process that enhances or disrupts how DNA is read, is an integral component of the disease and its progression. Matthew Dyson, PhD, research assistant professor of obstetrics and gynecology-reproductive biology research, and Serdar Bulun, MD, chair of the Department of Obstetrics and Gynecology, also identified a novel role for a family of key gene regulators in the uterus.

• RARE DISORDER MAY SHED LIGHT ON PARKINSON'S DISEASE

By studying a genetic mutation in patients with a rare Parkinson's-like disorder, scientists worked to understand the mechanisms behind the more common form of the disease. Dimitri Krainc, MD, PhD, chair of the Ken and Ruth Davee Department of Neurology, and Taiji Tsunemi, MD, PhD, research assistant professor in neurology, studied a mutation in the PARK9 gene, which is found in patients with Kufor-Rakeb syndrome. "We found that lysosomes do not work properly in patients with PARK9 mutation, suggesting that PARK9 plays a role in normal function of lysosomes," Dr. Krainc says.

RANKINGS AND HONORS

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• RESIDENCY PROGRAM REGARDED AS ONE OF NATION'S BEST

In February, the internal medicine residency program at McGaw Medical Center of Northwestern University was named one of the most well-regarded postgraduate training experiences in the U.S. McGaw was one of 10 programs to receive more than 200 nominations in a national survey conducted for *U.S. News and World Report*.

O FEINBERG RETAINS ELITE MEDICAL SCHOOL STATUS

Feinberg maintained its position among the best researchoriented medical schools in the country, standing alone at 18th in the annual *U.S. News & World Report* rankings. The school's overall score rose to an all-time high for the fourth consecutive year.

NORTHWESTERN RANKS 14TH FOR HIGHLY CITED RESEARCHERS

Northwestern University ranked 14th for most highly cited researchers worldwide in a list compiled using data from Thomson Reuters. The researchers earned their placement by writing the greatest numbers of papers officially designated as highly cited—those ranking among the top 1 percent.

KIBBE NAMED EDITOR IN CHIEF OF "JAMA SURGERY"

In August, Melina R. Kibbe, MD, '03 GME, was named editor in chief of the journal JAMA Surgery, effective Jan. 1. "I hope to provide surgeons with novel



data and innovative concepts and approaches that challenge current paradigms...," says Kibbe, the Edward G. Elcock Professor of Surgical Research in surgery-vascular surgery.





SHILATIFARD APPOINTED TO SENIOR EDITORIAL BOARD OF "SCIENCE"

In December, Ali Shilatifard, PhD, chair of the Department of Biochemistry and Molecular Genetics, was appointed to the

senior editorial board of the scientific journal *Science*.

LEADERSHIP APPOINTMENTS

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DIANE B. WAYNE – NAMED VICE DEAN FOR EDUCATION

In March, Northwestern University Feinberg School of Medicine named Diane B. Wayne, '91 MD, as its new vice dean for education. Dr. Wayne received her undergraduate and medical degrees from Northwestern as a member of the Honors Program in Medical Education. She joined Northwestern's medical school faculty in 1994. Most recently, she was vice-chair of the Department of Medicine and associate chief medical officer for Medicine, Women's Health and Psychiatry at Northwestern Memorial Hospital.

• MCNALLY TO LEAD CENTER FOR GENETIC MEDICINE

> In July, the Feinberg School of Medicine appointed Elizabeth McNally, MD, PhD, as the Elizabeth J. Ward Chair and director of the Center for Genetic Medicine. Dr. McNally most recently was at the University of Chicago, where she served as the founding director of the Institute for Cardiovascular Research, director of the Cardiovascular Genetics Clinic, and Carlson Professor of Medicine and Human Genetics.

O NEW CHAIR OF BIOCHEMISTRY NAMED

In August, Ali Shilatifard, PhD, known for his fundamental work in molecular epigenetics, was named chair of the Department of Biochemistry and Molecular Genetics. Shilatifard joined Feinberg from the Stowers Institute for Medical Research. (See story on page 20.)

• PLATANIAS APPOINTED DIRECTOR OF LURIE CANCER CENTER

In October, Leonidas Platanias, MD, PhD, was appointed director of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University, a position served in interim since January 2014. Dr. Platanias joined Feinberg in 2002. (See details on page 8.)





NEW DIRECTOR OF GALTER LIBRARY TO STRENGTHEN INFORMATICS

Kristi Holmes, PhD, a bioinformaticist with a background in research impact and genomic medicine, joined Feinberg in May

as director of the Galter Health Sciences Library and associate professor of Preventive Medicine-Health and Biomedical Informatics. Most recently, Holmes was at Bernard Becker Medical Library at Washington University in St. Louis.

NEW NORTHWESTERN MEMORIAL HOSPITAL PRESIDENT NAMED

In January, Northwestern Memorial HealthCare (NMHC) named Richard J. Gannotta, DHA, FACHE, president, Northwestern



• LIEBER NAMED RIC'S SENIOR VP OF RESEARCH, CHIEF SCIENTIST

Richard Lieber, PhD, MBA, an expert in the physiology and biomechanics of skeletal muscle, was named senior vice president of research and chief scientist at the Rehabilitation Institute of Chicago (RIC). Lieber has spent his entire academic career at the University of California-San Diego, where he served as vice chair of Orthopaedic Surgery, professor of bioengineering and director of the National Center for Skeletal Muscle Rehabilitation Research.

NOTABLE ANNOUNCEMENTS

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• SCIENTISTS WORKING TO LINK MEDICAL RECORDS IN CHICAGO

A novel computer application developed by Northwestern Medicine scientists could change the way cities track disease and epidemiologists approach future research. Led by Abel Kho, MD, MS, assistant professor of medicine-general internal medicine and geriatrics and preventive medicine-health and biomedical informatics, the collaborative effort was awarded a \$7 million grant.

O NORTHWESTERN STUDY TO TEST PARKINSON'S DRUG

Tanya Simuni, MD, medical director of Northwestern University's Parkinson's Disease and Movement Disorders Center, was awarded a grant from the National Institutes of Health to conduct a \$16 million phase III study of the safety and efficacy of the drug isradipine as a potential neuroprotective agent in Parkinson's disease. The research is being conducted by Feinberg in partnership with the University of Rochester Medical Center over five years.

• NMHC AND CADENCE HEALTH REACH AGREEMENT TO COMBINE SYSTEMS

In May, the governing boards for Cadence Health and Northwestern Memorial HealthCare approved the definitive agreement to combine the two health systems. Regulators approved the merger in September, which created an integrated academic healthcare delivery system spanning more than 60 sites of care across Chicago and its suburbs, including four hospitals, and more than 4,000 physicians and 17,600 employees.

O LURIE CHILDREN'S RENAMES RESEARCH INSTITUTE

Ann & Robert H. Lurie Children's Hospital of Chicago announced a major philanthropic gift from retired local business executive Stanley Manne. In recognition, the hospital's research center will be renamed the Stanley Manne Children's Research Institute. The confidential gift, the second largest in the hospital's history, will help sustain and enhance medical research at the 130-year-old institution.

• GALA CELEBRATES LAUNCH OF NORTHWESTERN MEDICINE CAPITAL CAMPAIGN

Nearly 950 faculty, staff, students, alumni and friends gathered at Navy Pier in May to celebrate the launch of We Will. The Campaign for Northwestern Medicine. The Feinberg School of Medicine and Northwestern Memorial Foundation are working to raise \$1.75 billion to provide crucial resources that will increase innovation and excellence. As of Dec. 31, nearly \$927 million has been contributed by 13,705 donors.

• LES TURNER ALS FOUNDATION COMMITS \$10 MILLION FOR NEW CENTER

In September, the Les Turner ALS Foundation made a \$10 million commitment to create the Les Turner ALS Research and Patient Center at Northwestern Medicine to accelerate research and advance patient care in amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease. The Center will bring ALS research, clinical and education activities under one umbrella.

WE WINTER 2014-15 19

WRITTEN BY: Martha O'Connell PHOTOGRAPHY BY: Bruce Powell

Ali Shilatifard, PhD, started assisting in his grandfather's lab in Tehran at age 5. Years later, Northwestern lands this acclaimed scientist to lead the new Department of Biochemistry and Molecular Genetics and halt cancer.

Curious Kid, Unconventional Scientist

To some, a young boy in a high-science lab is like a bull in a china shop, but Shilatifard absorbed it all, and turned a childhood fascination into a productive career. He realizes that this extraordinary opportunity early in his upbringing sparked a disciplined mind and fueled the drive to pursue his ideas.

He goes by "Shilati" for short and in September brought his groundbreaking work in molecular epigenetics to Northwestern University Feinberg School of Medicine as chair of the new Department of Biochemistry and Molecular Genetics and the Robert Francis Furchgott Professor of Biochemistry.

Shilatifard is energetic and steadfast in pursuing his ideas on how chromosomal translocation (when a chromosome breaks and a portion of it reattaches to a different chromosome) and misregulation of gene expression causes childhood leukemia. At first, some of his theories were very unpopular and other scientists voiced strong doubts. He still remembers being cynically questioned when he began his investigations in the late 1990s.



JAY SINGH, A RESEARCH TECHNOLOGIST, SETS UP ONE OF THREE CENTRIFUGES TO EXTRACT DNA.

MARC MORGAN, A POSTDOCTORAL FELLOW, REVIEWS SCIENTIFIC IMAGES THAT REFLECT RESEARCH DONE IN THE SHILATIFARD LAB. THE RED AND GREEN IMAGE EXPRESSES CANCER-ASSOCIATED HISTONE H3.3 LYSINE 27 IN A *DROSOPHILA MELANOGASTER* (COMMON FRUIT FLY) WING.

Now after 20 years of intense research, he has received major validation from the scientific community as hundreds of labs and medical journals jump on the bandwagon, recognizing the role that transcriptional elongation control plays in development and that cancer results when this process is misregulated.

"What we proposed so long ago turned out to be right: transcriptional elongation control is central to leukemic pathogenesis," Shilatifard says. "It feels fantastic to me that this model is correct."

START WITH SIMPLE STUFF

In the 1990s, he was deep into molecular HIV studies and purifying proteins and enzymes when he realized he wanted to know more than the molecular structures before him—he wanted to learn how they function. Since then, his team has made multiple discoveries about how proteins and enzymes work together in gene expression, zeroing in on chromosomal abnormalities that cause cancer.

As a Jane Coffin Childs postdoctoral fellow at the Oklahoma Medical Research Foundation, he purified and identified the function of ELL, a protein that regulates gene expression. This sparked his interest to understand transcription elongation, the process by which the nucleic acid RNA is made.

At the time, it was known that ELL and MLL, another gene that regulates cell development, are translocated or "flipped" on to incorrect chromosomes in children with certain subtypes of aggressive leukemia. Shilatifard theorized that once these genes flip the elongation process that controls RNA building does not occur correctly. To unravel the mystery of MLL, he went against conventional thinking because he felt so strongly that the protein played a key role in gene regulation. Shilatifard studied *Saccharomyces cerevisiae*, better known as single-cell yeast. "All of my colleagues at the medical center thought we were nuts! They could not understand what yeast cells have to do with studying human diseases, specifically childhood leukemia," he recalls.

Ignoring naysayers, the biochemist climbed up the ladder of life, starting with yeast to fruit flies (*Drosophila*) to vertebrates, a strategy that made it easier to uncover what turns genes on or off in humans. His research led to identification of a protein complex he named "Set1/COMPASS," which functions as a signaling pathway to activate or deactivate gene expression.

In 2010, a major breakthrough came when Shilatifard's laboratory identified a large group of proteins and enzymes that control transcription elongation, the Super Elongation Complex (SEC). The SEC includes ELL and many other proteins that fuse with MLL, and when MLL is translocated into other partner genes, the whole SEC follows and gene expression goes awry.

Based on his fundamental molecular studies, Shilatifard says that transcriptional elongation and how it regulates gene expression will be valuable in solving other types of cancers and human diseases, too.

"Now we are really ready and eager to make drugs that will target genes associated with cancer. So much has come full circle, and we are ready to hit the throttle and move this forward," he exclaims. area institutions. The chance to work with experts at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University, designated as one of the nation's best by the National Cancer Institute, was also very attractive to him.

"I get to chair a large department, work with other chairmen, recruit young faculty and help them develop their careers. That is very satisfying to me. I want to inspire and guide the next generation of scientists." He adds, "I have four kids, so I am a bit paternal."

"Now we are really ready and eager to make drugs that will target genes associated with cancer"

FATHER FIGURE

At age 14, Shilatifard was sent alone to Turkey and then to the United States for a good education. He earned an undergraduate degree in organic chemistry from Kennesaw State University, and holds a doctoral degree in biochemistry from the University of Oklahoma.

Later on, he established his independent lab at Saint Louis University's School of Medicine, where he discovered Set1/ COMPASS. He realized that genetics was becoming very central to his work and he needed to quickly grasp its concepts, so he largely taught himself, with assistance from Mark Johnston, PhD, who was the chair of genetics at Washington University's School of Medicine.

Shilatifard has become a firm believer that medical investigation should be done as a community. He came to Chicago for the opportunity to partner with other scientists and physicians to accomplish translational medicine with Northwestern Medicine's four hospitals, the university's Evanston campus, and with other ChicagoSharing the excitement that their research is ahead of its time, Shilatifard's lab team followed him to Chicago from the Stowers Institute for Medical Research in Kansas City, Mo., where he was grateful to be supported by excellent core research experts and facilities and other generous resources.

Motivated by pioneers in his field, Shilatifard picks up the torch from influential people in his life to continue breaking genetic patterns that cause cancer.

His grandfather, Ahmed Pezeshkmehr, an Iranian physicist and radiologist, laid the scientific foundation by instilling in him a love for education, experimentation and medicine.

The University of Chicago's (U of C) late Janet Rowley, MD, a globally acclaimed physician-researcher whose pivotal work established the link between genetics and cancer, motivated Shilatifard to persist with his ideas. In the spirit of her work, he hopes to increase collaboration with U of C researchers to expedite breakthroughs in patient treatments. In addition, he takes a cue from Arthur Kornberg, MD, the 1959 Nobel Prize winner for his research in DNA synthesis. Shilatifard was fascinated by Kornberg's work in enzymology and hopes to partly model Feinberg's new department after Kornberg's Department of Biochemistry at Stanford University, a highly integrated group working in close proximity where communication between teams is the standard.

He also looks up to William Sly, MD, Shilatifard's chairman while he was in St. Louis whom he also calls his "scientific father." Sly was elected to the National Academy of Sciences for his groundbreaking work in metabolic disorders.

"I will move slowly and very selectively to get the best people from different disciplines," Shilatifard adds. "I have not chosen those disciplines yet, but these people have got to be the best, and they must be highly collaborative."

At home, he is nurturing four children: Anthony, 12, Joseph, 15, Natalie, 17, and Francesca, 18, who not surprisingly is studying biology in college. They are a multi-lingual family, with six languages spoken between him and his wife Laura, including Shilatifard's native Farsi.

Sharing his dedication to move science forward, Laura, a former oncology and pediatric endocrinology nurse, is the lab's editorial assistant. She proofreads and manages papers and grants, helps organize conferences and meetings, and manages manuscripts her husband handles as editor for three journals: *Molecular and Cellular Biology, eLife*, and *Science Advances*. (He was also recently named to the senior editorial board of the journal *Science*.)

He also serves on numerous scientific boards, including the Max-Planck Society and Genentech, is principle investigator for three R01 grants, and has received numerous honors.

After his family, his second love is his science, and he is smitten. Now at age 48, he lives and breathes his research and is creating a world-class department. There is little time for anything else.

"This is it!" he says with exuberance, fist-pounding his desk. №

New outpatient facility meets growing healthcare trend

WRITTEN BY: Cheryl SooHoo PHOTOS BY: Northwestern Memorial HealthCare

19-24 PHYSICIAN SUITES

17

- DIAGNOSTIC CENTER
- IMAGING (MRI AND CT)
- PRE-OPERATIVE CLINIC
- •X-RAY
- ULTRASOUND
- · LABORATORY SERVICES

13

THE CENTER FOR COMPRE-HENSIVE ORTHOPAEDIC AND SPINE CARE (CCOSC)

12

OUTPATIENT SURGERY CENTER CENTRAL STERILE SUPPLY

10

STAFF LOCKERS AND LOUNGE

3-9

PATIENT/VISITOR PARKING

2

AU BON PAIN KIOSK BERCO'S POPCORN GATEWAY NEWSTAND HOW DO YOU ROLL (SUSHI) OPTICAL SHOP BRIDGES TO FEINBERG PAVILION AND EXTERNAL PARKING GARAGES

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COSÌ LYFE KITCHEN STAN'S DONUTS

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DEDICATED LOADING DOCK LOWER CONCOURSE CON-NECTION TO FEINBERG

See video about the Center for Comprehensive Orthopaedic and Spine Care (CCOSC) online at **magazine.nm.org**.

QUALITY CARE BY DESIGN

259 E. ERIE 25 STORIES 7 LEVELS OF PARKING 6 EATERIES

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One-stop shopping has risen to greater heights—precisely 25 stories—at Northwestern Medicine. In mid-October, the Chicago medical campus welcomed the opening of a new leading-edge ambulatory care facility. The high-rise at 259 E. Erie, known as the "259 Pavilion," houses every convenience a patient could need, from doctor's offices and imaging services to an outpatient surgery center and even a trendy Stan's Donuts shop, one of several retail offerings.

At the corner of Fairbanks Court and Erie Street, the sleek modern structure is also home to a newly created Northwestern Center for Comprehensive Orthopaedic and Spine Care (CCOSC). The center features a multidisciplinary mix of musculoskeletal experts, representing six subspecialties. Patients receive all their care from myriad specialists based on the same floor of the building. In the past, orthopaedic patients had to traverse as many as five different facilities on the hospital campus to access the same medical and rehabilitative services now found in one location.

"We were in silos and separated from other disciplines," says Terrance Peabody, MD, Edwin Warner Ryerson Professor of Orthopaedic Surgery and chair of the Department of Orthopaedic Surgery at Northwestern University Feinberg School of Medicine. "I don't know of any other comprehensive musculoskeletal center of this kind in the Chicago area."

The opening of the 259 Pavilion comes at a turning point in the delivery of care. Factors such as the Affordable Care Act and integration of health systems across the country have shifted priorities for providers, payers and most importantly, patients whose satisfaction is paramount in an increasingly competitive marketplace. Five years in the making, this latest facility was built to meet increasing demand for more affordable ambulatory care outside the confines of the typical hospital environment. Ironically, it was a need for more inpatient bed capacity at Northwestern Memorial Hospital (NMH) that drove initial planning discussions in 2008. At that time, NMH intended to convert doctors' offices in its historically outpatient Galter Pavilion to inpatient bed space-an expansion completed in 2011–which would create a "medical office crunch."

"259 was originally going to be a traditional professional building," explains Jim Mladucky, director of Facility Plan and Construction for Northwestern Memorial HealthCare. An architect specializing in healthcare, planning and design, he led several focus group sessions with physicians, staff and community members over many months to determine what type of facility would help Northwestern Medicine best serve a variety of patients. "While still accommodating medical office space, the building concept morphed quite a bit to become what it is today and what it can become in the future."

Mladucky credits physician feedback for the integrative care model now showcased by the building's first anchor tenant: the CCOSC. "Their input shaped our building design approach, which was to focus on disease systems rather than clinical departments," he says. "The musculoskeletal clinical offering quickly came to the surface as the best fit for this new venture."

CONVENIENT EFFICIENCIES

An abstract titanium sculpture of the rod of Asclepius, depicted by a serpent coiled around a staff, hangs from the ceiling of the two-level lobby of the 259 Pavilion. Symbolizing healing and medicine, the artwork expresses a subtle, soothing calm much like that of the building. "A smaller, less imposing space, the facility was people-engineered to provide a more pleasant environment for our patients," says David W. Manning, MD, '98 GME, associate professor of orthopaedic surgery, who assisted with the building's design. "From beginning to end, they receive efficient high-end care in a distinctively quieter and less chaotic clinical setting."

Intended to serve individuals with compromised mobility, especially after outpatient surgery, the building's internal structure ensures that the journey to quality medical services begins with the fewest steps possible. At 259, the path to care starts with in-building parking—a luxury in congested urban Chicago. The elevators of the seven-level parking structure with 564 spaces deliver visitors to a second-floor atrium with an information desk staffed 24/7 by customer service officers. A separate bank of elevators, serving floors one to 17, takes patients to clinical areas. Level 17 works as the crossover floor to elevators that service the 17th to 25th floors, where the upper half of the facility focuses on medical office space. The 17th floor also houses the Diagnostic Testing Center, which provides preadmission



BELOW: THE AMBULATORY SURGERY CENTER HAS 8 OPERATING ROOMS BUILT TO ACCOMMODATE SPACE-INTENSIVE ORTHOPAEDIC PROCEDURES.

testing, electrocardiography services and phlebotomy. The building features advanced diagnostic imaging, including an innovative full-body, low-dose orthopaedic "EOS" scanner, the only one in Illinois and one of a few in the country, as well as the highest MRI in North America from street level. Says Nick Wojciechowski, project director during 259's construction, "That's an important distinction as Denver would have us beat!"

The Ambulatory Surgery Center on the 12th floor features eight operating rooms sized to accommodate space-intensive orthopaedic procedures as well as a 28-bay recovery area. It also provides a discreet "back door" for patients who've undergone procedures and may not feel up to traveling through the building's public spaces upon discharge. "Once individuals are ready to leave, their designated drivers drive up to the 9th floor parking deck," explains Wojciechowski. "Staff members take the patients, via employee service elevators, down three floors where they meet the family members or friends at their car."

Located in vibrant Streeterville, Northwestern Medicine's downtown clinical facilities serve many constituents, including employees, neighbors and even tourists. In recent months, Northwestern Memorial has transformed its shopping and dining space by literally opening doors, with retail entrances now accessible from the street as well as the hospital. The new ambulatory care facility has followed suit with restaurants and stores on the first and second floors. In early 2015, patients and visitors will have a choice of two more eating establishments: LYFE Kitchen, a fresh food company that supports local farms, and How Do You Roll, a fast-casual sushi franchise.

"Appropriate retail provides a comforting distraction when you are going through a difficult time," says Gina Weldy, vice president for real estate, NMHC. "People want a respite that helps them feel like they aren't in a medical facility. Dining options and shops provide variety and convenience for patients while they're on our campus."

The building also houses a Walgreens store that sells durable medical equipment—handy items for orthopaedic and other outpatient surgery patients. Complementing future medical services, an optical shop opened in November. "These amenities serve many purposes," adds Weldy. "For example, retail complements way-finding. When following directions, it's easier for people to remember to go Au Bon Pain and take a left than it is to turn left just past the imaging department."

LUCKY 13

On the 13th floor of the 259 Pavilion, the 41,000-square-foot Northwestern Center for Comprehensive Orthopaedic and Spine Care opened October 13. So far the numbers of patients seen by the approximately 35 providers of the center have all been good, if not overwhelmingly great. "Our biggest challenge has been handling the volume," says Dr. Peabody. "It ramped up very quickly and initially taxed our ability to check-in patients, but we're smoothing out the kinks."

Championing a truly collaborative care model, the CCOSC intends to demonstrate that the physical proximity of specialists all focused on a defined set of disorders or conditions results in better, cost-effective patient care. The first step in that direction? Putting systems in place that ensure people see the right doctor for the right ailment.

"If you are having back pain and don't need surgery, you shouldn't be seeing a spine surgeon," says Dr. Peabody. "At the Center, we have triage protocols that improve efficiency. The beauty of being all together is that we can quickly make sure a patient sees the appropriate provider as well as deliver same-day service."



TOP: THE NEW OUTPATIENT PAVILION OFFERS A FULL-BODY, LOW-DOSE ORTHOPAEDIC "EOS" SCANNER, THE ONLY ONE IN ILLINOIS AND ONE OF A FEW IN THE COUNTRY. **BOTTOM:** ARCHITECTURAL ELEMENTS LIKE THE ABSTRACT TITANIUM SCULPTURE OF THE ROD OF ASCLEPIUS, DEPICTED BY A SERPENT COILED AROUND A STAFF, HANGS FROM THE TWO-LEVEL LOBBY.

Plans are now underway to emulate the CCOSC model. The 16th floor will become home to a Center for Digestive Health that will include GI lab screening procedures. Currently, these clinical and laboratory services operate on different floors at opposite ends of the hospital.

About 30 percent full at its grand opening, the new facility continues to grow with construction on nine of 12 available floors slated through the end of 2016. Like its new sushi restaurant, the 259 Pavilion is on a roll. M

Alumni President's Message



Dear Fellow Alumni:

As we move on to the year 2015, I am pleased to report that your Medical Alumni Association

Board, through its four working committees: Engagement, Mentoring, Strategic Initiatives and Fundraising, has maintained momentum since the Board was reorganized in 2013. The alumni volunteer Board members and Executive Committee have done a tremendous job, but let's not forget the leadership contributions of Vice Dean Alan Krensky, MD; ML Farrell, director of Alumni Relations; and staff.

In my fall 2014 President's Report, I highlighted the vital role played by the four Feinberg Student Societies: Cooper, Ricketts, Thompson and Lawless. A new mentoring program, "Real Physicians of Feinberg," connects our medical students with alumni. The first alumnus, Bohdan "Bud" Wasiljew, '76 MD, '81 GME, happily volunteered to meet with interested members from each of the four societies. Bud is a recently retired general surgeon who answered students' questions about how to choose a specialty, among other topics.

Kevin Wang, M2, one of the attendees from the Thompson Society, wanted to learn more about balancing his personal and professional life. He observed that the meeting with Dr. Wasiljew enabled him to better appreciate "meeting this balancing challenge after medical school and finding personal fulfillment in his future career."

A variation on this theme of connecting with students is for Feinberg alumni in the Chicago area to host a dinner for interested medical students. My wife Marilyn and I had the pleasure of holding a reception and dinner at our home for 13 first-year medical students in the fall. It is a great way for alums to interact with students in an informal social setting. After dinner, each of the students described their background and potential career interests. What an

evening, reunion class dinners on Saturday night, and family-friendly activities like our second annual Family Fest and lunch. The Medical Alumni Association Board Meeting will also be held that weekend on Saturday,



ALUMNI BOARD PRESIDENT DAVID WINCHESTER (SEATED ON RIGHT) AND HIS WIFE MARILYN HOSTED 13 MEDICAL STUDENTS IN THEIR HOME IN THE FALL.

experience it was for us to observe these bright, dedicated young men and women articulate their enthusiasm for a career in medicine. I am certain that my fellow alums would derive the same enjoyment from this type of event. In fact, several other alumni already have, or will be, sponsoring similar events, coordinated through the Office of Alumni Relations. If you'd be interested in hosting students, please contact ML Farrell in Alumni Relations.

Also, let me remind and encourage you to attend Alumni Weekend April 17 and 18. New this year will be an all-alumni welcome reception with reunion class recognition and presentation of the Distinguished Alumni Award on Friday April 18. That is an open meeting and, if interested, you are welcome to attend.

And finally, this will be my last Alumni President's Report. It has been an honor and a privilege to serve in this leadership role, and I look forward to continuing to participate on the Medical Alumni Board as past president. I will be handing over the gavel to President-elect, Bruce Scharschmidt, '70 MD, in April, and I wish him the best as he continues to build on our momentum.

All the best,

David Winchester, '63 MD Alumni Board President

Progress Notes

EDITOR'S NOTE:

WE CONTINUE OUR COVERAGE OF ALUMNI WHO ARE MILITARY VETERANS.

KEY:

| AFB | _ | AIR FORCE BASE |
|-------|---|--|
| ASTP | | ARMY SPECIALIZED TRAINING PROGRAM - ESTABLISHED |
| | | DURING WWII AT UNIVERSITIES TO MEET DEMANDS FOR |
| | | JUNIOR OFFICERS AND SOLDIERS WITH TECHNICAL SKILLS |
| HPSP | | HEALTH PROFESSIONS SCHOLARSHIP PROGRAM |
| ICBM | | INTERCONTINENTAL BALLISTIC MISSILE |
| LST | | LANDING SHIP TANK |
| LTC | | LIEUTENANT COLONEL |
| LTCDR | _ | LIEUTENANT COMMANDER |
| МС | | MEDICAL CORPS |
| MP | | MILITARY POLICE |
| NAVY | | COLLEGE TRAINING PROGRAM ESTABLISHED |
| V-12 | | TO PROVIDE THE NAVY WITH A CONTINUOUS SUPPLY OF |
| | | OFFICERS |
| SAC | | STRATEGIC AIR COMMAND |
| USAF | | U.S. AIR FORCE |
| USAR | | U.S. ARMY RESERVES |
| USMC | | U.S. MARINE CORPS |
| USNR | | U.S. NAVY RESERVES |
| | | |
| | | |

′50s

Frank Frable, '51 MD, decided to practice medicine after hearing a radio broadcast about sulfa drugs in 1935. He was drafted on June 1, 1944, accepted to the medical school on Oct. 1, 1944, and discharged on June 15, 1946. He was an electronics technician, mate 3c, stationed at the U.S. Navy Research Laboratory in Washington, D.C. He also worked at the Underwater Sound Laboratory in New London, Conn., and the torpedo range in Piney Point, Md. (More online.)

Sam Koide, '53 MD, '58 GME, sent the following timeline of his military training and service:

- » Feb. 12, 1945: inducted U.S. Army, private, infantry, Schofield Barracks, Hawaii
- » Feb.-Aug. 1945: Basic infantry training, Ft. McClellan, Alabama
- » Aug.-Dec. 1945: Infantry Officer Training, commissioned as 2nd lieutenant, Ft. Benning, Georgia
- » Jan.-June 1946: Military Language School, Ft. Snelling, Minnesota
- » Aug. 1946-Feb. 1948: War Crimes Division, Military Intelligence Service, SCAP (Supreme Commander of the Allied Powers), Manila, Philippines
- » March-July 1948: Interpreter, Civil Service Section, Yokohama, Japan (More online.)

Simon K. Myint '53 MD, served in the USAR Medical Corps as a lieutenant colonel at the former 828th Station Hospital in Fresno, Calif. He was on active duty for five months during Desert Storm in 1991, and was then promoted to full colonel. Dr. Myint also served in Aberdeen, Md., the Maldives, Camp Bullis at Ft. Sam Houston, Texas, Ft. Huachuca, Arizona, and Camp Pendleton, California.

Arnold "Arnie" L. Widen, '53 MD, '55, '59 GME,

served in the U.S. Armed Forces, as did all of the male members of his class who had not already served before medical school, since a physician draft was still in effect. He served in the U.S. Army Medical Corps, on active duty from Jan. 1, 1956, through Dec. 31, 1957, and then in the active reserve for an additional four years. Dr. Widen has very positive memories and attitudes about his Army medical service, since he served during a time of peace, and his medical duties contributed significantly to his overall experiences as a physician. (More online.)

Edmond Eger II, '55 MD, co-edited "The Wondrous Story of Anesthesia" (Springer, 2014), a 944-page book describing the history of anesthesia.

Robert G. McKillop, '56 MD, was accepted to attend medical school at the University of South Dakota in 1950, but was drafted into the U.S. Army from Dec. 1950 until Aug. 1952, finally starting medical school in Sept. 1952. While in the Army, he went through infantry basic training and later, medic training. He was not sent to Korea and became a dental assistant, eventually getting an early discharge to attend medical school. This was followed by an internship in Chicago and an orthopaedic residency at the Mayo Clinic. He started private practice in Portland, Ore., in 1962, with gradual retirement ending in 2005. Dr. McKillop's retirement activities include watercolor and acrylic painting and singing in a men's chorus.

G. Stephen Scholly, '56 MD, served as a general medical officer in the U.S. Navy from I957 to 1959, consisting of 18 months of sea duty and six months of shore duty.

During those last six months, he was stationed at an 80-bed clinic/hospital at Patuxent River, Md., where he shared the inpatient ward with another physician who had internal medicine residency training. It was this hospital-based experience that influenced his career choice of internal medicine and later, pulmonology.

Dan M. Henshaw, '57 MD, was part of the U.S. Army Senior Program during his last year of medical school and was commissioned as a second lieutenant in



July, prior to his senior year. He was promoted to first lieutenant during his internship at Charity Hospital in New Orleans and then entered active duty. His initial assignment was Ft. Sam Houston, Texas, followed by two years in Europe, prior to his dermatology residency at the Walter Reed Military Medical Center. He served as a physician in the Army and Air Force for a combined total of 28 ½ years, including with the 106th General Hospital during Vietnam and the 317th Contingency Hospital during Operation Desert Storm. While serving in the USAF, he taught medical students, interns and residents, and was twice voted "Teacher of the Year" by the students. (More online.)

Theodore "Ted" Englehorn, Jr., '58 MD,

served in the U.S. Army Medical Corps from Oct. 1960 until Oct. 1962. He spent two years on active duty as an obligated volunteer



at the 225th Station Hospital, Muenchweiler, Germany. His military occupational specialty was D3150 general surgeon (one year residency). His shoulder patch was the flaming sword of U.S. Army Europe and his rank was captain. (More online.)

Perry T. Roberts, '58 MD, joined the Air Force during his last year of medical school and served continuously on active duty and in the reserve until 1980. He trained in a military hospital with two years as flight surgeon and chief of Aerospace Medicine at Sheppard AFB, Texas. He served in England and in Texas until 1971. The last three years on active duty were at Wilford Hall Medical Center, San Antonio, as training officer in the residency program. After leaving the Air Force, he served in the reserve at Hill AFB and Scott AFB until June 1980, when he retired.

George Kaplan, '59 MD, '66 MS, '73 GME,

served three years as a general medical officer in the U.S. Navy after his internship. He was first assigned to an LST Squadron and then was transferred to an APA (Attack Transport) that spent nine months in the Western Pacific, just before the onset of the Vietnam War. The APA had a crew of about 300 and carried as many as 1,500 marines. Dr. Kaplan then spent two years at the Naval Training Center San Diego, also as a general medical officer. He writes, "I think the experience was maturing and, as a result, I got a lot more out of my residency than did those who had gone directly from internship to residency."

John Romine, '59 MD, served many years in the military, beginning as a Navy Reservist in 1957. From 1959 to 1962, he was stationed at a Marine Corps base, Camp Pendleton, California. From 1962 to 1965, he had a Navy residency in orthopaedic surgery, with a two-year fellowship in children's orthopaedics at Indiana University to follow. From 1966 to 1967, he served as an orthopaedic surgeon for the 3rd Medical Battalion, USMC, in Vietnam, and then from 1967 to 1970 at the U.S. Naval Hospital, Naples, Italy. From 1970 to 1972, he was the chief of orthopaedics at Naval Hospital, Great Lakes, III. He finished his military career as an Army reservist from 1987 to 1995, including being called back for Desert Storm in 1991. He retired in 1995.



Kevin Glynn, '61 MD, writes: "Like most physicians from the Cold War era, I was part

of the 'doctor draft.' After the Berlin Wall and the Cuban Missile Crisis, Uncle Sam pulled me out of residency and ordered me to active duty as a captain in the USAF.



I was stationed at Altus AFB, Oklahoma, where I was chief of internal medicine. Stanley 'Stan' Englander, '59 MD, was the base pediatrician and we became good friends. I returned to residency in July 1965, just before the troop build-up started in Southeast Asia. In 1968, I received an honorable discharge. I had a good experience in military service. It gave me two years of practical experience in clinical medicine, and I felt like I genuinely helped the airmen and their families."

Robert M. Vanecko, '61 MD, served as a captain in the USAF from 1967 to 1969, and was assigned as the chief of surgery at Homestead Air Force Hospital, Homestead, Fla. This was an SAC Base and the Sea Survival School and Combat Training Center for personnel assigned to Vietnam.

Howard N. Ward, '62 MD, served in the USAF from July 11, 1966, to July 9, 1968, at the 838th Tactical Hospital, Forbes Air Force Base, Kansas, as captain in the Medical Corps. During this service, he was chief of internal medicine, director of professional services and deputy hospital commander. He also served 30 days of temporary duty (Sept. 1967) at Incirlik Air Base, near Adana, Turkey, as the medical support for a NATO paratrooper exercise.

Richard M. Heller, '63 MD, was a physician in the Air Force from July 1, 1964, to June 30, 1966. He was a general medical officer assigned to Izmir, Turkey, for 19



months and then Wright Patterson AFB, Dayton, Ohio, for five months. After leaving the Air Force, he completed a radiology residency at Massachusetts General Hospital and a fellowship in pediatric radiology at Boston Children's Hospital. He joined the radiology faculty at Johns Hopkins, and then in 1975, Vanderbilt University Medical Center, where he founded the section of pediatric radiology and the pediatric radiology clerkship. (More online.)

William F. De Rose, '64 MD, served in the Army Medical Corps from 1966 to 1968. He entered the service after completing a year of internship and one year



of a residency in internal medicine at the University of Iowa Hospital. He was stationed at Ft. Benning, Georgia, his first year of service and worked in the outpatient department at Martin Army Hospital. He spent his second year in Vietnam assigned to the 37th Medical Company of the 11th Armored Cavalry Regiment as the commanding officer. As such, he spent more time in administrative work and military matters than in medicine. (More online.)

Richard Dedo, '64 MD, '69 GME, served from 1957 to 1960 as a navigator/radar intercept officer on an F-101B Voodoo, a two-man fighter-interceptor, which carried two air-to-air atomic missiles and two heat seeker missiles. From 1960 to 1970, he completed his medical school and residency training while in the Air Force Reserve, and then from 1970 to 1980, he was in the Florida Air Force National Guard. He served in the medical corps, USAF Reserve, in California from 1980 to 1982, and then switched to the USAR in order to work at Letterman Army Hospital in San Francisco. He helped with the orthopaedic training program by attending in the orthopaedic clinic and performing surgery, primarily on low back pain patients. (More online.)

Robert delaFuente, '64 MD, completed his internship at the U.S. Naval Hospital, St. Albans, N.Y., followed by a residency in anesthesiology at the Naval Hospital Chelsea, Mass. Upon completion of that training, he was sent to field basic training at the Marine Corps Base, Camp Lejeune, North Carolina, and then deployed to the Republic of Vietnam to serve as an anesthesiologist with Delta Company, First Medi-



cal Battalion of the First Marine Division in Da Nang, Chu Lai, and Phu Bai from 1967 to 1968, a period that included the TET Offensive. After completion of his overseas tour, he was sent to the Naval Hospital, Newport, R.I., where he ended his career as a Navy medical officer with the rank of lieutenant commander.

Charles S. Wilson, '64 MD, served in the Army Medical Corps from July 1965 to July 1968, attaining the rank of major, MC, USAR. During that time, he served as battalion surgeon, 4th Infantry Division, at Ft. Lewis, Washington, 1965 to 1966, and as medical officer, U.S. Army 5th Field Hospital in Thailand, 1966 to 1968. After he left the military, he completed his residency in internal medicine and a fellowship in cardiology at Mayo Clinic from 1968 to 1972. From 1972 to 2012, he was in a cardiology private practice in Lincoln, Neb., retiring in 2012.

Robert E. Pickard, '65 MD, '00 BSM, interned at the University of Miami at Jackson Memorial Hospital after graduating from Northwestern University. He then



served on active duty from 1966 through 1968, during the Vietnam War, and was stationed at RAF Chicksands Dispensary, England, as the medical officer for the AF Security Service base.

After being discharged as a captain from the USAF, Dr. Pickard returned to the University of Miami Medical School for a residency in general surgery, later specializing in ear, nose and throat surgery. He began his practice of medicine and surgery in South Miami and Coral Gables in 1972. He joined the Florida National Guard and served a total of 22 years in active service, retiring as a colonel 06 in 2000.

Dr. Pickard was elected national commander of the Jewish War Veterans of the USA (JWV) at its 118th Annual National Convention in Richmond, Va., on Aug. 23, 2013. He comes from a JWV family. His father, Ted, was department commander of Illinois and his mother, Lena, was president of the Illinois JWVA. (More online.)

Gerald "Jerry" Halpern, '65 MD, '72 GME,

writes, "My father, Sam Halpern, '28 MD, was in the first graduating class of the Northwestern University medical school. I was in the first six-year program class in 1961 as a college graduate (Cornell) with a research background. It was with lifechanging luck that Dr. Grayhack accepted me as a resident in his urology program in 1966.

After two years in the U.S. Army at Ft. Benning, Georgia, as chief of urology at Martin Army Hospital, I started in private practice in South Florida. There, my wife, Lauren Rosen Halpern (U. of Michigan 1966), and I raised our three children." (More online.)

Frederick Dean, '66 MD, served as captain in the Army Medical Corps from June 1967 to June 1969, serving 15 months in Incheon, Korea, and the remainder at Ft. Bragg, North Carolina.

Stephen Kwedar, '66 MS, '66 MD, served as a major in the USAF as an ophthalmologist from 1970 to 1972. He was stationed in U-Tapao, Vietnam. Dr. Kwedar retired in Sept. 1993 to Naples, Fla.

Andrew D. Bunta, '67 MD, '74 GME,

completed a classic rotating internship and was then drafted by the military with assignment to the USAF during the Vietnam War, as essentially all physicians had a military commitment—either before or after residency training. As were most physicians prior to completing their residency training, he was commissioned as a captain and functioned as a general medical officer, family physician, for most of his tour of duty from 1968 to 1970. He was assigned to the Minot Air Force Base in Minot, N.D.—the "land of 'horizontal snow' and frigid, Arctic cold, but extremely pleasant and thoughtful people." It was a large base with a population of 15,000 and included an SAC bomber wing, a fighter squadron and an ICBM group. (More online.)

Jon Scott Fantz, '67 MD, served in the USNR from 1968 to 1970 at Naval Submarine Base, Norfolk, Va., and Naval Support Activity, Da Nang, Vietnam.

Wynn Kearney, '67 MD, writes: "The Vietnam War was raging and there was a physician draft in effect when I was in medical school. I believe most



members of our class were drafted... The Berry Plan was a program that gave a deferment until specialty training was completed for certain specialties. I was deferred until I completed my orthopaedic surgery residency at the Mayo Clinic in 1972." (More online.)

Michael Reinstein, '67 MD, served in the Army from 1969 to 1971, at Ft. Benning, Georgia. He was assigned as a psychiatrist but his biggest commitment was playing on the Army Hospital basketball team, which included several N.B.A. draftees, before large crowds. Dr. Reinstein writes: "I continue to practice psychiatry in the Uptown area of Chicago. My basketball playing days ended years ago."

Cary Andras, Jr., '68 MD, writes: "After graduating in 1968, I did a straight surgery internship at Ohio State University with Dr. Robert Zollinger. Though controversial, I have to say that I loved him like a father. He provided a great preparation for my active duty time. Most will not be aware that Dr. Zollinger was General Patton's surgeon in Europe and, I believe, in North Africa. As most did then, I entered military service through the Berry Plan. I was assigned to the Navy after a couple of hiccups. I then requested a couple of different duties, which were denied, and finally the Fleet Marine Force (FMF)." (More online.) Tim Hunter, '68 MD, '69 GME, served in the Navy from 1969 to 1971, including a tour of duty in Vietnam. As part of the Navy Medical Corps, he served in the Field Medical Services School, Camp Pendleton, California, in Sept. 1969, and the Marine Corps Air Station El Toro, Santa Ana, Calif., from Oct. 1969 to May 1970. He was then a general medical officer, First Marine Aircraft Wing, Republic of Vietnam, from June 1970 to April 1971, and finally medical officer for the Marine Officer's Candidate School, from May to Sept. 1971. (More online.)

F. Peter Rentz, '68 MD,

'70 GME, served as a physician in the Navy from 1969 to 1971. Dr. Rentz writes: "In those days we had the Berry Plan, which was a lottery that deter-



mined if a physician could complete residency before entering service. I lost, making me a general medical officer with internship training only. I elected to complete a course in submarine and diving medicine, which cost me an extra six months but put me in some interesting assignments, first on a nuclear submarine, then with the diving Navy in Little Creek, Va. I was encouraged by the commanders to participate in diving exercises as an additional officer, spending quite a bit of my time under water. I grew to know and respect the men of the Special Warfare Group. I call it my 'veterinary period,' providing primary care to about a thousand divers of the Frogmen and Seal teams." (More online.)



Robert Choplin, '70 MD, '71 GME, served in the USAF from Aug. 1972 to Aug. 1974, where he was a general medical officer based in Blytheville, Ark. This base has since closed. Dr. Choplin writes: "Since I had already graduated from medical school, it did not influence my decision to go into medicine. Just to be clear, most of my classmates and I served in the military. It was the time of the war in Vietnam and most of us were drafted. I spent my time acting as a base physician doing general medical practice in support of active military and retired military persons in the area." (More online.)

Louis H. Martone, '70 MD, served as a general medical officer at MacDill AFB, Tampa, Fla., from Aug. 1971 to Aug. 1973, after graduating and interning at Passavant Memorial Hospital. While at MacDill, he was introduced to dermatology by the base dermatologist. He was accepted for a dermatology residency at University Hospitals of Cleveland, Case Western Reserve Medical School. He returned home to Pittsburgh to open a private practice in 1976, where he still works full time. Dr. Martone is looking forward to his 45th class reunion in April.

J.D. Bartleson, '71 MD, sends greetings from Rochester, Minn., where he has been seeing interesting neurology patients at the Mayo Clinic for 37 years. He writes: "I served as a neurologist from July 1975 to July 1977 at Ft. Knox, Ky., as a major. It was peacetime. Kentucky is very nice."

Joseph "Joe" Haddock, '72 MD, spent three years in the Navy after medical school and an internship in medicine at the Medical Center Hospital of Vermont/University of Vermont. He served as a general medical officer at Camp Lejeune, North Carolina. One quarter of his time was spent as a battalion medical officer with 2nd Battalion, 6th Regiment, 2nd Marine Division. The other 75 percent of his time was spent as primary care physician in a small clinic with a PA and two corps women caring for the families of the enlisted. (More online.)

Arnold R. Eiser, '74 MD, recently released "The Ethos of Medicine in Postmodern America: Philosophical, Cultural, and Social Considerations," published by Lexington Books, Rowman & Littlefield, 2014. The book, according to Zygmunt Bauman, Emeritus sociologist and philosopher, University of Leeds, "...is not solely about medicine but reaches much deeper into the multiplying fissures in the tissue of human



togetherness in a society in which the public sphere is subsumed by advertising, marketing, entertainment, computerization, electronic gossip, and other interests devoid of ethical orientation and in the result 'morality is strictly privatized, individualized, compartmentalized in personalized space.'" (More online.)

Gary R. Ahnquist, '76 MD, retired from obstetrics in June 2011 after 31 years and 6,311 babies delivered. He now practices only gynecology. Dr. Ahnquist recently stepped down as chief of staff at Ephraim McDowell Regional Medical Center and is enjoying his first grandchild, who was born in August.

Britt Kolar, '77 MD, entered Navy Officer Candidate School and served on active duty from July 1968 to Jan. 1972 as a lieutenant, the last two years in the Middle East. Dr. Kolar writes: "I felt strongly about our mission, and equally strongly about the needs of the 150 sailors and marines and families for whom I was responsible. During this time, I experienced a 'calling' to become a family physician. Thanks to Northwestern, the GI Bill, and my wife and family, I was able to answer that calling five years later as a resident at the University of Wisconsin, Department of Family Medicine and Practice."



Michael Omori, '80 MD, completed a master's in medical informatics at Northwestern in Dec. 2013. In June, he participated in his second Northwestern graduation, 33 years after his first. Alicia Armstrong, '81 MD, had a military scholarship for medical school, and ultimately spent 22 years in the Army, retiring at the rank of colonel in 2003. After retirement she took a position at the National Institutes of Health. Currently, Dr. Armstrong holds a faculty position as professor of OB/GYN at the Uniformed Services University of the Health Sciences. as well as clinical privileges at Walter Reed National Military Medical Center. She also coordinates the military unintended pregnancy task force. Previously, she served as the chair of OB/GYN at Walter Reed Army Medical Center, and prior to that, vice chair, division director, consultant to the Army Surgeon General for Women's Health, and associate residency program director. Before her assignment to Walter Reed, she coordinated the OB/GYN clerkship at the Uniformed Services University of the Health Sciences. (More online.)

Theresa Yuschok, '85 MD, a psychiatrist and director at the Durham Veteran Affairs Medical Center, graduated as an academic associate of the Psychoanalytic Institute of the Carolinas. Recently she visited with Julie Gsell Harley, '82, who retired as senior pastor of First United Church of Oak Park, III. Dr. Yuschok also has kept in touch with Elaine Cheng O'Leary, '81, '83, '85 MD, '89 GME, Robin Ropar Heller, '81, and Joyce Sauter-Zafar, '82. She hopes to hear from other charter members of the Humanities Residential College.

Jamie E. Terry, '89 MD, is a general surgeon at Westside Surgical Hospital in Houston. She specializes in breast health, with practices that focus on breast cancer education, prevention and treatment options. In the mid-1990s, Dr. Terry was the first African American woman, and just the third female, to graduate from the St. Joseph Medical Center's general surgery training program in Houston. She and her husband Nelson have twin boys.



Joseph Marquez, '99 MD (left), celebrated ten years as chief of the Department of Urology at the Polyclinic, a 180-physician multispecialty group in Seattle. He formed



the department soon after completing a residency at the University of Minnesota, and has since added three partners. He is married to Dr. Sioban Keel, an academic hematologist at the University of Washington. He spends his time enjoying the Pacific Northwest, playing jazz drums with Sometimes Marc–a group of Polyclinic physicians–and making annual pilgrimages to Vancouver, B.C., to visit his good friend Jordan Moskoff, '99 MD (right), as he shoots episodes for "Untold Stories of the ER."



Angela Powell, '00 MD, was the first woman in her family to join the military. She has been an active duty physician since 2006, following graduation from



residency training in otolaryngology at the University of Pittsburgh Medical Center. She completed Officer Indoctrination, holding the position of division officer as a lieutenant, and then took on the rank of lieutenant commander in Sept. 2006, shortly after arrival at her first duty station, Naval Medical Center San Diego. As the only general otolaryngologist for this busy group practice, she distinguished herself by ranking among the top 10 percent of military otolaryngologists for patient encounters. (More online.) Daniel S. Kim, '04 MD, has been in the Reserves since Jan. 2006. He was on active duty from June 2008 through Dec. 2011 at Scott AFB, Illinois, as a family medicine faculty physician in the 375th Medical Operations Squadron. He was then deployed to Balad Air Base, Iraq, as a hospitalist from July 2009 to Jan. 2010 in the 332nd Expeditionary Medical Operations Squadron. Currently, he works as a family physician in Juneau, Alaska.

'10s

Jon Van Roo, '10 MD, joined the Wisconsin Air National Guard in Oct. 1989 during his senior year in high school. He went to basic training from July through Aug.



1990 at Lackland AFB, Texas, and then trained as a crew chief (aircraft mechanic) at Sheppard AFB, Texas. He finished his initial training at Davis Monthan AFB, Arizona, working on A-10s. Then he returned to Madison, Wis., where he continued to work as an aircraft mechanic with the Air National Guard through college. He had brief deployments to Denmark and Hawaii before eventually graduating in 1996 from UW-Madison with a degree in engineering mechanics and astronautics. He worked as an aerospace engineer at Orbital Technologies Corporation and deployed briefly to Kuwait in 1997. (More online.)

Sebastian Lara, '12 MD, is currently in the U.S. Navy as a lieutenant. He is also currently a third-year resident in pediatrics at Walter Reed National Military Medical Center in Bethesda, Md.



James L. Bryant II, MD, '70, '73 GME, writes: "My military experience definitely influenced my professional career path. After graduation in 1963 from the West Virginia University School of Medicine, I entered the Air Force. At that time I felt that I liked most areas of medical practice equally, there was not a specialty that I was drawn to enter, and I probably would have a general or family practice. Most of my USAF military experience was as a flight surgeon." (More online.)

Mark D'Agostino, MD, '91, '94 GME, completed his otolaryngology/head and neck surgery residency and then went on active duty with the USAF,



stationed at Andrews AFB in Washington, D.C., from 1994 to 1997. While at Andrews, he provided otolaryngologist/head and neck surgeon support to the crew of Air Force One, the Pentagon, White House support staff, a large retired military community, and numerous other military agencies in the D.C. area, including the NSA and members of the various military bands. (More online.)

Paul S. Brown Jr., MD,

'93 GME, completed his general surgery residency at Northwestern, a research fellowship at NIH, and then a thoracic surgical fellowship at

the University of Pennsylvania. Dr. Brown was influenced to join the Army Reserves Medical Corps shortly after he finished at Northwestern by Colonel Paul Meyer, MD, who was a professor of orthopaedic surgery at Northwestern Memorial Hospital, as well as by many other surgical faculty who had served in the Armed Forces. Dr. Brown is a colonel and just completed 21 years of service, during which he was deployed twice to the Middle East. He currently performs his Army Reserve duties at Ft. Benning, Georgia. (More online.)

Michael Ault, MD, '96 GME, an associate professor in the Department of Anesthesiology at Feinberg, was interviewed by "Good Morning America" about Joan Rivers. http:// abcnews.go.com/GMA/video/joan-riversfamily-remains-hopeful-recover-25210975 Alanna Higgins Joyce, MD, '12 GME, and Timothy Joyce '10 MBA, of Chicago, celebrated the birth of their son, Charles Dyar, on Dec. 29, 2013.

Joshua Cohen, MD, '11 GME, joined the staff at the Texas Heart Institute (THI) in Houston as a cardiovascular anesthesiologist in August. Dr. Cohen completed his anesthesiology residency at Northwestern Memorial Hospital in 2011 and a fellowship in cardiovascular anesthesiology at the Texas Heart Institute in 2012. He worked in private practice for a year before rejoining the staff at THI.



Jeremy Campbell, '14 DPT, served as lance corporal, heavy machine gunner, with 2nd Battalion, 1st Marine Division, from 2004 to 2007. He writes: "Following a



combat mission to Iraq, I was severely injured in a Humvee rollover accident in which I fractured my pelvis among other injuries. The hospitalizations and rehabs following this traumatic event have shaped who I am today, and have certainly impacted my decision to become a DPT. I am currently living in Chicago and preparing for my board exam."



Charles J. Maseredjian, Jr., '66 DDS, of Burbank, Calif., has started to plan for the 50-year reunion, as class representative for the Northwestern



University Dental School Class of 1966. **The reunion will be held in Chicago on April 22 and 23, 2016**. For more information, please email Dr. Maseredjian at cgoldcrown@sbcglobal.net or call his cell (818) 822-3172. №

Progress Notes Awards and Honors



Elliott L. Cohen, '72 MD, senior vice president and regional medical director of TeamHealth West, joined the Cedar Hill, Texas location of First Choice Emergency Room as medical director.

Richard Lewis, '78 MD, was inaugurated president of the American Society of Cataract and Refractive Surgeons in April. He will serve a one-year term. Dr. Lewis was also appointed to the scientific advisory board at Aerie Pharmaceuticals.

Ora Pescovitz, '79 MD, former CEO of the University of Michigan Health System, joined Eli Lilly & Co., in Indianapolis, as senior vice president in October.



Benjamin Kanter, '82 MD, '85 GME, chief medical information officer at Palomar Health, was appointed chief medical officer at Sotera Wireless, a medical device developer of vital signs monitoring.

Frederic D. Seifer, '82 MD, a pulmonology specialist, was appointed medical director of population health at St. Lawrence Health System in Ogdensburg, N.Y.

Charles Argoff, '84 MD, professor of neurology at Albany Medical College and director of the Comprehensive Pain Center at Albany Medical Center, was appointed to the scientific advisory board at SCILEX Pharmaceuticals, Inc.

Michelle S. Barratt, '85 MD, '87 MPH, '88

GME, professor of pediatrics at the University of Texas Health Science Center at Houston, recently received the Regents' Outstanding Teaching Award recognizing her extraordinary classroom performance and innovation in undergraduate instruction. Dr. Barratt says her personal mission is "nurturing learners to excellence in pediatric care through



role modeling and relationship." The review panels for the award consider a range of activities and criteria in their evaluations of a candidate's teaching performance, including classroom expertise, curricula quality, innovative course development and student learning outcomes.

Harinder Singh, '85 PhD, director of the division of immunobiology and the Center for Systems Immunology at Cincinnati Children's Hospital Medical Center, was appointed chair of the scientific advisory board at Lycera Corp., a biopharmaceutical company.

Ellis Arjmand, '86 MD, '96 PhD, professor of otolaryngology at the University of Cincinnati College of Medicine, was appointed chief of otolaryngology at Texas Children's Hospital in Houston.

M. Wayne Saville, '86 MD, executive director for medical affairs at Genoptix, was appointed vice president of clinical development at Tocagen Inc., a clinical stage biopharmaceutical company.

Charles Modlin, '87 MD, a kidney transplant surgeon and urologist, was reappointed by Ohio Governor John Kasich to a two-year term on the board of the Ohio



Commission on Minority Health. Dr. Modlin is

founder and director of Cleveland Clinic's Minority Men's Health Center, established in 2003. He has served on the Ohio Commission on Minority Health since 2007.

Bertrand C. Liang, '88 MD, PhD, MBA, is the founder and CEO of Pfenex Inc., a biotechnology company in San Diego, which completed an IPO and



began trading on the NYSE-M (PFNX) in July. He was appointed to be the chair of the BioDefense Policy Advisory Committee at the Biotechnology Industry Organization, providing the strategic leadership for public-private partnerships with the government to develop countermeasures addressing biologic weapons both domestically and abroad. Dr. Liang recently wrote an op-ed in the San Diego Union Tribune titled "Lack of preparedness to Ebola is symptom of larger disease" and authored two books: "The Pragmatic MBA for Scientific and Technical Executives" and "Managing and Leading for Science Professionals (What I Wish I'd Known while Moving Up the Management Ladder)," both published by Academic Press/Elsevier.



David W. Zaas, '98 MD, was named president of Duke Raleigh Hospital.



Kellie L. Heckman, '05 PhD, was named executive director of the Global Federation of Animal Sanctuaries. **™**

Caring for Cancer Survivors

AFTER THE TREATMENT IS DONE

BY KEVIN W. MCCULLOUGH

Carol A. Rosenberg, '80 MD, has more than three decades' experience as an internist, clinical researcher and medical educator, but it was an unexpected medical crisis within her own family that profoundly changed the course of her career.

Dr. Rosenberg, now director of preventive health initiatives at NorthShore University HealthSystem and clinical associate professor at the University of Chicago Pritzker School of Medicine, directs NorthShore's Living in the Future (LIFE) cancer survivorship program, which she also founded. She credits her experience both as a physician and parent of a cancer survivor for her passion and commitment to advancing cancer survivorship care.

A NEW PERSPECTIVE

Rosenberg and her husband, Gordon Derman, MD, a plastic and reconstructive surgeon, are the proud parents of Ari (31), Ben (27), and Yael "Yali"(24) Derman. In 2000, their daughter Yali suffered a recurrence of acute lymphocytic leukemia, a cancer of the blood and bone marrow. The relapse—extremely uncommon in her circumstances—meant a second course of treatment and potentially a worse prognosis. Luckily, her brother Ben was a perfect match and donated his bone marrow for a transplant performed at Ann & Robert H. Lurie Children's Hospital of Chicago. Yali recovered fully and has been cancer-free ever since, but that personal experience gave Rosenberg a new perspective on the continuum of care for cancer survivors.

"Dealing with the things that happened afterward, and putting my daughter and my family in the best position to 'carry on' after a traumatic experience like that, I learned what the essential ingredients are to care for cancer survivors," explains Rosenberg, previously one of the principal investigators for the landmark Women's Health Initiative, a study from the 1990s examining the risks of hormone replacement therapy.

Although not an oncologist, in 2006 she was tapped to establish NorthShore's cancer survivorship program. With initial funding from a Lance Armstrong Foundation community education grant, Rosenberg founded the LIFE program. It was the first of its kind in the Chicago area, weaving together community-based efforts to empower and support cancer survivors, with individualized health care, self-management tools and clinical support after treatment completion.

"The LIFE program was a way to merge my clinical savvy, my clinical research experience, and my personal life, being the mom of a cancer survivor," she says. "I think I was selected because the institution needed somebody who was thoughtful, who had experience from both ends of the stethoscope."

MANAGING THE TRANSITION

For patients, the LIFE program focuses on cancer survivorship as a distinct phase of health care, emphasizing the transition to a "new normal."

"There are specific kinds of resources and medical attention that are necessary to enhance the lives of cancer survivors," Rosenberg says. To that end, she dedicates a fair amount of time coaching other physicians on how to provide primary care to long-term survivors.

At the core of the LIFE program is a tailored, risk-adapted consultation with an oncology nurse. Over the course of the meeting, a personalized survivorship care plan is developed, which includes a cancer treatment summary, guidelines for monitoring for recurrence, and the long-term clinical consequences of their treatment, as well as suggested resources, services and providers with expertise in cancer survivorship issues.

The care plan isn't just a tool for the patient: the detailed information is given to the patient's primary care provider (and incorporated into their electronic medical record). Rosenberg believes it is essential to educate physicians about the serious health consequences of cancer treatment that can crop up years after the disease is "cured."

The plan is only the beginning of the LIFE program, however, a series of free Survivorship 101 seminars address the common concerns and unique needs of recent cancer survivors. Topics include nutrition, exercise, sexual intimacy after treatment, and dealing with the insurance and employment consequences of lengthy treatments.

A FAMILY OF SURVIVORS

For Rosenberg's daughter, art therapy was an essential part of recovery. She channeled that passion into the creation of a line of designer handbags, sold through Sak's Fifth Avenue, with all proceeds going to support family services at Lurie Children's. Yali went on to graduate from the University of Pennsylvania with a degree in nursing and is now a pediatric oncology nurse at Lurie Children's.

Dr. Rosenberg credits her upbringing for her unique approach to medicine: she was raised in an observant Jewish household in the Rogers Park neighborhood of Chicago and both her parents were Holocaust survivors.

"My parents were very, very dedicated to the idea of medicine, the idea of healing, and the idea of rebirth of the next generation," explains Rosenberg, whose brother, **Michael** J. Rosenberg, '77 MD, '79 GME, her nephew, Jonathan Rosenberg, '11 MD, and her son, Ben Derman, '13 MD, all graduated from the medical school at Northwestern. "The things that I've done—whether it's primary care practice, clinical research, or being a mom and grandmother—have been accomplishments that were derived from looking at the sanctity of life, and wanting to make the world a healthier place."

Rosenberg is even philosophical about her own family's struggle with cancer. "I'll always think that perhaps the situation with my daughter happened to our family because we have the fortitude and the emotional and intellectual resources to make life better for other survivors based on our experiences." M

> DRS. CAROL ROSENBERG AND GORDON DERMAN WITH THEIR CHILDREN (FROM LEFT: ARI, YALI AND BEN) HOLDING HANDBAGS DESIGNED BY YALI THAT HELPED FUND THE PLAYROOM AT THE NEW LURIE CHILDREN'S HOSPITAL.

EARLY ALUMNI

{ PROFILES IN { CULTURAL DIVERSITY

ULYSSES GRANT DAILEY: AN AFRICAN AMERICAN SURGEON, HOSPITAL FOUNDER

BY RON SIMS, NOW RETIRED, FOR GALTER HEALTH SCIENCES' "LIBRARY NOTES"

Ulysses Grant Dailey overcame financial and racial obstacles to become an internationally respected surgeon. But more than that, Dr. Dailey was a teacher of physicians who later became leaders and role models; an editor, reflecting his ideals and passion for medicine through the *Journal of the National Medical Association*; an administrator, founding a hospital which trained young physicians and treated patients regardless of race; and an ambassador of American medicine, traveling around the globe to study and shape healthcare systems.

Born in 1885 in Donaldsonville, La., Ulysses Grant Dailey, 1906 MD, grew up in Ft. Worth, Texas, and Louisiana. Choosing a career as a pianist, he graduated from the preparatory academy at Straight College (now Dillard University) in New Orleans. While a student, Dailey became the office assistant for Ernest L. Stephens, MD, a physician and professor in the medical department of Fort Worth University. Impressed by the young man, Dr. Stephens assigned him to visit homebound typhoid patients to take temperatures and do similar tasks. After this experience, Dailey wanted to study medicine.

He was accepted at Northwestern University Medical School and enrolled in fall 1902. Until he graduated in 1906, Dailey supported himself through a variety of jobs, including playing piano in taverns.

Because of his race, Dr. Dailey was not allowed to spend two weeks at Mercy Hospital in Chicago doing obstetrics in the charity ward. In 1907, Provident Hospital appointed Dailey gynecologist in their dispensary. The major turning point came in 1908 when Daniel Hale Williams, 1883 MD, an early graduate of Northwestern's medical school who was the first black member of the American College of Surgeons and who founded Provident Hospital, invited Dailey to be his surgical assistant. Over the next four years, Dailey learned much about surgical techniques. In 1910, he became an associate surgeon, and from 1912 to 1926, he was an attending surgeon.

In 1926, Dr. Dailey purchased two large houses in Chicago and had them remodeled into the Dailey Hospital and Sanitarium. The Great Depression forced the closing of the institution in 1932.

Dailey was an active member of the National Medical Association for 53 years. He served in several leadership roles, including president from 1915-1916. However, his primary activity was with the Journal of the National Medical Association for which he served over a 40-year period as an editorial board member, associate editor, and editor. The association honored him with its Distinguished Service Award. **M**

CARLOS MONTEZUMA: AN AMERICAN INDIAN WHO ADVOCATED FOR CHANGE

BY AMBER BEMIS

In 1889, the medical school at Northwestern University marked a historically important year when its first Native American student, Carlos Montezuma, graduated.

Given the many challenges he faced early in his life, this proved to be quite an achievement. Originally named Wassaja, Dr. Montezuma was born a Yavapai Indian in central Arizona in 1865. At age five, he was kidnapped by a neighboring tribe and sold for \$30 to an Italian-born photographer. Carlo Gentile bought his freedom, gave him a new name, taught him English and enrolled him in school.

Montezuma received a bachelor's of science in chemistry from the University of Illinois before completing medical school. Following graduation, he began working as a physician for the Bureau of Indians at many reservations across the country. He eventually returned to Chicago to open a private practice.

Throughout his career, Dr. Montezuma was an advocate for Native American rights, and became the poster child of a Native American assimilated into the "white man's" culture, something he considered very important for his people. He began a group called the Society of American Indians, which was controlled by indigenous leaders. He also spent much of his career working to eliminate the Bureau of Indian Affairs, which he thought had a biased and unfair agenda. He gave influential speeches and wrote a newsletter called Wassaja on the cause.

Montezuma spent much of his later life reconnecting with his Native American heritage. In 1922, he developed tuberculosis and died a year later at the Yavapai's Fort McDonald Reservation in Arizona. He was buried in the tribal cemetery.

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BY ANITA CHASE

(INFORMATION COMPILED FROM THE JOURNAL OF MUSCULOSKELETAL NEU-RON INTERACT AND THE JOURNAL OF BONE AND MINERAL RESEARCH, 2004)

Harold M. Frost, '46 MD, was a pioneer in skeletal biology and research. Though he died in June 2004, his research continues to have a profound influence in areas as disparate as orthopaedics, endocrinology, orthodontics, anthropology and bioengineering. His two-volume textbook, "The Utah Paradigm of Skeletal Physiology," is recommended reading for those involved in the research and teaching of skeletal and related problems. Dr. Frost published nearly 500 peer-reviewed articles and is one of the most cited investigators in skeletal research.

After completing his medical degree at Dartmouth and Northwestern, he served as an officer in the Naval Medical Corps, and then completed his surgical internship at the University of Massachusetts in Worcester and residencies in orthopaedic surgery at Buffalo General and Children's hospitals in New York. After two years in private practice, he became an assistant professor of orthopaedic surgery at Yale University School of Medicine in 1955. Dr. Frost moved to Henry Ford Hospital in Detroit to become the founder and director of the Orthopedic Research Laboratory in 1957, and department chair from 1966 to 1972, as well as clinical research professor of surgery at the University of Michigan School of Medicine from 1968 through 1972. It was during his tenure at Henry Ford Hospital that Dr. Frost made numerous research advances that changed the study of bone biology.

Many of Frost's discoveries supported his concept that the skeleton is primarily a mechanical organ. He concluded that osteoclasts and osteoblasts worked together as coordinated remodeling teams, which he named Basic Multicellular Units, or BMUs. In collaboration with Robert Hattner and Bruce Epker, Dr. Frost published a piece in Nature (1965)—that was chosen by the Journal of NIH Research as a landmark article 30 years later—demonstrating that more than 96% of adult bone formation occurs only after previous resorptive processes. He also developed a technique to histologically demonstrate microcracks in human bone biopsies and experimentally showed that estrogens reduce bone turnover. Dr. Frost also proposed that bone mass is directly tied to lean muscle mass and muscle force.

Much of his research is in current use. He perfected a series of measurements that led to quantitative bone histomorphometry, a tool still employed by laboratories worldwide to evaluate the effects of some new drugs. His basic theories for bone growth plate adaptation to mechanical loading form the basis for many mathematical and computational bioengineering models.

Above all, Dr. Frost had a passion for teaching. He fostered numerous efforts to facilitate better communication among skeletal scientists by helping to form the American Society for Bone and Mineral Research (ASBMR) In Vivo Working Group and the Black Forest Workshops, as well as helping co-found the Sun Valley Hard Tissue Workshops in 1966.

He received the American Medical Association's Hektoen Gold Medal in 1963, but much of the recognition for his work didn't come until later. Most notable were the Special Senior Investigator Award from the American Society of Biomechanics (1987), the Sun Valley Hard Tissue Workshop Remodeling in Bone (RIB) award (1991), Honorary Doctor of Science degree from Purdue University (1994), Honorary Professor of Surgery at Guangdong Medical College, Zhanjiang, China (1994), the William F. Neuman Award from the ASBMR (2001), and the creation of the Harold M. Frost Professorship at Henry Ford Hospital (1991). The ASBMR/Harold Frost Young Investigator and the Harold Frost Asian Pacific Bone Morphometry Awards (2004) were named after him. M

In Memoriam

Upcoming Events

Paul G. Alberton, '65 MD, of Carlsbad, Calif., died August 27, 2014.

Robert B. Bright, '46 MD, of Bremerton, Wash., died August 28, 2014.

Robert L. Davis, '48 MD, of Poulsbo, Wash., died September 17, 2014.

Michael W. Denson, MD, '87 GME, of Chicago, died September 10, 2014.

Robert E. Heerens, '44 MD, of Rockford, III., died October 19, 2014.

Donald A. Jessen, '54 MD, of Phoenix, died September 20, 2014.

Kenneth O. Johnson, '58 MD, of Oconomowoc, Wis., died October 25, 2014.

Philip N. Jones, MD, '53 GME, of Lake Forest, III., died September 30, 2014.

Ernest F. Kreutzer, MD, '84 GME, of Columbus, Ohio, died October 28, 2014.

Charles J. Leiphart, '67 MD, '68 GME, of Muncie, Ind., died September 19, 2014. Stanley W. Lipinski, '51 MD, of Lakeland, Fla., died October 25, 2014.

James R. Mattson, '66 MD, '68 GME, of Allouez, Wis., died September 16, 2014.

Louis D. Myre, '52 MD, of Paducah, Ky., died October 15, 2014.

Wendell K. Nickell, '51 MD, of Salina, Kan., died October 18, 2014.

Ingrid Reese, '80 BSPT, of St. Charles, Ill., died October 13, 2014.

Hirsh Wachs, '56 MD, '58, '60 GME, '59 MS, '60 PhD, of Pittsburgh, died July 22, 2014.

Margaret C. Winston, '52 MD, '52 GME, of Madison, Wis., died September 12, 2014.

Jack L. Wright, '42 MD, of Hebron, Md., died September 26, 2014. FEB

FEBRUARY 17, 2015 Epilepsy Lecture: Marketa Marvanova, PharmD, PhD, CGP Robert H. Lurie Research Building, Searle Seminar Room 320 E. Superior St., Chicago. For more information, call 847-908-5035.

FEBRUARY 25, 2015 Surviving and Thriving: STEM Women's Center 2000 Sheridan Rd., Evanston. For more information, call 847-491-7360.



MARCH 5, 2015

Lurie Cancer Center Tumor Cell Biology Robert H. Lurie Medical Research Center, Baldwin Auditorium 303 E. Superior St., Chicago. For more information, call 312-695-1304.

MARCH 11, 2015

FCVRI Seminar Series: Jan K. Kitajewski, PhD Robert H. Lurie Medical Research Center, Baldwin Auditorium 303 E. Superior St., Chicago. For more information, call 312-503-2296.

MARCH 18, 2015 HIV Translational Research Seminar Robert H. Lurie Medical Research Center, Searle Seminar Room 303 E. Superior St., Chicago.

For more information, call 312-695-5090.

MARCH 27, 2015 Bacteriology Journal Club: Claire Knoten McGaw Pavilion, Room 2-322 240 E. Huron St., Chicago. For more information, call 312-503-4138.

APR

APRIL 2, 2015 11th Annual Lewis Landsberg Research Day Northwestern Memorial Hospital, Feinberg Pavilion, 3rd floor 251 E. Huron St., Chicago. For more information, call 312-503-1499.

APRIL 10, 2015

Brain Tumor Institute Lecture: Evanthia Galanis Northwestern Memorial Hospital, Feinberg Pavilion, Pritzker Auditorium 251 E. Huron St., Chicago. For more information, call 312-908-5035.

APRIL 21, 2015

Lectures in Life Sciences: Joan Goverman "Mechanisms Leading to the Development of Multiple Sclerosis" Robert H. Lurie Medical Research Center, Hughes Auditorium 303 E. Superior St., Chicago. For more information, call 312-503-1889.



MAY 7, 2015 Alzheimer's Day Northwestern Memorial Hospital, Feinberg Pavilion, 3rd floor Conference Center 251 E. Huron St., Chicago. For more information, call 312-908-9023.



MORE EVENTS AT **MAGAZINE.NM.ORG**



New Ads Highlight Growing Health System

In January, Northwestern Medicine launched its first advertising campaign as an expanded health system. The campaign, *Every Breakthrough Leads to You*, builds on the success of the current NM Breakthroughs campaign and serves as an introduction to who we are and the value of this growing health system.

The campaign will run through summer 2015 and incorporate a variety of components, including a television commercial that launched during National Football Conference playoff games and The Golden Globe Awards, print advertising, outdoor billboards, website and social media content. The TV commercial is voiced by Bonnie Hunt, who was once an oncology nurse at Northwestern Memorial Hospital.

quarterly bulletin of Northwestern University Medical School

"Quarterly Bulletin" of the Medical School Now Available in PubMed Central

First published in June 1899, the *Quarterly Bulletin of the Northwestern University Medical School* presented medical history and original scientific articles not published anywhere else. Because it offered insights into medical practice and advances, along with news specific to Northwestern University's medical school, there have been many requests for articles over the years from researchers at Northwestern and other institutions, despite the fact that the Quarterly Bulletin ceased publishing in winter 1962.

Now, thanks to a digitization project made possible by an Illinois State Library grant, anyone in the world can access full-text articles of the *Quarterly Bulletin* online for free on PubMed Central (PMC) at www.ncbi. nlm.nih.gov/pmc/journals/1207/ and link to them from PubMed/MEDLINE.



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Resident Wins Scholarship for Commitment to Underserved

Luis Rivera, MD, a first-year resident in Family and Community Medicine, was awarded a \$25,000 scholarship from the National Medical Fellowships. The Dr. David Monash/John Caldwell Scott Medical Student Scholarship Program provides financial support to medical students and residents committed to underserved populations in Chicago.

Growing up on Chicago's South Side, Dr. Rivera witnessed the shortcomings of the healthcare system when his father was diagnosed with Parkinson's disease. "This experience opened my eyes to the very real need for more doctors in my neighborhood," he says.

To support his family, Rivera worked for 11 years as an electrician at various area hospitals before pursuing his dream of medical school.

"I was really interested in this particular residency because it is an academic program based in the community, with faculty focused on addressing health disparities in urban underserved communities," he says.

Northwestern University

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