

DukeMed AlumniNews



FALL 2014

Mind Over Matter

MIGUEL NICOLELIS'S
QUEST TO HARNESS
THE POWER OF
THE BRAIN

DUKE SCIENTISTS
ARE CHANGING
THE LIVES OF
CHILDREN WITH RARE
GENETIC DISEASES



Advocacy for medical research has always been important, but never as important as now, when the federal investment in research has faltered for more than a decade. The public has come to take medical advances for granted, expecting new treatments and cures, and demanding rapid responses to emerging infectious diseases. We don't make it easy to understand that these advances come from years of painstaking investigation. If an institution like Duke doesn't educate the public about research and its contributions to society, and if we don't make the case for increased funding to our legislators, who will?

This past year I have been pleased to see our faculty and staff members become even more passionate about advocating for increased support of research.



In April, our Government Affairs Office hosted Project Medical Education in the Trent Semans Center for Health Education. Eight legislative aides from the North Carolina delegation participated in a two-day event aimed at educating lawmakers about the interrelated missions of academic medical

centers and the key role of biomedical research in advancing health.

Also this spring, School of Medicine faculty members Laura Svetkey, MD, and Janet Horton, MD, hosted a meeting at Duke to bring our faculty and staff together to better organize our advocacy efforts. Laura and Janet currently serve on the Association of American Medical Colleges

(AAMC) Council of Faculty and Academic Societies, which is charged with identifying and taking on critical issues facing academic medical centers. In July, Vice Dean Raphael Valdivia, PhD, and I visited North Carolina House and Senate offices in Washington, D.C. While our congressmen and senators seemed less than optimistic about the future of federal funding for research in the United States, we were pleased to hear that they are trying to think creatively and strategically about new ways to support research, such as new kinds of industry partnerships.

On September 18, Raphael returned to Washington to participate in "Rally for Medical Research Hill Day." He joined other researchers and leaders from Duke including Richard Brennan, PhD, and Steve Patierno, PhD, and researchers from across the country to call on our nation's policymakers to make funding for the National Institutes of Health (NIH) a top priority and to raise awareness about the importance of sustaining investments in medical research.

The prognosis for medical research is guarded, due to constraints on federal spending as well as concerns that sequestration will resume early next year and with it, further automatic cuts to the budget of the NIH. This is an important time for voters and for Congressional offices to hear from the medical community, and I hope that we at Duke—our faculty, staff, students, alumni and friends—will be a loud and passionate voice for the critical work that we must do to fulfill a promise of better health for our country and the world.

With warm wishes,

Nancy C. Andrews, MD, PhD
 Dean, Duke University School of Medicine
 Vice Chancellor, Academic Affairs
 Nanaline H. Duke Professor of Medicine
 Professor, Pediatrics
 Professor, Pharmacology and Cancer Biology

DukeMed Alumni News

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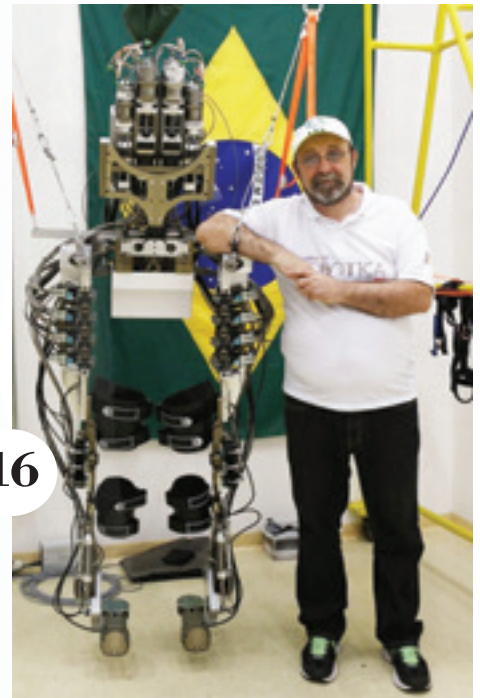
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JARED LAZARIUS

Darell Bigner

Bigner Receives Lifetime Achievement Award

The Society of Neuro-Oncology (SNO) has honored Darell Bigner, PhD, MD, with its Lifetime Achievement Award. Bigner, who is the Edwin L. Jones Jr. and Lucille Finch Jones Cancer Research Professor and director of the

Preston Robert Tisch Brain Tumor Center at Duke, was a founder of SNO and an original member of its journal, *Neuro-Oncology*. SNO is the only international brain tumor and clinical research society.

Williams Receives Lifetime Achievement Award

Redford Williams, MD, professor of psychiatry and behavioral sciences and director of the Behavioral Medicine Research Center in the School of Medicine, has received the Lifetime Achievement Award from the International Society of Behavioral Medicine.

A former president of the society, Williams has been a member of the Duke medical faculty since 1972, following a fellowship at the National Institutes of Health. He has been a leader in research aimed at identifying psychosocial factors that increase the risk for medical disorders, the biological and behavioral mechanisms that contribute to disease, and the development of interventions that ease the damaging effects of those risk factors.



Redford Williams

Williams is the author of 10 books, including *Anger Kills* and *LifeSkills*, and is an international authority on how hostility and anger contribute to heart disease and other life-threatening illnesses. Most recently he has begun to evaluate the role of genetic factors, particularly polymorphisms of genes involved in regulating functions of the neurotransmitter serotonin, as they affect psychosocial risk factors on health and disease. His work is funded in part by the NIH, including grants in excess of \$50 million since 1974.

Kastan Elected to American Academy of Arts and Sciences

Michael Kastan, MD, PhD, executive director of Duke Cancer Institute, is among four Duke University faculty members who have been elected to the American Academy of Arts and Sciences. Kastan, who holds the William W. Shingleton Professorship in Pharmacology and Cancer Biology, became director of Duke Cancer Institute in 2011. Prior to that, he was director of the Comprehensive Cancer Center at St. Jude Children's Research Hospital. A pediatrician and laboratory scientist, he is a leading expert on the role of abnormal DNA repair mechanisms in human cancer.



JARED LAZARIUS

Health System Hospitals Earn Top Safety Marks

Duke University Hospital, Duke Regional Hospital, and Duke Raleigh Hospital were awarded “A” scores for hospital safety from the Leapfrog Group, an independent national nonprofit funded by employers and other large purchasers of health benefits. Evaluated and graded every six months, the three hospitals have earned the highest grade consistently since fall 2012. They are graded on overall performance in keeping patients safe from preventable medical errors, including injuries, accidents, and infections.

The Leapfrog Group uses 28 publicly available measures of hospital safety data, including data from the Agency for Healthcare Research and Quality, the U.S. Centers for Disease Control and Prevention, the Centers for Medicare and Medicaid Services, the Leapfrog Hospital Survey, and the American Hospital Association’s annual survey.

More than 2,500 U.S. hospitals were assigned scores in spring 2014, with 32 percent receiving an “A” grade.



JIM ROGALSKI

Jean Spaulding, the first female African American medical student at Duke, was among those featured in the *Faces of Change* video.

Faces of Change Video Wins CASE Gold Award

A video produced for the Faces of Change Event, held in March of 2013 to honor the 50-year history of African Americans in the School of Medicine, won a national 2014 Circle of Excellence Award from CASE (the Council for Advancement and Support of Education). The video was produced by Jim Rogalski, director of video production in the Office of Development and Alumni Affairs, and

video link
youtube.com/
watch?v=6BZ_WCji0zk

featured Delano Meriwether, MD’67; Jean Spaulding,

MD’72, HS’73-’77; Charles Johnson, MD, HS’65-’67; Brenda Armstrong, WC’70, HS’75-’79; Haywood Brown, MD; Eddie Hoover, MD’69, HS’69-’71; James Gavin III, MD’76, PhD; Tamera Coyne-Beasley, MD’91, HS’91-’95; John Rich, MD’84, HS’84; Kafui Dzirasa, PhD’07, MD’09; Kwadwo “Kojo” Owusu-Akyaw, T’10, MD’14; and Chikoti Mibenge Wheat, MD’13.



Duke LifePoint Adds Five New N.C. Community Hospitals to First-of-its-Kind Network, Expands Nationally

Duke LifePoint has added five hospitals throughout North Carolina to its network, including Wilson Medical Center in Wilson, Rutherford Regional Health System in Rutherfordton, Haywood Regional Medical Center in Clyde, Harris Regional Hospital in Sylva, and Swain County Hospital in Bryson City. It also continued its national expansion with the acquisition of Conemaugh Health System in Johnstown, Pa.

In keeping with Duke University's founding commitment to improve the health of communities through advances in research, education, and care delivery, in 2011 Duke University Health System (DUHS) entered into a joint venture with LifePoint Hospitals, a company that operates community hospitals in non-urban areas across the country. This joint venture, Duke LifePoint Healthcare, was a first-of-its-kind partnership in which an academic health system and a hospital operator would seek to jointly own and operate hospitals.

Duke LifePoint Healthcare was created following a nearly decade-long collaboration between Duke and LifePoint that began at Danville Regional Medical Center in Danville, Va. It was through this successful collaboration that DUHS and LifePoint leaders discovered a common commitment to health care quality and service. They began to see how Duke's safety and clinical quality resources and expertise could be combined

commitment to working collaboratively with local hospitals to help them achieve their quality and safety goals and meet their operational needs."

Duke LifePoint began with a focus on hospitals in North Carolina and surrounding states. Maria Parham Medical Center in Henderson was the first hospital to join the Duke LifePoint system. Person Memorial Hospital in Roxboro and Twin County Regional Healthcare in Galax, Va., soon followed.

As interest in Duke LifePoint began to grow, its leaders realized that the joint venture offered a unique affiliation option not just for community hospitals in the Southeast, but also for regional referral centers across the nation. Marquette General Health System in Michigan's Upper Peninsula joined the system in 2012.

Recently, Rex Burgdorfer of Juniper Advisory, an investment banking firm with a health care emphasis, cited Duke LifePoint as leading the hospital industry's "most important trend in the last two decades."

"Duke LifePoint Healthcare has been a great success," said LifePoint

Chairman and CEO William F. Carpenter III. "LifePoint is proud to call Duke our partner and excited for the opportunities ahead as we seek additional ways to combine our collective strengths to enhance health care quality and delivery across the nation."

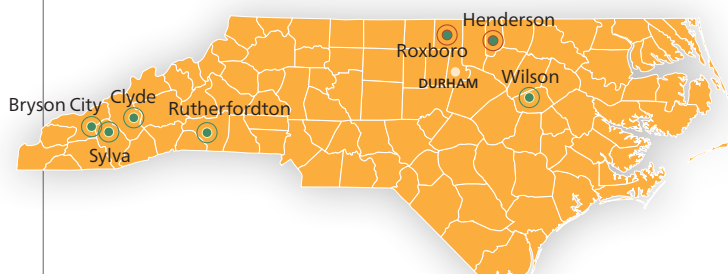
One of the unique aspects of the Duke LifePoint model is that all hospitals participate in the Duke Lifepoint Quality Program, which is designed to facilitate continuous performance improvement in patient safety and quality with a goal of achieving high quality, safe care. Over the last four years, the hospitals in the network have achieved over a 15 percent improvement in total inpatient Optimal Care Scores.

In addition to the Duke LifePoint joint venture, Duke and LifePoint are collaborating to enhance quality care and patient safety nationwide. They have established a national quality program to develop and vet best practices and advance quality and safety at LifePoint and Duke LifePoint hospitals. They also are working together as part of the U.S. Department of Health and Human Services Partnership for Patients initiative as a Hospital Engagement Network (HEN). Together, they are helping hospitals make health care safer and less costly by targeting and reducing preventable injuries and complications from health care-acquired conditions. The LifePoint HEN is one of the highest performing HENs in the country.

"We saw an opportunity to provide support to community hospitals that were increasingly interested in improving their clinical quality and operations."

William J. Fulkerson Jr., MD
Executive Vice President of Duke University Health System

Duke LIFEPOINT HEALTHCARE



with LifePoint's operational and financial resources and expertise to strengthen hospitals and improve health care delivery in communities.

"As the health care landscape continued to evolve, we saw an opportunity to provide support to community hospitals that were increasingly interested in improving their clinical quality and operations," said William J. Fulkerson Jr., MD, executive vice president of Duke University Health System. "Duke LifePoint combines the strengths of both organizations and our shared



Dean Nancy Andrews hosted the dinner honoring *emeriti* faculty.

Emeriti honorees with Dean Andrews.



LES TODD

Emeriti Faculty Honored

One hundred and thirty *emeriti* and current faculty and administrators gathered in June for the annual *Emeriti* Faculty Dinner celebration, hosted by then-Chancellor for Health Affairs Victor Dzau, MD; Dean Nancy Andrews, MD, PhD; and then-dean of the School of Nursing Catherine Gilliss, PhD, RN, FAAN. This year's honorees were Warner M. Burch Jr., MD; John R. Rice, MD; John L. Weinerth, MD; Thomas M. Murphy, MD; Joseph M. Corless, MD, PhD; Phyllis C. Leppert, MD, PhD; and Joseph C. Farmer Jr., MD (posthumous). Videos were produced about the honorees in attendance and shown at the event.

4th Annual CLINICAL SCIENCE DAY



EBONY BOULWARE, MD, MPH
Chief, Division of General Internal Medicine
Department of Medicine



MATTHIAS GROMEIER, MD
Associate Professor
Department of Surgery
Preston Robert Tisch
Brain Tumor Center at
Duke Medicine



SALLIE PERMAR, MD, PHD
Associate Professor
Department of Pediatrics



JULIE ANN SOSA, MD, MHA
Professor
Department of Surgery
Professor
Department of Medicine
Director of Health Services Research



JOHN BARTLETT, MD
Professor
Department of Medicine
Associate Director of Research
Duke Global Health Institute

A half-day CME-accredited program for faculty, staff, trainees, and students, featuring a poster competition.

Keynote Speaker
William C. DeVries, MD

**Saturday,
November 4, 2014**

7:30 AM – 12:30 PM

Great Hall

Trent Semans Center for Health Education

Box lunches provided for those who preregister.
For more information and to register visit [2014 Clinical Science Day Registration](#).

BEST HOSPITALS

U.S. News & World Report

NATIONAL
RANKED IN 13 SPECIALTIES
2014-15

Duke Hospital Again Top Ranked

Duke University Hospital ranked 14th nationally this year and continues to rank number 1 in Raleigh-Durham and North Carolina.

Specialities ranked among the top 10 include:

4th Cardiology and heart surgery

6th Pulmonology

6th Ophthalmology

7th Urology

9th Nephrology

9th Orthopaedics



Among the many guests paying tribute to Nobel laureate Bob Lefkowitz (far right) were, from left, Chancellor Emeritus Ralph Snyderman, MD; Dean Nancy Andrews, MD, PhD; Provost Sally Kornbluth, PhD; and former Chancellor Victor Dzau, MD.

Lefkowitz Honored with Distinguished Lecture

Nobel Prize winner Bob Lefkowitz, MD, was honored in May with a series of events that culminated with the Inaugural Lefkowitz Distinguished Lecture, delivered by Jeffrey M. Friedman, MD, PhD. Friedman is an investigator with the Howard Hughes Medical Institute and the Marilyn M. Simpson Professor in the Laboratory of Molecular Genetics at The Rockefeller University.

The inaugural lecture was made possible with the generous support of **Ralph Snyderman, MD, HS'65-**

'67; Lewis "Rusty" Williams, MD'78, PhD'77; and R. Sanders, "Sandy" Williams, MD'74, HS'77-'80. The three are leading a fundraising effort to establish

make a gift
Please contact Sarah
Nicholson at
919-385-3160

a permanent endowment to fund an annual lecture in honor of Lefkowitz.

Other events during the weekend included a reunion dinner for former Lefkowitz trainees and a day-long scientific symposium.

For more information about the fundraising effort for the Lefkowitz Distinguished Annual Lecture or to make your own gift, please contact Sarah Nicholson at 919-385-3160.



1,000 TRANSPLANTS

JARED LAZARUS

Duke heart transplant patients and their families gathered to celebrate the 1,000th heart transplant at Duke, an accomplishment achieved by only a handful of transplant centers nationwide.

Duke Heart Center Celebrates 25 Years, 1,000th Transplant

A series of events for former trainees, faculty, staff, donors, and patients was held in September to celebrate the 25th anniversary of Duke Heart Center. The celebration culminated in a dinner with keynote speaker, Nobel Prize winner Bob Lefkowitz, MD. The Heart Center is also celebrating the 1,000th heart transplant at Duke, the first institution in its five-state United Network for Organ Sharing (UNOS) region to achieve this milestone, an accomplishment shared with only a handful of transplant centers nationwide, according to Heart Center Director Christopher O'Connor, MD.

In his remarks O'Connor noted that the Heart Center was the original vision of chair *emeritus* Joe Greenfield, MD, who recognized the need for anesthesia, surgery, and cardiology to work more closely together. He appointed a committee—Tom Bashore, MD, Jerry Reves, MD, and Robert Jones, MD—to conduct a national survey of other heart centers and come back to Duke with a recommendation. That resulted in the formation of the Heart Center and the naming of Reves, chair of the Department of Anesthesiology, as the founding director.

Over the years, a close level of collaboration and teamwork came to define Duke Heart Center, which has encouraged innovation and led to Duke's current national *U.S. News & World Report* ranking of 4th.



- 1 Mary Fulkerson, Bill Fulkerson, MD, and Victor Dzau, MD;
- 2 Katina Rogers, Bob Lefkowitz, MD, and Joe Rogers, MD;
- 3 Rob Califf, MD, Ernie Mario, PhD, and Art Pappas;
- 4 Christopher O'Connor, MD

Call For Awards Nominations!

Are you celebrating a reunion in 2016? Nominate a deserving classmate for a prestigious Duke Medical Alumni Association Award.

Did you graduate or complete your residency in the last 10 years? Nominate a peer for our newest award, **Early Career Achievement**.

The deadline for 2016 award nominations is August 15, 2015, and all nominations remain active for three years.

DISTINGUISHED FACULTY

Honors faculty members who have brought distinction to themselves, credit to the school and university, and benefit to their communities through their vocation.

DISTINGUISHED ALUMNI

Honors alumni who have made significant contributions to medical education, research and practice through professional achievements and/or dedicated service.

HUMANITARIAN

Recognizes lifelong service to society or to humankind and honors those who have provided extraordinary service to their community, demonstrating leadership through global or local service.

WILLIAM G. ANLYAN, MD, LIFETIME ACHIEVEMENT

Recognizes achievement of an exceptional nature in any field, vocational or voluntary, covering an entire career.

EARLY CAREER ACHIEVEMENT

Honors recent graduates of Duke University School of Medicine (within 10 years of graduation or completion of training at Duke) for outstanding achievement or service in professional or volunteer life.

DISTINGUISHED SERVICE

Recognizes outstanding volunteer work and/or fundraising efforts on behalf of the School of Medicine and/or University, as well as efforts made to ensure the welfare of the institution.

HONORARY ALUMNI

Recognizes outstanding individuals who, while not graduates of the School of Medicine, have made significant contributions to its educational mission.



Arthika Chandramohan, Trevor Dickey, and Stephanie Ngo

Three Medical Students Named Schweitzer Fellows

School of Medicine students Arthika Chandramohan, Trevor Dickey, and Stephanie Ngo were named 2014-15 North Carolina Albert Schweitzer Fellows. They were among 29 fellows from North Carolina who will spend the next year learning to effectively address the social factors that impact health and developing lifelong leadership skills, following the example of the famed physician-humanitarian.

Chandramohan will work at Lincoln Community Health Center, providing health education to diabetic patients, incorporating diabetic retinopathy screening into general exams, and providing links to care. Dickey and Ngo will be working through the Student Action Health Coalition Outreach and Church World Services to expand the Refugee Health Initiative specifically to reach families in Durham.

Students and Faculty Elected to AOA

Three Duke faculty members and eight medical students were named to the *Alpha Omega Alpha* (AOA) Medical Honor Society this year. Each fall, three faculty members and a small number of medical students are elected to AOA. The criteria include scholastic achievement, leadership capabilities, ethical standards, fairness in dealing with colleagues, demonstrated professionalism, achievement and/or potential for achievement in medicine, and a record of service to the school and community at large.

Faculty members elected are: Joseph Heitman, MD, PhD, James B. Duke Professor of Molecular Genetics and Microbiology and director of the Center for Microbial Pathogenesis; **Allan Kirk, MD'87, PhD'92, HS'95**, chair of the Department of Surgery; and Sallie Permar, MD, PhD, associate professor of pediatrics, assistant professor of immunology, and assistant professor of molecular genetics and microbiology.

Students elected are Inas Aboobakar, Nicholas Berlon, Charles "Russ" Horres III, Matthew Kearney, Whitney Lane, Alexander Lazarides, Michael McNeil, and Laura Platt.

First “Bionic Eye” Implanted at Duke Eye Center

In September, Duke eye surgeon Paul Hahn, MD, PhD, implanted a device commonly called a “bionic eye” into a North Carolina man suffering from the degenerative blinding disease retinitis pigmentosa. It was the first such surgery in North Carolina and one of only six other robotic eyes implanted nationwide.

The Argus II was developed at the University of Southern California by a team led by **Mark Humayun, MD’89, HS’90-’93, PhD**, an alumnus of the School of Medicine and Duke Eye Center. Humayun was on campus to observe during the surgery.

The \$145,000 device, called the Argus II, was approved by the FDA early in

2014. Technically called a retinal prosthesis system, it consists of a tiny video camera mounted in a set of dark eyeglasses. The camera sends images through a wire to a small computer that can be worn on a belt. The computer processes the images into electronic signals that are then sent back up the wire and transmitted wirelessly to a tiny panel of electrodes surgically implanted in the eyeball. The implant emits minute pulses of electricity that are transmitted via the optic nerve to the brain, which perceives them as a kind of rudimentary form of vision.

The patient, 66-year-old Larry Hester,



SAMIHA KHANNA

Retinal surgeon Paul Hahn MD, PhD, uses optical coherence tomography to obtain a high resolution scan of the eye implant in the patient’s eye. Looking on, from left, are Alexandria Dandridge, Mark Humayun, MD’89, HS’90-’93, and Dong Heun Nam, MD, PhD.

“It will be nice to walk down the sidewalk and know where the curb is.”

**Larry Hester
Implant Patient**

had lost much of his peripheral and night vision and could no longer drive or read. The device will give him only

about 60 pixels of sight, compared to a few million from a typical cellphone camera, but he is excited to regain some level of independence.

“It will be nice to walk down the sidewalk and know where the curb is,” he said.

Hahn says he hopes the device will be improved over time and expanded to help people with more common eye diseases, such as macular degeneration and diabetic retinopathy.

Duke-Stanford-Google X Collaboration to Study What it Means to be Healthy

A first-of-its-kind study led by Google X in collaboration with researchers at Duke and Stanford will study what it means to be healthy, down to the molecular and cellular level. Called the Baseline Study, it aims to establish a fundamental understanding of a healthy physiology and hopefully yield powerful insights into how diseases are understood, detected, and treated.

Google[x] is now conducting a small pilot study with 175

healthy people who will undergo a typical primary care exam, including the collection of body fluids like blood and saliva. After the pilot study is assessed, Duke and Stanford will collaboratively refine, design, and conduct a much larger definitive study.

“The biochemical fingerprint of a healthy individual would be a hugely important contribution to medical science, and it’s possible that this study could bring that within reach,” said Robert M. Califf, MD, the Donald F. Fortin Professor of Cardiology and vice chancellor for clinical and translational research at Duke University School of Medicine. “This could speed the pace of clinical research for decades to come and enable the development of new tests and techniques for detecting and preventing disease.”



New Single-Dose Antibiotic Heads to FDA for Review

In the battle against stubborn skin infections, including methicillin-resistant *Staphylococcus aureus* (MRSA), a new single-dose antibiotic is as effective as a twice-daily infusion given for up to 10 days, according to a large Duke-led study.

Researchers said the advantage of the new drug, oritavancin, is its potential to curtail what has been a key driver of antibiotic resistance: the tendency for patients to stop taking antibiotics once they feel better. This allows the surviving bacteria to develop resistance to the drugs designed to fight them.



G. Ralph Corey

“The prolonged activity is what makes oritavancin distinctive,” said G. Ralph Corey, MD, lead author and Gary Hock Professor of Global Health in the Department of Medicine. “This drug has a long half life, which allows for a single-dose treatment.”

Cory, a professor of medicine and infectious disease, led a three-year study of oritavancin that encompassed two clinical trials enrolling nearly 2,000 patients. Findings from the trials were published in June in *The New England Journal of Medicine* and will be presented to the U.S. Food and Drug Administration as part of the drug’s approval application.

Duke and Bristol-Myers Squibb Collaborate to Open Data Access

Duke Clinical Research Institute (DCRI) and Bristol-Myers Squibb (BMS) have entered into a novel collaboration to promote open access to clinical information from company-sponsored research studies.

The collaboration will expand transparency for BMS and use existing resources to expand access to a broader set of clinical trial information from company-sponsored studies and enable an independent scientific review through DCRI of requests from researchers. The DCRI will also review final manuscripts produced from the data for scientific integrity and consistency with the original proposed research.

“This program is a great leap forward for open science and is highly consistent with the DCRI’s mission to develop and share knowledge that improves the care of patients around the world through innovative clinical research,” said Eric Peterson, MD,

MPH, DCRI executive director.

Researchers may request clinical trial data on any BMS-sponsored interventional studies on medicines approved in the U.S. and/or European Union and completed after January

2008. Requests will be submitted through a BMS-hosted web site and forwarded to the DCRI for review by an independent scientific review committee,

including experts on biostatistics, research ethics, patient privacy, and the clinical specialty of the research.

“We believe our commitment to providing broader, more timely access to clinical trial information through this collaboration...can serve as a model for strengthening public confidence in medicines, as well as advancing science and improving public health,” said Francis Cuss, MB BChir, FRCP, executive vice president and chief scientific officer at BMS.



Eric Peterson

Duke, UNC, WUSTL Partner to Speed Drug Development

A partnership formed by Duke Cancer Institute, UNC Lineberger Comprehensive Cancer Center, and the Siteman Cancer Center at Washington University in St. Louis will become part of a national network to accelerate the pace of cancer drug development.

Working within the National Cancer Institute’s (NCI) Experimental Clinical Trials Network, the three centers will receive a grant of \$350,000 in the first year, with renewals possible for five years. Together they will conduct early

phase cancer clinical trials sponsored by the NCI to help speed drug development. More than 90 percent of new therapies don’t get past the first phase.

“We are in an exciting era of cancer therapy, with new and improved anti-cancer agents being developed and tested at a rapid pace,” said Michael Kastan, MD, PhD, executive director of Duke Cancer Institute. “These new clinical trials are particularly exciting for North Carolinians. Cancer patients in the Triangle will be the immediate beneficiaries...”

Collectively, the three institutions manage 18,000 new cancer cases each year and have enrolled more than 3,200 new patients into early phase clinical trials.

Polio Treatment for Brain Tumors Shows Early Promise

Most patients with glioblastoma live only seven to nine months after their tumors become resistant to treatment and begin to grow again. But thanks to a daring experimental treatment developed and tested at Duke, 22-year-old Stephanie Lipscomb, a nursing student and native of Seneca, S.C., is cancer-free two years after her tumor recurred.

The treatment, pioneered by Matthias Gromeier, MD, uses a modified form of the polio virus to kill tumor cells. Now being offered to other patients through a clinical trial at Duke's Preston Robert Tisch Brain Tumor Center, the polio virus treatment is the result of more than a decade of work. Gromeier initially studied the virus to learn how it causes disease. He genetically altered it so that it wouldn't cause disease in animals in an attempt to discover its mechanism of action. Then, he noticed the altered virus suppressed



Patient Stephanie Lipscomb

tumors. He demonstrated that it would grow and spread in brain tumor cells in culture, and that in mice, it would lock onto tumor cells and kill them.

After years of conducting animal studies, Duke launched the clinical trial

in 2012. Lipscomb, who came to Duke with her mother after being told she had only six months to live, became the first to enroll.

The polio virus was administered directly to her brain tumor using a catheter. At first, she endured massive swelling, and it looked like her tumor was growing. But in just a few days, tests revealed scar tissue where the cancer cells had been—the swelling was just her immune system's response to the virus. The tumor was shrinking.

Gromeier reviewed Lipscomb's MRIs with her Duke clinical physician, Annick Desjardins, MD, and went to all of her follow-up appointments. "For 16 to 18 months, I thought about her every day," he says.



Matthias Gromeier, MD, spent nearly two decades working on a modified polio virus vaccine that is showing promise against the most aggressive form of brain tumor.

Andolsek Named Assistant Dean for Premedical Education

Kathryn Andolsek, MD, MPH, HS'76-'79, has been named assistant dean for premedical education. In this role, she will serve as the primary liaison between Duke University's pre-medical school education programs and the School of Medicine. She will be the academic leader and faculty director of the new Masters of Biomedical Science degree program, aimed at preparing Duke students who are interested in a career as a health care professional or in the biomedical sciences. For the past 30 years, Andolsek has been a leader in graduate medical education at Duke, first as residency program director for the Department of Community and Family Medicine and then as associate director for graduate medical education from 2001-2014.



Kathryn Andolsek

HOST Program Seeks Alumni Volunteers

Helping our Students Travel (HOST), matches fourth-year medical students with alumni volunteers to help with travel to residency interviews around the country. Alumni volunteers provide lodging for medical students in their homes and/or offer advice to the students about life after medical school.

HOST gives alumni an opportunity to reconnect with the School of Medicine and hear firsthand about what it's like to be a Duke medical student today. Two types of alumni hosts are needed.

Physical hosts provide overnight accommodations for a student for one or two evenings and counsel students

who have questions about the residency program or the community where they are interviewing. They may offer meals, transportation, and tours.

Virtual hosts counsel students, over the phone or by e-mail, who have questions about the residency program or the community where they are interviewing.

Most hosting opportunities will be between November and January. If you would like to volunteer or need more information, please visit medalumni.duke.edu or contact Karen Bernier at karen.bernier@dm.duke.edu.

volunteer

Please visit medalumni.duke.edu or contact Karen Bernier at karen.bernier@dm.duke.edu

New Master in Clinical Informatics Degree Offered

The School of Medicine is now home to the Master of Management in Clinical Informatics degree program, which welcomed its first cohort of students this fall. Originally launched in Duke's Fuqua School of Business, it blends business and informatics courses to prepare students for man-

web link

dchi.duke.edu/education/health-informatics-programs-available-at-duke/mmci-folder

agement and executive positions in health care, such as chief medical information officer, analyst, or management consultant. Kevin Schulman, MD, MBA, is director of the 12-month degree program. Classes will be offered every other Friday and Saturday to accommodate working professionals.

agement and executive positions in health care, such as chief medical information

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Philanthropic Award to Fund Autism Study

Duke Medicine has been awarded \$15 million to support an innovative research program that explores the use of umbilical cord blood cells to treat autism, stroke, cerebral palsy, and related brain disorders.

The award from The Marcus Foundation, an Atlanta-based philanthropic organization, will fund the first two years of a planned five-year, \$41 million project by Joanne Kurtzberg, MD, chief scientific and medical officer of Duke's Robertson Cell and Translational Therapy Program, and Geraldine Dawson, PhD, director of the Duke Center for Autism and Brain Development.

Kurtzberg and Dawson hope to develop transformative cell-based therapies that can potentially restore brain function in people with the disorders, for which there currently are no cures. If successful, the study could identify therapies for further evaluation in clinical trials to potentially decrease disabilities and improve the quality of life for millions of children and adults.

The project will consist of a series of clinical trials using umbilical cord blood cells to treat a total of 390 children and adults with autism, 100 children with cerebral palsy, and 90 adults with stroke.

Based on previous research, Kurtzberg and Dawson hypothesize that cord blood may promote repair of dysfunctional or damaged areas of the brain.

Established by Bernie Marcus, the co-founder of The Home Depot, The Marcus Foundation has a long-established interest in autism, stroke, cerebral palsy, and other neurological conditions, and in stem cell research.

Kurtzberg holds professorships in pe-

diatrics and pathology. She is chief of the Division of Pediatric Blood and Marrow Transplantation, director of the Carolinas Cord Blood Bank, and co-director of the Stem Cell Laboratory.

Dawson is a professor in psychiatry and behavioral sciences in the Department of Psychiatry and Behavioral Sciences, with secondary appointments in the Department of Pediatrics and the Department of Psychology and Neuroscience.



JARED LAZARIUS

Joanne Kurtzberg and Geraldine Dawson want to develop transformative cell-based therapies that can potentially restore brain function.

Medical Alumni Weekend



Nov. 12-15 2015



 Duke Medical Alumni Association

From Basic Research to a Better Treatment

MD/PhD candidate Erik Knelson says he's "addicted" to being in the lab. But he also loves seeing patients. Pursuing both in Duke's Medical Scientist Training Program (MSTP) has led him to an exciting discovery—that an ancient blood-thinning drug may do double duty as a way to treat a rare pediatric cancer.

As part of the MSTP, Knelson (his family pronounces the K) attended two years of medical school, then began his PhD studies. He conducted research in the lab of Gerard Blobe, MD, PhD, professor of medicine and of pharmacology and cancer biology. Knelson focused on understanding the type III TGF-beta receptor, which Blobe had previously studied for its role in breast cancer, colon cancer, and prostate cancer. A neuroscience major for his undergraduate degree, Knelson wanted to understand the receptor's role in neuroblastoma, a rare but devastating tumor of nerve tissue. Others had shown that levels of this receptor are decreased in neuroblastoma cells. Why would that be?

Knelson spent more than two years studying the receptor in neuroblastoma cell lines and in mice. For instance, he decided to find out what would happen if he overexpressed the receptor in neuroblastoma tumor cells. He found that the receptor makes neuroblastoma cells start to differentiate—to begin to grow into mature cells. That was a good thing. Neuroblastoma is a cancer of immature neurons, and forcing neuroblastoma cells to differentiate and act more like adult neurons makes the cancer less aggressive. Knelson published his work in 2013 in the *Journal of Clinical Investigation (JCI)*.

The work could well have ended there; this was a good achievement for Knelson. But then he

“I loved this experience of designing a targeted therapy based on basic science work.”

got mad. He attended a guest lecture at which a drug company scientist criticized academic researchers who don't think about translating their science or about drug development. “I was sort of offended because we had just finished this great study,” Knelson says. “But then I realized he was right, and that really the only way it would mean anything to patients is if there was a therapeutic angle.”

Knelson knew that the receptor he'd been studying is what's called a heparan sulfate proteoglycan; it's shaped like the anti-clotting drug heparin. So he had thought about testing heparin in neuroblastoma cells to see if the drug would have the same cancer-inhibiting effect as the receptor. But he hadn't actually tried it.

Riled up by the lecture, Knelson went back to the lab that same afternoon and tried applying heparin to some neuroblastoma cells. Sure enough, the tumor cells started sending out tiny extensions—the first step in differentiation, and in becoming less aggressive cancer cells.

Then Knelson and his collaborators in the Blobe lab hit upon the idea of using a form of heparin that is modified so that it doesn't cause bleeding. With a Google search and a few e-mails and phone calls, Knelson got in touch with the CEO of a company that already makes such a product. The company agreed to supply the drug. The team showed that the modified heparin stopped the growth of neuroblastoma in cell lines and in mice better than a current neuroblastoma treatment, retinoic acid, which works by encouraging differentiation. Within six months of that first experiment with heparin, the team was submitting another publication to *JCI*, this time pointing toward a possible new therapy for neuroblastoma.

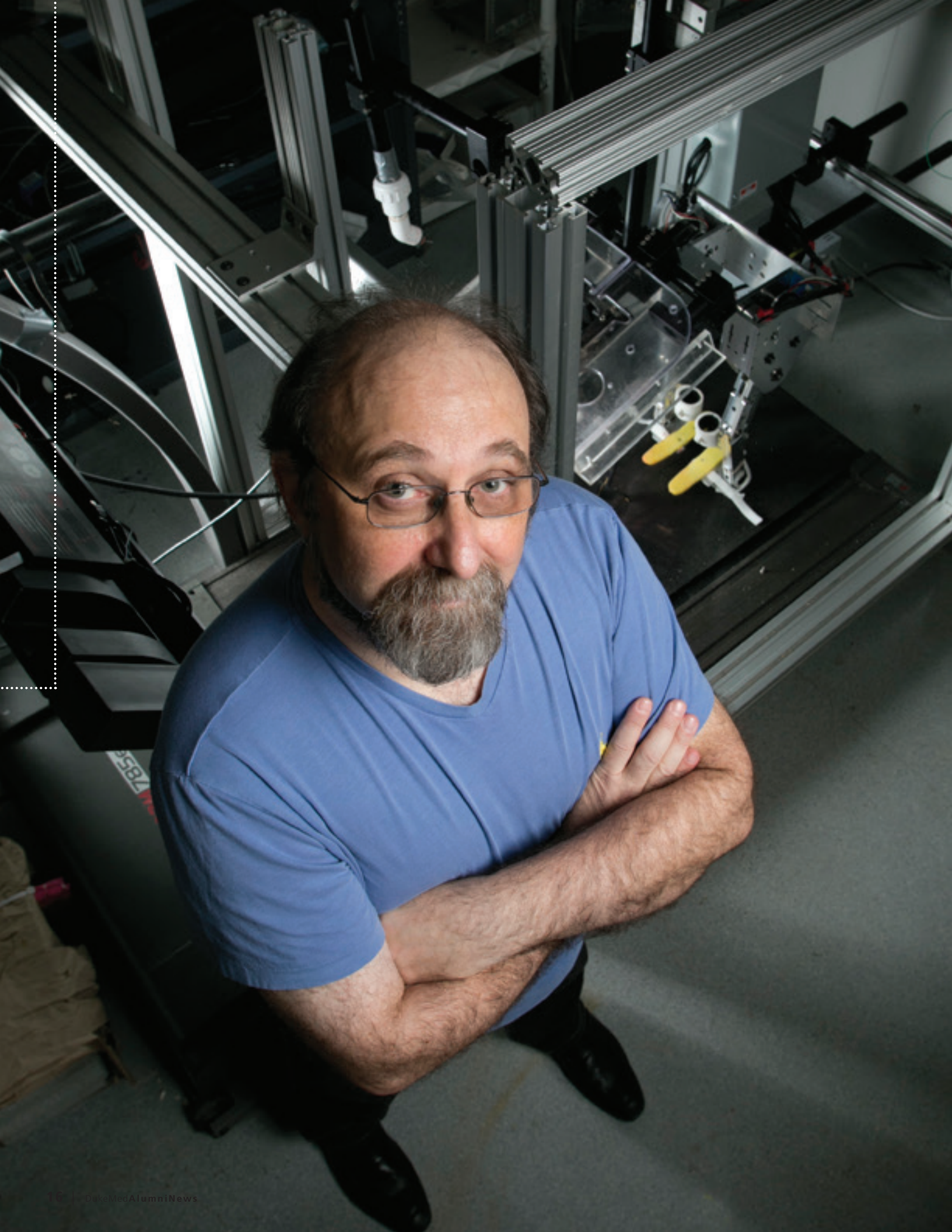
Now Knelson has finished his PhD and is back in his last year of medical school, seeing patients on elective rotations. Meanwhile, the Blobe lab continues to develop the heparin treatment, conducting more studies in mice and aiming to find funding for a clinical trial. The scientists hope that modified heparin can be combined with retinoic acid or other agents to improve neuroblastoma treatment. Right now survival rates in children with advanced neuroblastoma are less than 40 percent.

Knelson and team conducted the heparin work in a frenzy of only six to eight months. But the two years of basic science he had done prior to that laid the foundation. “It was our certainty about the mechanism that led to the insight to use heparin and enabled us to get the project done so quickly,” he says. “I loved this experience of designing a targeted therapy based on basic science work.” Knelson plans to become an oncologist and researcher.

This work was funded by grants from Alex's Lemonade Stand and the National Institutes of Health.

—Angela Spivey





Mind Over Matter

MIGUEL NICOLELIS'S QUEST TO HARNESS THE POWER OF THE BRAIN

Miguel Nicolelis, MD, PhD, emerged from the tunnel of the Arena de Sao Paolo into the brilliant Brazilian sunlight. The scene before him was breathtaking: dancers twirled around an enormous planet-like soccer ball pulsing with multicolored lights at midfield, music blared over the stadium's speakers, and the stands were a cheering, roaring sea of yellow and green, the Brazilian national colors.

Nicolelis was nervous. He and a team of over 150 collaborators had been racing the clock for almost a year and a half in order to get to this moment. If they failed, they would fail in front of nearly 70,000 people in the stadium and hundreds of millions around the world watching the 2014 FIFA World Cup Opening Ceremony on television.

"It was the most intense feeling I've ever had as a scientist," says Nicolelis, a distinguished Duke School of Medicine Professor of Neuroscience and co-director of the Duke Center for Neuroengineering. "I was running an experiment in front of a billion people. We knew there was a significant chance of something going wrong: a



Above, one of the initial rough sketches of the robotic exoskeleton by Miguel Nicolelis. At left, paraplegic Juliano Pinto, controlling the exoskeleton, kicks a soccer ball at the FIFA World Cup.

BY DAVE HART

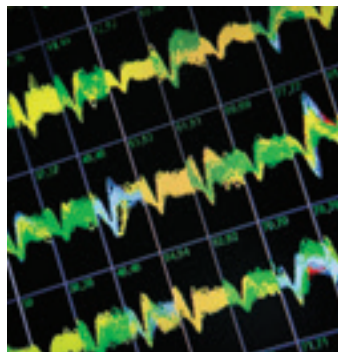


Nicolelis chose a vast stage for the exoskeleton demonstration: the 2014 FIFA World Cup Opening Ceremony in Sao Paolo, Brazil.

hydraulic line malfunctioning, a circuit failing, anything. It's like launching a rocket. You do everything you can to make sure everything works, but until it happens you don't know."

One person in the 25-member team with Nicolelis in the stadium seemed unusually calm and confident. Juliano Pinto, a 29-year old Brazilian, had been confined to a wheelchair, with no movement or feeling in his legs, ever since he had suffered a complete lesion of the upper thoracic spinal cord in an automobile accident six years earlier, leaving him totally paralyzed from the mid-chest down.

Several assistants helped Pinto out of the golf cart that had carried him through the tunnel and into an extraordinary device called a robotic exoskeleton, a full-length frame fitted with hydraulic lines, mechanical joints, and digital circuitry. His legs were strapped



Mind Over Matter

to the exoskeleton's legs, and on his head he wore a special cap equipped with electroencephalogram sensors. If all went as planned, the device would allow Pinto to do something that not long ago would have been called a miracle.

Most of us walk or run or kick a soccer ball just by thinking about it: our brain sends the "kick" signal to our legs, and they kick. In Pinto, or any other paraplegic, the channel that carries that signal has been severed. Nicolelis and his collaborators designed and built the exoskeleton and EEG cap to bypass the broken connection; the sensors should read Pinto's neuronal signals and transmit them to the exoskeleton, which should respond accordingly: in this case, by making a kicking motion. The person attached to it essentially wills it, and by extension his legs, into motion.

Pinto placed his arms on the exoskeleton's armrests. Sensors there lit a series of blue lights, indicating that the exoskeleton was correctly receiving

his brain waves. Nicolelis checked the timer on his phone. Pinto's kick, the ceremonial kickoff of World Cup 2014, was supposed to take place precisely 18 minutes and 33 seconds into the tightly scripted ceremony. At the appointed moment Nicolelis signaled his team. A former Duke graduate student, Solaiman Shokur, PhD, knelt and placed a soccer ball at Pinto's feet.

Pinto concentrated. He thought, "Kick." And, in a remarkable feat of mind over matter, he kicked.

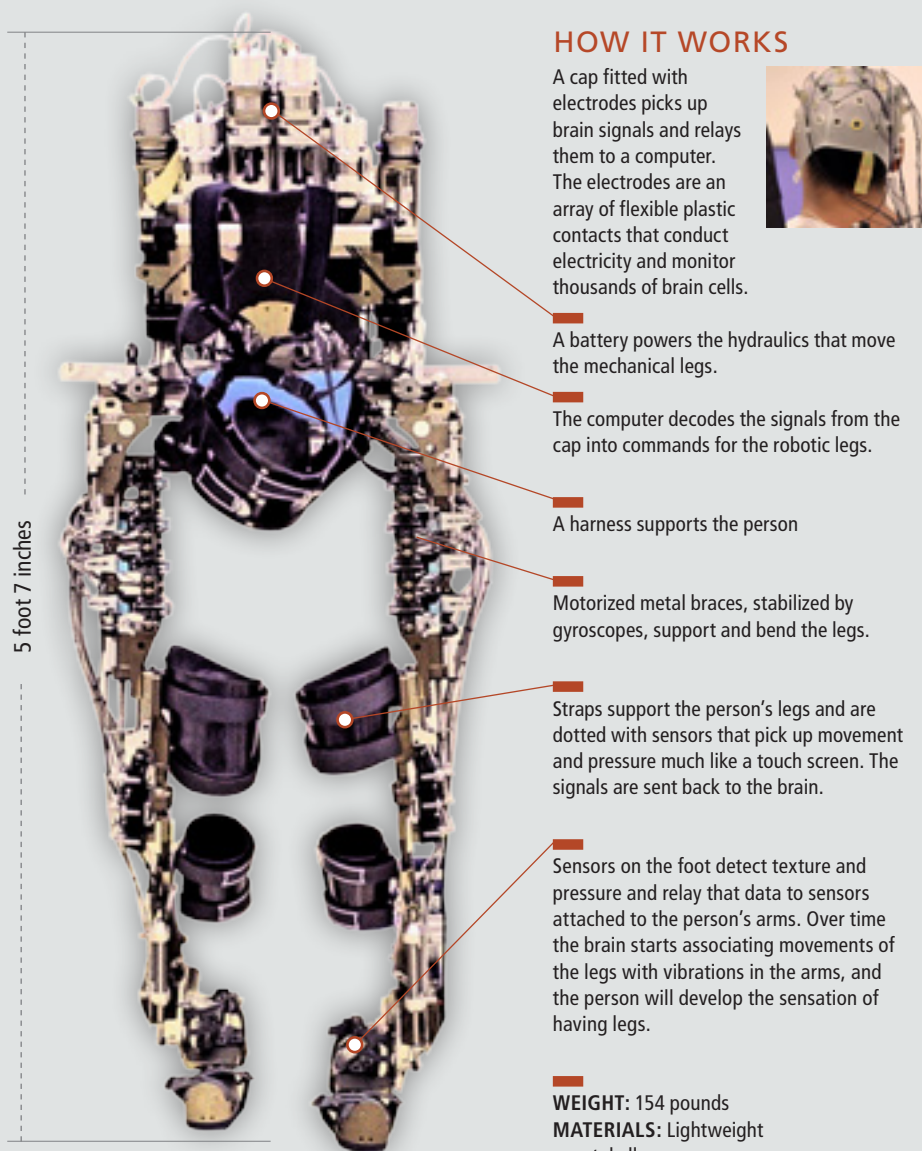
A GLIMPSE OF THE FUTURE

Pinto's right leg flexed backward about 30 degrees and then swung forward to make contact with the ball, which rolled several feet. By World Cup standards, it was a humble kick indeed—but that gentle tap offered a glimpse of a future in which people might be liberated from the physical limitations of the body, in which patients with paralysis might one day be able to use their minds to power their legs and walk again.

For Nicolelis, the World Cup represented the culmination of 17 months of almost ceaseless work—and, in a larger sense, of the two decades he has spent at Duke conducting the research that ultimately led to Arena de Sao Paolo.

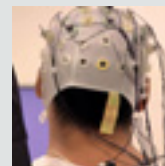
He and his team established the laboratory, built the exoskeleton, and trained the patients for the World Cup demonstration in Brazil because that's where the World Cup was, and because the Brazilian government funded the project, along with ancillary programs, with a \$14 million grant. It didn't hurt that Nicolelis was born, raised, and earned his medical and doctoral degrees in Sao Paolo.

But the whole thing was built on years of work he and his lab have done at Duke developing Brain-Machine Interface (BMI) systems that use neuronal signals to control and



HOW IT WORKS

A cap fitted with electrodes picks up brain signals and relays them to a computer. The electrodes are an array of flexible plastic contacts that conduct electricity and monitor thousands of brain cells.



A battery powers the hydraulics that move the mechanical legs.

The computer decodes the signals from the cap into commands for the robotic legs.

A harness supports the person

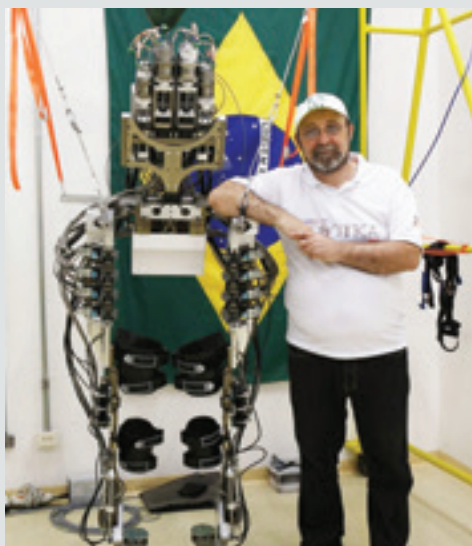
Motorized metal braces, stabilized by gyroscopes, support and bend the legs.

Straps support the person's legs and are dotted with sensors that pick up movement and pressure much like a touch screen. The signals are sent back to the brain.

Sensors on the foot detect texture and pressure and relay that data to sensors attached to the person's arms. Over time the brain starts associating movements of the legs with vibrations in the arms, and the person will develop the sensation of having legs.

WEIGHT: 154 pounds

MATERIALS: Lightweight metal alloys



"We knew what we wanted to do, but we had never built such a complex device. How close did we cut it? I tell people we made it by about 30 minutes."

Miguel Nicolelis

manipulate external devices.

“This entire story was done here,” says Nicolelis. “That’s something I feel very good about, because it came almost exactly 20 years after I came to Duke. The entire thing, from the early experiments in rats and then monkeys and now this, was done at our brain control lab at Duke. I think it’s something we ought to celebrate as an institution, because the intellectual development of this entire story belongs to this place.”

BRAIN POWER

That story grew out of work Nicolelis originally did with his postdoctoral fellowship advisor, John Chapin, at Philadelphia’s Hahnemann University after he came to the U.S. in 1989, and it expanded after he arrived at Duke as an assistant professor in 1994. In the late 1990s, Chapin and Nicolelis devised tiny sensors that, when implanted in specific neuronal regions of rats’ brains and connected to a BMI, allowed the rats to operate a robot arm without physically touching any controls, using only their brain activity.

In subsequent experiments, Nicolelis and his colleagues moved from rats to primates and expanded the range and complexity of their actions. An owl monkey named Belle used her brain activity via a BMI to move two sets of robotic arms at once, one in the lab where she sat at Duke and the other at the Massachusetts Institute of Technology. A rhesus monkey named Aurora learned to play a video game using only her thoughts. And in 2008, Nicolelis and his colleagues made international news when they had a rhesus monkey at Duke named Idoya propel a 5-foot-tall humanoid robot to walk on a similar treadmill—7,000 miles away, in Kyoto, Japan—just by thinking about it.

Perhaps the most obvious potential clinical application of the concept would be to restore the transmission of signals from brain to limbs via BMI prosthetics in patients with paralysis.



Senior research scientist Mikhail A. Lebedev and Nicolelis track the progress on computers as a patient’s neuronal signals communicate with the machine.

Nicolelis began thinking about creating an exoskeleton that could allow such patients to move their legs with brain activity alone.

Shortly after the Idoya experiment, Brazil was awarded the World Cup. To Nicolelis, a lifelong Brazilian soccer fan, the tournament represented an extraordinary opportunity.

“The Brazilian government wanted to showcase the country,” he says. “They wanted to highlight things besides music and soccer, like innovation, science, medicine, and technology, things that could give hope to millions of people around the world. I was able to visit the president and make a presentation to her. I said, ‘I can help a paraplegic Brazilian patient kick off the World Cup using a brain-controlled exoskeleton.’ She loved it, and she decided that we should go for it.”

PHANTOM LIMB

Nicolelis was going out on a limb. He had no brain-controlled exoskeleton, not even a prototype, and even if he could make one, he had no proof that it would work. He needed collaborators and money, lots of both. For the first, he established the Walk Again Consortium, a team of more than 150 scientists and engineers from around the world. For the second, the Brazilian government agreed to provide some \$14 million to fund the project.

But all of that took time—the funding wasn’t approved until January of 2013—and the clock was ticking: World Cup 2014 would begin on June 12, 2014, exoskeleton or no exoskeleton.

“We had 17 months, and we had to go from nothing,” Nicolelis says. “We had to build a robot. We had to figure out the interface. We had to train the patients. We knew what we wanted to do, but we had never built such a

complex device. How close did we cut it? I tell people we made it by about 30 minutes.”

The team built a lab in Sao Paolo and pitched into the work to design and build the exoskeleton and support systems. They identified eight patients, six men and two women, all of whom were paralyzed below the waist, and began training them on the exoskeleton.

There were a thousand hurdles. But the biggest single technological challenge turned out to be a fundamental, though perhaps not immediately apparent, issue: giving the patients not only the power of movement, but also the sense of touch.

“Everybody thinks, ‘Let’s restore the motor component, let’s get the legs to move,’” says Nicolelis. “But the biggest discovery of this whole project, to me, was the importance of the tactile feedback. Without that, the patients felt like they were floating. They felt ungrounded, unsupported by the earth, and it was pretty scary. They found it very unsettling.”

Nicolelis’s team solved that problem by developing a system of sensors attached to the patients’ forearms that vibrated whenever their knees bent or their feet touched the floor. Their brains quickly adapted to interpret the sensation in the arms as the feeling of their legs moving and their feet touching the ground.

“When the foot is planted on the ground, they feel the pressure in the arm,” Nicolelis says. “After you do that for a few minutes, your brain gives you the illusion that you’re feeling your feet as you walk. In a way, we create a phantom limb sensation.”

FALLING INTO PLACE

As the World Cup drew near, everyone—scientists, engineers, and patients—stepped up the pace even more. It was exhausting work, maybe especially for the eight patients. Making their legs move was not a simple

matter of thinking, “Walk.” It required enormous concentration, especially at first, and after they mastered the basics Nicolelis and his team began putting them through their workouts in a sort of virtual World Cup atmosphere.

“We would give them a lot of distractions: flashing lights, recordings of the loudest, most obnoxious soccer fans we could find,” Nicolelis said. “We wanted to know they could do it in the real world. But it becomes natural, like learning to ride a bike. At the beginning you had to think very hard about every movement, but then it falls into place. The brain adapts.”

In Sao Paolo, all eight patients learned to walk using their thoughts and the BMI exoskeleton. Pinto became the most adept, so he was chosen to make the World Cup kick.

As the Opening Ceremony got underway, deep within the stadium Pinto did one last practice kick. Perfect. Then he, Nicolelis, and the rest of the team headed for the light at the end of the tunnel.

‘NOT JUST A KICK’

In the end, a lot of things did not go as planned, says Nicolelis. The stadium announcer was supposed to direct the crowd’s attention to Pinto. That didn’t happen.

The television announcers were also supposed to alert viewers to the kick, and the broadcast was supposed to cut to Pinto for a full 30 seconds to show his approach, the kick, and the celebration. Those things didn’t happen, either. The TV broadcast cut to Pinto too late, and without any introduction. It happened so quickly that many viewers missed it entirely.

Nicolelis hasn’t gotten answers to what went wrong. But the goofs didn’t really matter, he says, because all the important things went right. Pinto kicked the ball, then yelled and thrust his right arm skyward in triumph. For a moment, everyone in the team seemed

“But the biggest discovery of this whole project, to me, was the importance of the tactile feedback. Without that, the patients felt like they were floating.”

Miguel Nicolelis



Juliano Pinto, a 29-year-old Brazilian man paralyzed from the chest down, prepares to make his historic kick.



Nicoletis, Pinto, and other members of the team celebrate after the successful demonstration.

overwhelmed; for them, too, after so much work and sweat and worry, it was all over so fast.

Nicoletis approached Pinto. The young man was beaming, and he had tears in his eyes. “I felt it,” he told Nicoletis. “I felt the ball.”

“When he said that, that’s when I broke,” Nicoletis said. “Because that’s what we wanted. We wanted him to have a whole experience, not just a kick. I’ll never forget it. We were all crying.”

NEXT STEPS

Back when Nicoletis arrived at Duke two decades ago, he never dreamed that his work would eventually lead him back to Sao Paolo and one of the world’s biggest stages.

“Are you kidding?” he asks. “This Brazilian kid gets hired at Duke University, where my neighbors are all from Caltech and MIT and Harvard. I just wanted to survive.”

He still has some mementoes to remind him of those early days. Underneath a window in his office at Duke’s Bryan Research Building stands a cracked black leather couch, and on the floor is a small boxy television set.

“Those were the first things I bought when I came to the U.S.,” he says. “My first encounter with the American Dream was that color TV and this couch to sleep on. I learned English by watching David Letterman’s old show on that TV.”

As for the future, he and his colleagues are planning a second exoskeleton prototype that will incorporate much of what they learned from the first one. The next one should be lighter and more maneuverable, he says.

“The patients told us they don’t need some of the things we thought they would, so we can remove those and bring the weight down,” Nicoletis says. “And we want to make it fully autonomous, so that a person could really walk around and turn and accelerate and slow down.”

THE INDISPENSIBLE MACHINE

The World Cup demonstration, which drew a great deal of publicity, also attracted its share of critics. They point out that other researchers are doing groundbreaking work in BMI, robotic prosthetics, and even exoskeletons too—just not in front of international TV audiences. Some scientists have questioned whether the scientific progress the project represents matches the attention it’s gotten.

Nicoletis says the discoveries and successes the Walk Again Consortium achieved represent significant scientific and technological gains and plant the seeds for future advances. The project will inform and influence the next generation of BMI devices, he says, perhaps most importantly in the area of tactile feedback.

What is clear is that the breakthroughs in BMI in the past 20 years have implications almost beyond calculating.

“I cannot even imagine what all the applications might be, but obviously there’s a huge list of possibilities,” says Nicoletis. “Eventually I’d expect the robotics to become much lighter, almost like a suit. We’ll need new, softer materials and new controls.”

Whatever technological breakthroughs await, the only really indispensable machine is the soft one encased inside the human skull. It is the extraordinary adaptability of the brain that has made possible any of the BMI work Nicoletis and others have spent the last two decades working on. Discoveries about the remarkable plasticity of the human brain have changed the entire field of neuroscience, Nicoletis says.

“When I came to the U.S. in 1989, the brain was still seen as a piece of engineering,” he says. “After childhood, people thought, it was fixed, carved in stone. But it’s not like that at all. It is never stable. It’s constantly in flux. And that has dramatically changed the way we approach the brain, intellectually and medically. That’s the main message of the 20 years of work I’ve done here.”

Partnering to Fight Cancer



“We wanted to make sure Duke has the funding to keep good people.”

Elizabeth Harden, MD’78, HS’81-’84, and Richard Hoefler, DO,

have known the value of a good partnership since they met 30 years ago, while both were serving in the Air Force in Texas. They’ve been a couple ever since, in life and in work. Harden, a medical oncologist, and Hoefler, a surgical oncologist, work in different practices in Newport News, Va., but they regularly collaborate on the same patients. “You can’t be a good medical oncologist by yourself,” Harden says. “You need surgeons, radiologists, radiation oncologists.”

Duke Cancer Institute’s mission to bridge boundaries to provide multidisciplinary cancer care led Harden and Hoefler to make an estate gift that supports both of their professional passions, in the form of an endowed pilot fund and a professorship. “Bench research that gets translated to the bedside gives me the tools I need to take care of my patients,” Harden says. A professorship rounds out their gift. “We wanted to make sure Duke has the funding to keep good people.” Hoefler says.

Harden’s Duke education and training influence her daily. “The Duke colleagues I met and continue to work with and the excellence demanded of us made me the doctor I am today,” she says.



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joseph.tynan@dm.duke.edu

Diagnosis, At Last

By applying a research tool to baffling clinical cases, Duke scientists are changing the lives of children with rare genetic diseases.

by Angela Spivey

Cara Greene, just turned two, rocks on a toy fire engine at a park near Duke University Medical Center. “I’m riding on a fire truck,” she exclaims with joy, raising her hands in the air.

Just four months earlier, Cara’s arms were practically paralyzed. Her parents and doctors were baffled as to how to help her.

A research study led by Duke geneticists David Goldstein, PhD, and Vandana Shashi, MD, changed that.

Cara is just one child the Duke team has helped using

next-generation genetic testing. By sequencing only the genes that actually code for proteins (the exome, which is where most genetic diseases arise), scientists can save time and expense. Poring over exomes in minute detail has led to answers that have made a big difference in some families’ lives. As a result, Duke has been named one of six clinical sites in the Undiagnosed Diseases Network, sponsored by the National Institutes of Health. Each site will receive grants of about \$7.2 million over four years to investigate baffling cases.

Goldstein and Shashi hatched their first collaboration on a drive back from a National Institutes of Health meeting in Washington D.C. Flights to Durham were canceled because of bad weather. The two, who hadn’t met before, rented a car along with Duke psychiatrist Joe McEvoy, PhD. Talking about her clinic, Shashi mentioned her frustration when she had exhausted all of the clinical genetic testing available but still couldn’t find an answer. That happens with about half of the patients seen in most genetics clinics. Goldstein brought up exome sequencing and how it would one



David Goldstein, PhD, is the Richard and Pat Johnson University Professor of Cardiovascular Genomics, a professor of molecular genetics and microbiology, and director of the Center for Human Genome Variation.

Vandana Shashi, MD, is associate professor of pediatrics.



Cara Greene, here with her parents Clayton and Kristen, can play again after Duke geneticists diagnosed and treated the rare genetic disorder that had almost paralyzed her arms.

day change medicine. They had the whole study planned by the time they got back to Durham.

IN LATE 2013, CARA WAS A BUSY TODDLER pushing her stuffed animals around in a stroller. Just two weeks before Thanksgiving, she had a high fever. Shortly after she recovered, she began having abnormal eye movements—fast back-and-forth and up-and-down motions (nystagmus).

A neuro-ophthalmologist at Duke Eye Center ruled out a brain tumor. Over the next few weeks, Cara's fingers began trembling while she sat in her high chair trying to pick up food. Her parents, Kristen and Clayton, who lived in Raleigh, N.C., at the time, brought her to Duke every week for an appointment or test. Because of the fever that preceded the trouble, pediatric neurologists suspected an autoimmune disease. But none of Cara's symptoms completely matched the possible diagnoses. Then, in January, a test showed that her retinas weren't functioning properly. Cara's doctors admitted her to the hospital. They called in Shashi because the retina abnormality suggested a genetic disorder.

Shashi talked with Kristen and Clayton about sequencing Cara's exome via a commercial clinical lab. But no one was convinced that the problem was genetic because it had started so suddenly. Maybe the retina test result was a false positive. Cara's doctors and parents hoped they were on the right track with an autoimmune diagnosis. Cara had been started on a treatment for that—steroids and intravenous immunoglobulin.

When the Greenes next saw Shashi, in February, the treatment had yielded mixed results. Some of Cara's symptoms would lessen for a week or so, but then they'd come back. And she had new problems. She had begun having trouble swallowing. She could no longer raise her arms to steady herself, so if she stumbled, she would fall flat on her face. Cara became scared to try to walk.

Shashi offered to sequence Cara's exome as part of the collaboration with Goldstein. Exome testing through a commercial clinical lab would take three to six months, but Shashi could expedite it if it were done at Duke.

A WHOLE TEAM OF SCIENTISTS SCoured THE EXOMES of Cara and her parents for clues. After DNA sequencing and computer processing, the scientists ended up with a list of mutations that were possible suspects. Slave Petrovski, PhD, a postdoctoral fellow in Goldstein's lab, went over the list gene by gene, narrowing it down based on information about Cara's symptoms and the various genes' functions. After the list was culled to half a dozen or fewer mutations, the entire team reviewed it. "This is a lot of attention to each individual exome, much more than would be done clinically," Goldstein says.

Just three weeks after Petrovski began poring over the data, he e-mailed Shashi. Cara had two mutations in a gene associated with a rare condition called Brown-Vialetto-Van Laere syndrome (BVVLS) that can strike anywhere from infancy to young adulthood. Both of Cara's mutations would knock out a protein that transports riboflavin (a B vitamin) inside cells. Previously there was no good treatment for the disorder, but just in the past two years, other researchers have discovered that high doses of riboflavin helped a few patients dramatically.

Because the exome testing was part of a research project, normally the findings would not be presented to the patient's family until they were confirmed by an independent clinical lab. But even an expedited clinical test would take three weeks. Shashi didn't want to wait that long. "Cara was continuing to deteriorate," she says. "We decided we needed to act on this quickly." The team explained the urgency to the chair of the Institutional Review Board (the organization at Duke that approves research involving human participants), and an exception was granted.

THE TEAM GAVE THE GREENES THE NEWS THAT SAME WEEK, and Shashi prescribed Cara a high dose of riboflavin (1,500 times the daily requirement). Kristen was so eager to do something to help her daughter that she picked up the prescription at the Duke Children's Hospital & Health Center and gave Cara a dose in the lobby.

Four months after that first dose, Cara is doing much better. She can play again, though she tires easily. She no longer has trouble swallowing, and she's regained some of the movement in her arms. "She really likes to stand in front of a full-length mirror and watch herself lift her arms up in the air," Kristen says. "She looks in the mirror and gives herself a high five."

Why does such a simple treatment work? Shashi explains that normally, three proteins control riboflavin transport among cells. Cara's mutations meant that one of those three was missing. The high dose of riboflavin likely floods the two remaining working proteins, so they can pick up the slack.

In other children, BVVLS has progressed so far that the respiratory muscles weakened, requiring use of a respirator. Riboflavin therapy has reversed that for some. Kristen and Clayton are thankful that they found a diagnosis for Cara as soon as they did. They had feared that if Cara's condition were genetic, there would be little they could do to help her. "The exome testing saved Cara's life and is giving her a chance at life again," Kristen says.

EVEN WHEN A DIAGNOSIS DOESN'T LEAD to such dramatic improvement, simply having a name for a disorder can provide relief, as it did for Matt and Cristina Might of Salt Lake City, Utah. Duke's diagnosis for their son Bertrand



The exome testing saved Cara's life and is giving her a chance at life again."

Kristen Greene
Cara's mother

revealed a never-before-discovered genetic disorder and helped the Mightys find that they, and Bertrand, are not alone.

The Mightys had been seeking answers for Bertrand since he was six months old. He had liver damage, developmental delays, and what doctors thought was a movement disorder. The family came to Duke in 2009 hoping he could benefit from a bone marrow transplant. Extensive testing ruled that out. Shashi was part of the team that examined Bertrand, and the family kept in touch with her and with genetic counselor Kelly Schoch. "If you meet Dr. Shashi and Kelly, you can't help but fall in love with both of them," Cristina says. "We put them on our Christmas card list, and we exchanged e-mails whenever anything important was going on in Bertrand's life." Almost two years after she met the Mightys, Shashi invited them to participate in the study that she and Goldstein were conducting. They jumped at the chance.

The Duke team found that Bertrand had two mutations in a gene called NGLY1. Animal studies have shown that this gene instructs the body to produce an enzyme that recycles particular types of protein if they are misfolded.

As far as the Duke scientists knew, Bertrand was the only

person ever discovered who was missing this particular enzyme. A known set of disorders exists, called glycosylation disorders, in which people have genetic mutations that prevent these proteins from being produced. But never before had someone been found with a disorder caused by a mutation that prevents the body from getting rid of them when they've gone awry.

To be sure, Goldstein e-mailed glyco biologist Hudson Freeze, PhD, of Sanford Burnham Institute in California. "He's probably the biggest glyco biology guy around," Goldstein says. "We wanted to check our thinking against his." They asked Freeze: if someone had mutations in these two genes, what problems would it cause? Much of what Freeze described fit Bertrand's symptoms.

When Goldstein and Shashi shared the results with the family, they told them that Bertrand likely had a previously undiscovered genetic disorder—NGLY1 deficiency. But the only sure way to confirm it would be if other patients with the same mutations and the same symptoms were found.

The Mightys got to work. Matt, an assistant professor at the University of Utah's School of Computing, is prominent online. He posted an essay about Bertrand's diagnosis to his personal web site, and the next day, a tech blog asked to republish it. Other sites followed. Within months, the Mightys had connected with several other families of children with conditions similar to Bertrand's. So far, largely thanks to the Mightys and social media, 15 other people have been diagnosed with NGLY1 deficiency.

A scientific paper describing the work was published online March 2014 in the journal *Genetics in Medicine*. It was accompanied by a commentary by Matt Might and Matt Wilsey, father of one of the other children subsequently diagnosed with NGLY1 deficiency, detailing how collaboration between physicians and families can accelerate progress. In July 2014, *The New Yorker* covered the Mightys' story.

WHEN GOLDSTEIN REACHED OUT TO HUDSON FREEZE, it opened up a new partnership for the Mightys. "What impressed me about the team at Duke is that they are very willing to collaborate, within Duke or outside of Duke," Matt says. The Mightys are now consulting with Freeze on Bertrand's treatment and have raised money for his research to understand NGLY1 deficiency. Though there are no known treatments for the disorder, the diagnosis did lead to modifying care for Bertrand, who attends daily therapy and loves the *Sesame Street* character Elmo. With Freeze's help, Matt and Cristina have changed his regimen of nutritional supplements. "It gives him more energy and makes him happier," Cristina says. "That is the most important thing for us, that he be happy." ♡

1950s

Wilma Jeanne C. Diner, MD'50, lives in a retirement facility in Little Rock, Ark. She is not active professionally but stays close with her former colleagues at the University of Arkansas for Medical Sciences Medical Center. An ongoing event held there each year is the Diner Memorial Lecture in Radiology, which was established in memory of her late husband, Jack Diner.

Donald Tucker, MD'58, BS'59 (medicine), HS'58-'62, ♣, of Greenville, N.C., recently was recognized by his colleagues, staff, and patients at Physicians East with a street named in his honor. The drive leading to the central office of the practice was dedicated as "Dr. Donald Tucker Way." Now retired, Tucker founded the Greenville-based private medical practice 33 years ago. Physicians East is eastern North Carolina's largest private medical-surgical multi-specialty practice.

Irwin M. Freundlich, MD'59, ♣, writes that he retired "at long last" in June 2014. He is professor *emeritus* at the University of Arizona. "Much credit belongs to Duke," he writes. His first granddaughter graduated from Denison College in the spring, and he has three grandsons starting or about to start college. He lives in Tucson, Ariz.

1960s

Angus McBryde, MD'63, ♣, recently participated in a volunteer humanitarian trip to Vietnam organized by the American Orthopaedic Foot & Ankle Society (AOFAS). McBryde, an orthopaedic foot and ankle specialist who works for University Orthopaedics in Columbia, S.C., was one of a group of AOFAS physicians who evaluated more than 212 patients and performed surgery on 79, all at no cost to the patients, during the two-week trip. McBryde worked with other volunteers in Viet Duc Hospital in Hanoi. He also saw patients and performed surgeries in the cities of Vinh and Yen Bai. Facilities and equipment varied, but he and the other AOFAS volunteers provided corrective surgery and other

care for children and adults with lower extremity deformities, disabilities, and injuries.

Richard Gorenberg, MD'64, HS'64-'65, has been in private practice for 41 years as a gynecologist. He and Caren, his wife of 51 years, have four children: Hayley, a civil rights attorney in New York; Peter, an ophthalmologist in San Francisco; Jamie, a comedy writer for Warner Brothers television in Long Beach, Calif.; and Michael, a film editor based in Boston.

Frederick L. Grover, T'60, MD'64, HS'64-'66, ♣, of Denver, Colo., stepped down as chair of the University of Colorado Department of Surgery two years ago, but is still an active faculty member. He focuses his work on quality improvement locally and nationally. He serves on a national quality forum committee and is actively involved with quality databases for the Society of Thoracic Surgeons and the American College of Cardiology. He also serves on the Board of Trustees of the Iliff School of Theology. He and his wife Carol have two sons, Fred Jr. and Richard, who live near them in Denver. Both sons are married with two children each. The whole family enjoys skiing together in the winter and fishing and hiking in the Rockies in the summer.

Robert C. Noble, MD'64, traces his life from growing up in Raleigh, N.C., to his medical school graduation in his memoir, *Memories*. For more information visit robertcnoble.com.

Frederick L. Ruben, T'60, MD'64, ♣, retired after 25 years in academic medicine as a professor of medicine at the University of Pittsburgh, and after 13 years as medical director at Sanofi Pasteur. He has spent time post-retirement volunteering for conservation and community development. He finished his 10th marathon at the age of 70 and ran his first half-marathon at 74. He and his wife Mary Kathryn Reeves-Hoche have two sons and two grandchildren. They moved to Singapore in June of 2014 for three years for Mary Kathryn's work,

and after that they plan to retire to Southern California.

Donald Serafin, T'60, MD'64, is a plastic surgeon in private practice in Durham. He also is a staff plastic surgeon for Womack Army Medical Center in Fort Bragg, N.C.

Larry Rogers, MD'65, HS'65-67, ♣, has published a memoir of his time serving in Vietnam: *Sword and Scalpel: A Doctor Looks Back on Vietnam*. His experiences include reviving a soldier left for dead in a makeshift morgue and resuscitating another by rigging a defibrillator from an auxiliary generator and strips of radio-antenna wire. For more information about the book, visit hellgatepress.com. Rogers practiced neurosurgery in Charlotte for 27 years.

William David Price, MD'66, retired from solo private ophthalmology practice in March 2012 and was hired by the Veterans Administration in August 2012 to practice medical ophthalmology in a demonstration project between the VA and the Department of Defense to see if they could share assets and save money. He practices in a stand-alone eye clinic on the Naval Weapons Station, Goose Creek, S.C., which, along with Charleston Air Force Base, makes up Joint Base Charleston. He treats veterans, active duty service members, retirees and their dependents.

Richard L. Miller, MD'68, and his wife Joyce have retired after 38 years of practicing dermatology in a solo practice. Joyce worked as his office manager. For the time being the couple will reside in Setauket, N.Y. They have three children, **Jennafer, T'91**; **Aaron, T'95**; and **Stephanie, T'98**; and three grandchildren, Cameron, Michaela, and Logan.

Richard H. Dixon, MD'69, retired after 35 years as a medical oncologist, director of the Penn State Cancer Center at State College, director of the Mount Nittany Medical Center Clinical Research Program, and clinical professor of medicine at the Penn State School

of Medicine. He spends his time wood-working, reading, gardening, traveling, and enjoying life with his wife and family. "I can honestly say I never used my knowledge of those lipid pathways I had to learn in biochemistry," he says. "But I won a nickel from Dr. Stead." He has been married to his wife Nancy since 1966. They have four sons: a colonel in the United States Marine Corps, a high school principal, an editor for the *New York Times*, and a television editor and producer. Their nine grandchildren range in age from 2 to 20.

Melvin L. Elson, MD'69, HS'71-'73, ♣, still sees a few dermatological patients, but he spends most of his time traveling around the world teaching cosmetic procedures; he's been to 51 countries so far. He recently published his third book, *Skin Scam: Dying to Be Beautiful*, and he does some work with Duke-National University of Singapore in Singapore. He and his wife Betty are preparing to celebrate their 50th anniversary. Their eldest daughter **Angela, T'87**, lives in Florida and has two sons. The Elsons have established a scholarship at Duke University School of Medicine and have enjoyed meeting some of the recipients.

C. Stephen Foster, T'65, MD'69, is a professor of ophthalmology at Harvard Medical School and president of Massachusetts Eye Research and Surgery Institution (MERSI). He also is CEO of the Ocular Immunology and Uveitis Foundation. His wife Frances is a nurse practitioner and partner at MERSI. She also is a partner in endowing the annual Stephen and Frances Foster Lecture at Duke and the Stephen and Frances Foster Endowed Professorship in Ophthalmology.

Donald Marger, T'65, MD'69, writes that his most recent personal achievements include taking banjo lessons. He and his wife Carole celebrated their 48th wedding anniversary in 2014. They have three children, **Richard, T'90, MD**; **Michelle**; and **Brian, T'93**; and eight grandchildren.

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♣ = Davison Club

A Leap for Heart Regeneration

Charles E. Murry, PhD'88, MD'89, reported in the May 2014 issue of the journal *Nature* that he had used human embryonic stem cells to regenerate heart tissue in monkeys. Such cells had been used to grow new heart tissue in smaller animals such as mice, but this is the first time these cells have been grown in sufficient quantities to populate and beat in the heart of a large primate like a monkey. "People had thought it was possible to do something like this, but nobody had taken a deep breath and made the leap," says Murry, the Arra and Eva Woods Professor of Pathology, Bioengineering and Medicine/Cardiology at the University of Washington.

The next goal? Implant the new heart tissue into primates with actual heart failure, then measure function with magnetic resonance imaging, as would be done in human patients. The biggest challenge for Murry's team will be eliminating a serious unwanted side effect of the stem-cell-grown tissue—arrhythmias that developed in the primates, but not in smaller animals with faster heartbeats. Monkeys' hearts beat more slowly, closer to the rate of a human heart, which is what likely revealed the problem. "This showed the benefit of doing things in large animals that are human sized," Murry says. "We think the problem stems from putting pretty immature cells into a mature heart, so there's an electrical mismatch. We're trying to work on approaches to mature our cells in a dish in the right way, so they are better suited for the adult heart."

Murry, who is director of the University of Washington's Center for Cardiovascular Biology and co-director of its Institute for Stem Cell and Regenerative Medicine, might not have made this breakthrough—or conducted research at all—if it weren't for his Duke medical education.

"Duke changed my career trajectory 180 degrees," he says. "Before I came to Duke I didn't have an interest in becoming a researcher. I liked science but

"As my work progressed and it looked like I was developing something that would one day go into the clinic, I would always think: Is this good enough that I would try it in my mom?"

Charles E. Murry

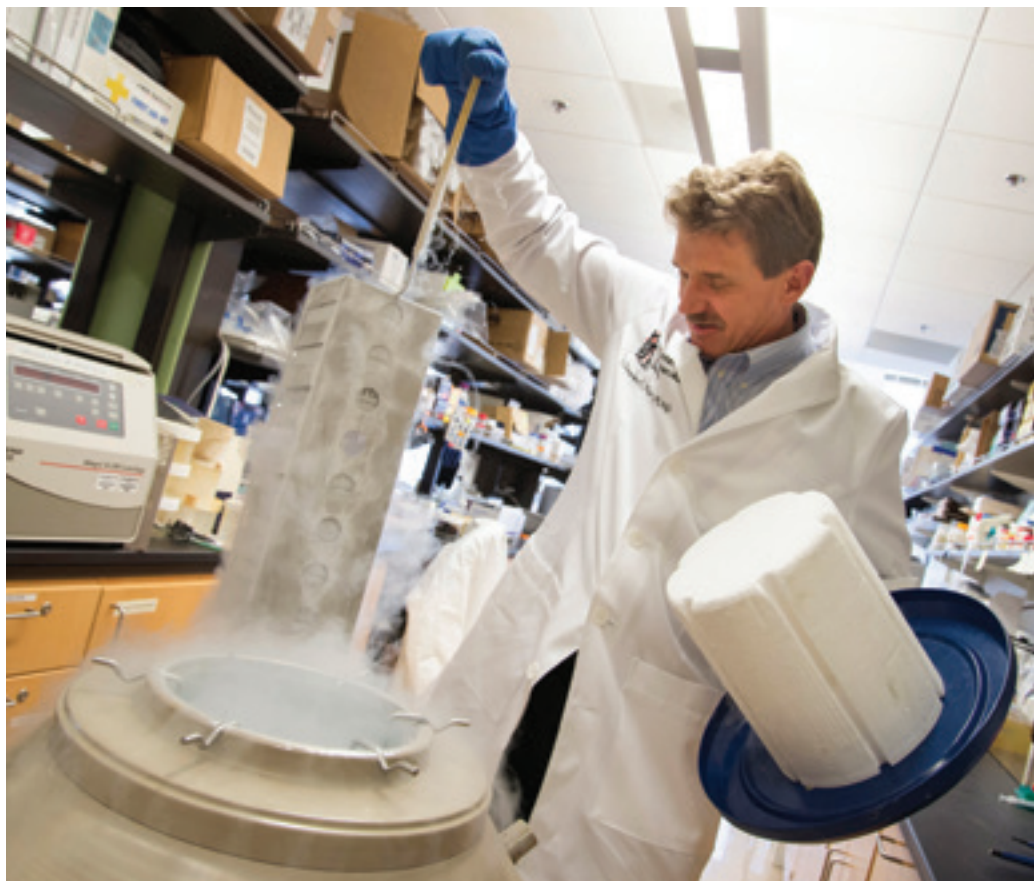
wanted to learn medicine and become a surgeon." Duke's unique curriculum, in which the third year of medical school is spent doing research, changed that. "I got hooked," Murry says. He conducted research under the mentorship of the late Keith Reimer, MD, PhD, and Robert

Jennings, MD, *emeritus* professor of pathology and former chair of Duke's Department of Pathology. "I ended up dropping out of medical school and getting a PhD and then coming back to finish my medical training," Murry says.

Sadly, just a month before the *Nature* study was published, Murry's mother died of heart failure. Though he began heart research long before his mother developed the disease, after she was diagnosed, she was always on his mind. "As my work progressed and it looked like I was developing something that would one day go into the clinic, I would always think: Is this good enough that I would try it in my mom?"

On September 3, 2014, Murry gave a talk about his work, "Regenerating the Heart," at the Duke Cardiovascular Research Center Seminar Series.

—Angela Spivey



Charles Murry pulls stem cells used to regenerate heart tissue out of a vessel in his lab at the University of Washington.

Love of Skiing, Medicine Takes Ward to Austria with U.S. Alpine Team

Hospital reputation, patient population, salary, and family are just a few of the factors medical students and residents often take into consideration when choosing training programs. But **Benjamin Ward, MD'07**, isn't ashamed to admit he chose his orthopaedics fellowship at Taos Orthopaedic Institute for the skiing.

"I'd known for a long time that I wanted to practice in a ski town," he says.

Located in New Mexico, the town of Taos is considered by many to be a true skier's paradise. Not that Ward was more focused on powder than on patients. The fellowship in Taos gave him an opportunity that he just couldn't pass up: combining his lifelong love of skiing with his desire to help others, many of whom loved skiing just as much as he did.

It was an experience that prepared him both for his current job as an orthopaedic surgeon at Kalispell Regional Medical Center's Northwest Orthopedics and Sports Medicine in Kalispell, Mont., and for his work with the U.S. Women's alpine ski team in Austria earlier this year.

In January, Ward volunteered to be a physician for the team as they competed in the Europa Cup, a competitive circuit just one step down from the World Cup. He spent a week with the downhill skiers in Spital am Pyhrn in the Austrian Alps, monitoring the athletes' health, and was on hand to respond to any traumas that occurred. Fortunately, the trip was uneventful in that regard, but it marked the beginning of what he hopes will be an annual occurrence for him.

Ward's fellowship director in Taos was the one who encouraged him to enter the U.S. Ski and Snowboard Association's physician pool. After completing training at Beaver Creek Resort in Colorado, Ward was added to the pool and now looks forward to volunteering with ski teams in

"Helping people recover and get back to whatever they love doing is one of the most rewarding parts of my job."

Benjamin Ward

different locations once every year.

The ultimate gig would be to travel with the U.S. team during the Winter Olympics, but he's pretty low in the selection pool at this point. He says maybe in about 20 years it will become a reality.

Born in Denver, Colo., and having grown up in Park City, Utah, Ward discovered his love for skiing long before medicine was a consideration. Skiing has been a part of his life for as long as he can remember. "I've been skiing since before I could walk," he says.

It was during his time as an undergrad at Dartmouth College that Ward first realized there was a way to combine both of his passions. He was a member of Dartmouth's ski patrol. He also took a semester off to volunteer at the 2002 Winter Olympics in Salt Lake City, Utah, where he helped prepare the women's downhill course by removing new snow off the iced course and maintaining safety nets.

"I didn't decide on medicine until midway through college," he says. Volunteering at the Olympics is "what put it all together for me. I liked both aspects."

Today Ward splits his time professionally between the hospital in Kalispell and a hospital located about 15 miles away in

Whitefish, a resort ski town near Glacier National Park. "I get both the small town and the larger medical center experience," Ward says. "It's a unique blend."

At both locations Ward treats his fair share of skiers and other athletes—about 70 percent of his practice is sports medicine, which includes performing procedures such as knee arthroscopies and treating ligament tears and other injuries. His day-to-day work is not all athletes and their ailments, though. He also treats general problems such as fractures and performs joint replacements.

"I enjoy taking care of patients and getting them back to their sport or activity," he says. "Helping people recover and get back to whatever they love doing is one of the most rewarding parts of my job."

Still, Ward foresees a long future treating competitive skiers, and he just might have an even greater stake in a future generation of U.S. women skiers if he has his way. His oldest daughter is not quite



Benjamin Ward enjoyed breathtaking views of the Austrian Alps while volunteering for a week as a doctor for the U.S. Women's alpine ski team in January.

three years old, but he's already teaching her to ski, and she loves it. He and his wife Katherine also have twin girls who, though only born in April of this year, will most likely be hitting the slopes pretty soon. "Hopefully we can get them on the team," he jokes.

—Bernadette Gillis

Martha E. Valiant, MD'69, HS'70-'72, was named a 2014 Public Health Hero for Hendry and Glades counties by the Florida Department of Health. In 2013, she was named a "maker," one of 20 women recognized for making a difference and leaving a legacy in South Florida, by local public radio and TV station WGCU.

1970s

Albert C. Broders III, MD'74, ♣, is chief operating officer, clinical professor of emergency medicine, and emergency medicine consultant at University of Texas Southwestern Medical Center. He has been married since 1975 to Maureen Murry, MD, JD, who has a 25-year career as a malpractice defense attorney. The couple lives in Dallas.

N. Branson Call, MD'74, and his wife Kathy have been on 160 medical mission trips to 54 countries, working with local doctors at university training programs and leaving equipment and supplies behind. They will be in India and Burma in fall 2014. The couple became interested in medical mission work when they went to Honduras for three months during Call's second year of ophthalmology residency. They live in Salt Lake City, Utah.

John H. Dorminy III, MD'74, writes that he has 12 grandchildren and 1 great grandchild (so far). He resides in Fitzgerald, Ga.

Robert Woodward Downs Jr., T'70, MD'74, is retired after 30 years on the faculty in the Division of Endocrinology at the Virginia Commonwealth University School of Medicine in Richmond. He is enjoying spending time with his grandchildren, of whom he has five under the age of 5.

Anne W. Campbell, MD'79, HS'79-'81, ♣, is a family physician with Allina Health in Minneapolis, Minn. Her husband Robb is an occupational therapist at 3M. Their daughter **Laura, T'05**, is in a Maternal-Fetal Medicine fellowship at the University of Pittsburgh, and she and her husband Mike have a new

baby girl named Eleanor Anne. Son **Matthew, E'08**, and his wife Kristen live in California, where he recently received his PhD in electrical engineering at Stanford. Son Ben and his wife Megan live in the Twin Cities area, where he is in a PhD program in plant breeding at the University of Minnesota.

David F. Colvard, MD'79, HS'79-'83, has retired after more than 30 years of private practice in Raleigh. He and his wife **Lynn, PhD'79**, are spending more time on Bonaire, where he enjoys scuba diving. Colvard has a web site, **Dive-Psych.com**, and speaks at dive shows and writes articles for dive publications, including Divers Alert Network's *Alert Diver* magazine. He also is medical director for the Worldwide Christian Scuba Divers Organization (WCSDO). He and Lynn enjoy ballroom dancing, playing tennis, and cycling. They also co-teach the older adult Sunday school class at their church. They have two children, Daniel and Stacy, who live in Pittsburgh and Chicago, respectively.

Anthony J. Limberakis, MD'79, had the opportunity to be in Jerusalem when Pope Francis met with Ecumenical Patriarch Bartholomew I of Constantinople. Limberakis is a Greek Orthodox archon (the highest honor for a layman in the Orthodox Church) in the Ecumenical Patriarch's delegation. He was interviewed about the meeting by the *National Catholic Register*. Read the article at ncregister.com/daily-news/pope-and-patriarch-generate-hope-for-unity-in-jerusalem/.

Bruce David Schirmer, MD'79, HS'79-85, and his wife Geri have enjoyed spending their entire lives in Charlottesville, Va., since leaving surgical residency at Duke. For nearly 20 years he has been Stephen H. Wetter Professor of Surgery at the University of Virginia, where he also serves as vice chair of surgery and residency program director. In addition, he is president of the Society of Gastrointestinal and Endoscopic Surgeons, the American Hepato-Pancreato-Biliary Society, and the Society of Clinical Surgery. The couple has two

daughters, Kate Lynn and Liza, both of whom are married.

Bruce D. Wilhelmsen, MD'79, is in his 30th year of practicing orthopaedics at Orthopaedics East in Greenville, N.C. His Bone Doctors BBQ sauce was the winner of the 2014 Scovie Award for diet-friendly barbeque sauce.

1980s



C. Edward Coffey, MD'80, HS'79-'84, has been named president and CEO of Menninger Clinic in Houston, effective Sept. 29, 2014. He will have a faculty appointment at Baylor College of Medicine in the Menninger Department of Psychiatry and Behavioral Sciences and the Department of Neurology. Coffey was most recently vice president of the Henry Ford Health System in Detroit and concurrently served as CEO of Henry Ford Behavioral Health Services and chair of psychiatry for the Henry Ford Medical Group.

Ralph J. Damiano Jr., MD'80, HS'80-'89, has been named chief of the Division of Cardiothoracic Surgery at Washington University School of Medicine in St. Louis. With this appointment, he becomes the Evarts Ambrose Graham Professor of Surgery. Damiano was previously chief of the Section of Cardiac Surgery. He lives in St. Louis.

Fiona Jackson Cook, MD'84, is a clinical professor and director of the Endocrinology Fellowship Program at the East Carolina University/Brody School of Medicine in Greenville, N.C. Her husband Paul is chief of the Division of Infectious Diseases at the same institution. They have four sons: the eldest, Nicholas, is married and working on his

PhD in mathematics at UCLA; Chris is playing soccer and riding rickshaws in Charleston, S.C.; Jamie is at Northwestern University; and Alastair recently graduated from high school.

Paul A. Hatcher, MD'84, HS'86-'90, has been practicing urology in Knoxville, Tenn., for 23 years. An associate professor of urologic surgery, he has an active private urology practice and teaches urology residents and medical students. Outside of work, he enjoys boating, hiking, and hunting. His wife **Tina, B'82**, is a volunteer with an animal rescue organization and is a Stephen Minister in Knoxville. Their two sons, Tadd and Trey, work in investment banking and private equity in oil and gas in Houston, Texas.

Richard L. Page, T'80, MD'84, HS'87-'89, ♣, is chair of the Department of Medicine at the University of Wisconsin-Madison and serves as chair of the U.S. Food and Drug Administration circulating system panel. Along with his wife Jeannie, he is also a part-time sailor on Lake Michigan. Jeannie has published six novels under the name Jean Reynolds Page. Their three children have all finished school. The couple lives in Middleton, Wis.



Paul W. Sperduto, T'80, MD'84, G'87, HS'85-'87, ♣, was recently named a Fellow of the American Society of Radiation Oncology (ASTRO). Up to 30 Fellows are named annually and only 242 of the more than 10,000 ASTRO members have achieved that distinction. Sperduto is a practicing radiation oncologist in Minneapolis, Minn., and co-director of the Gamma Knife Center

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Dad Inspires Osmond to Team up with Sister for Health Series

For most adults, watching their parents age while helping them navigate complex health care systems can be a difficult and at times bewildering process, even for those professionally trained in medicine.

It's a lesson **Greg Osmond, MD'09, HS'09-'13**, and his sister, Amy Osmond Cook, PhD, gradually had to learn in the years following their father's brain tumor and subsequent strokes, and eventually led them to create a multimedia health series in their hometown of Provo, Utah.

"It was born out of frustration with the current medical system," Greg says of the series, which is called "Healthy Living" and includes a newspaper column and TV interviews. "We had a lot of questions about my father, and a lot of baby boomers were asking my sister questions."

Greg recently completed a dermatopathology fellowship at Harvard and now works for Sanford Health in

Bismarck, N.D. His sister has a doctorate in communication and is director of provider relations for North American Health Care. She also has experience in editing and publishing.

Combining his expertise in health and disease with her interest in communication and wellness, the brother-sister duo partnered with a Provo newspaper and area health clinics to publish and distribute a health and wellness column and TV segments featuring interviews with local physicians. Their goal is to offer insight and advice on the rapidly changing health care landscape.

"It's nice to have a public forum to connect with others and hopefully improve lives in the process."

Greg Osmond

So far, the subject matter has ranged from ways to identify strokes early to the impact of electronic health records. The health series has also covered the basics of the Affordable Care Act, and in one TV segment, Greg and Amy's cousin Jeremy Osmond, DPT, discussed ways to prevent common injuries in seniors.

While "Healthy Living" covers any health topic important to patients 40 and older, Greg says most topics were inspired by his father's medical experiences, along with the family's desire to better understand the challenges they encountered during his care.

When Greg was 12 and Amy 16, their father, Wayne Osmond, learned he had a brain tumor. His Utah doctors sent him to Duke, where he underwent two surgeries that successfully removed the tumor. Recovery was tough, but he pulled through and ultimately was declared cancer-free.

However, about a decade after the surgeries, Wayne Osmond started experiencing other problems. He began to lose his balance, short-term memory, and nearly all of his hearing. After he suffered a major stroke three years ago, the family learned that he had been having mini-strokes for years, quite possibly since the brain surgeries.

At the time of his father's major stroke, Greg Osmond was a pathology resident at Duke covering OR cases for Duke neurosurgeon Allan Friedman, MD. Not surprisingly, Greg reached out to Friedman for advice.

Yet being closely connected to a world-renowned brain tumor expert didn't put Greg at an advantage when it came to getting his father's medical records to Duke quickly. It took two weeks for the records to arrive.

"It was frustrating because Dr. Friedman has been following my dad for over 15 years, my parents and I trust his opinion, and we all wanted him to

web link
drosmond.com



GLASSER IMAGES

Outside of his work as a dermatopathologist in North Dakota, Greg Osmond has partnered with his sister to offer health and wellness advice through a multimedia health series back home in Provo, Utah.

weigh in on the situation in real time," he explains. Ideally, both he and Friedman would have been able to access and discuss his father's records remotely from Duke.

"I understand the reasons why hospital systems wouldn't necessarily want their records accessed in this manner," he adds, "but when it comes to the health of your parent, some of those issues become much less important."

Greg knows he's not alone in his thinking and that's why he and Amy decided to include the topic of electronic health records in their "Healthy Living" series. It was just one way for Greg and Amy to make sense of the roadblocks they encountered while helping their dad. It also gave them the chance to help families facing similar situations.

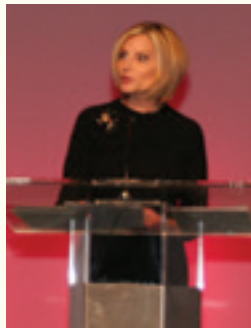
Although he still has some hearing loss, Wayne Osmond's health has improved, and Greg happily reports that his father is now doing much better. He's also happy to have an outlet to not only educate himself on ways to continually improve his father's health and wellness but to also help others back home in Provo to do the same.

"It's nice to have a public forum to connect with others and hopefully improve lives in the process," Greg says.

See more of Greg and Amy's work, including their blog and videos, at drosmond.com.

—Bernadette Gillis

at the University of Minnesota. He has also done cyclone relief work in India and primary care in Appalachia. He and his wife, Jody Laursen Spurduto, T'80, PhD'90, live in Wayzata, Minn., and have three children.



Tina Alster, BSN'81, MD'86, has been selected by the Women's Dermatologic Society to receive its prestigious Legacy Award for 2014, honoring lifetime achievement in the specialty of dermatology. She was honored at a gala celebration at the annual meeting of the American Academy of Dermatology. Alster was chosen for this award based on her many groundbreaking contributions to the world of dermatology and laser surgery, including involvement in dermatologic academia, clinical research, and medical practice innovation.

Karen Drexler, MD'86, recently took on the position of deputy director of the National Mental Health Program, Addictive Disorders, in the Office of Mental Health Services at the Veterans Administration's central office. Prior to accepting that post, she served as director of the Substance Abuse Treatment Program at the Atlanta VA Medical Center since 1994, and was acting chief of the Mental Health Service Line from May 2, 2013, to January 25, 2014. She also continues her work as an associate professor in the Department of Psychiatry and Behavioral Sciences at Emory University School of Medicine, where she directed the Addiction Psychiatry Residency Training Program from 2002 to 2014.

Barbara J. Martin, T'82, MD'86, in March 2014 announced the publication of her first book, the nonfiction work *Elixir: The American Tragedy of a Deadly Drug*. Martin writes: "The product of more than 10 years of research, Elixir is the first detailed account of the scores of American deaths caused by a poisonous antibiotic solution, elixir sulfanilamide, in the fall of 1937 and the surprising aftermath." Martin is a formerly practicing neurologist. She has worked in academia, private practice, medical publishing, drug market research, and continuing medical education. She writes a blog called Pathophilia, covering the drug and health care industries, which can be found at bmartinmd.com. She lives in Evanston, Illinois.

Conrad Lloyd Flick, MD'89, is on the board of directors of WakeMed Key Community Care Accountable Care Organization. From 2009-2012 he was director of the American Academy of Family Physicians Board. He and his wife Anita have two children: Alyse, who is in the School of Nursing at UNC Chapel Hill, and Austin, a sophomore at N.C. State University.

Carolyn Maynor, MD'89, HS'89-'95, is a partner with Pinehurst Radiology, and her husband, **Bobby Ray Maynor Jr., MD'88, HS'88-'91**, is a partner with Pinehurst Medical Clinic in Pinehurst, N.C. Their oldest sons are both in college in Boston: Christopher is a member of the Class of 2015 at the Massachusetts Institute of Technology, and Ian is in the Class of 2017 at Harvard. Sydney is in the sixth grade.

Grace Emerson Terrell, MD'89, HS'90, serves on the board of directors of the American Medical Group Association and on the board of trustees of the certifying commission of Health Information Technology. In addition, she is co-chair of the Office of the National Coordinator for Health Information Technology ACO work group. She lives in High Point, N.C.

1990s

Robert J. Green, Jr., T'88, MD'93, has been appointed vice president of oncology for Flatiron Health, a health care technology company. He previously was a managing partner at Palm Beach Cancer Institute and helped lead its merger with Florida Cancer Specialists in 2013. He served two years as chief medical officer of Cancer Clinics of Excellence. Flatiron Health allows cancer care providers and life science companies to gain deep business and clinical intelligence through its web-based platform, OncologyCloud.

Mark Weinberg, MD'96, HS'99, was appointed MBA senior vice president of clinical development at RestorGenex Corporation, a specialty biopharmaceutical company initially focused on developing products for dermatology, ophthalmology, and women's health. Prior to joining RestorGenex, he served as vice president of global clinical science at Astellas Pharma Global Development, and before that he was vice president of medical strategy and medical affairs at Lundbeck Inc. (formerly Ovation Pharmaceuticals). Previously he held various roles in clinical development at Takeda Global Research and Development and Abbott Laboratories.

2000s

Maxwell A. Prempeh, T'98, MD'03, HS'03-'06, is the lead physician at the Harbin Clinic, which recently opened a cardiology office at its facility in Acworth, Ga. Prempeh, board certified in internal medicine, cardiology, and interventional cardiology, specializes in using state-of-the-art tests and minimally-invasive procedures to diagnose and treat cardiovascular disease. He joined the Harbin Clinic in 2010 with the opening of its cardiology office in Cartersville, Ga. In January 2011, he performed the first cardiac intervention in Bartow County at the Cartersville Medical Center, placing a stent in a blood vessel and restoring normal blood flow to the heart. In addition to his Duke degrees, he completed an interventional cardiology fellowship at the University of Pennsylvania.

For Burnett, Marijuana Fight not about Crime but Social, Racial Justice

Initially, when some people find out what **G. Malik Burnett, T'07, MD'12, B'12**, does for a living, they are taken aback. It's not every day that one gets to meet a doctor whose full-time job is to advocate for the legalization of marijuana.

But the looks of surprise don't faze Burnett. To him, they are but a small price to pay for work that he believes will ultimately advance social justice and help eliminate racial disparities.

On May 1, Burnett joined the Drug Policy Alliance (DPA) as a policy manager based in the nonprofit organization's Office of National Affairs in Washington, D.C. In this role, he is

“Being able to apply medical knowledge and interpret it for the public is both a challenge and opportunity,”

G. Malik Burnett

working to help rehabilitate the damage he feels the war on drugs has caused communities that are predominately made up of people of color.

Specifically, he aims to build support for Initiative 71, which seeks to allow D.C. residents to legally possess up to two ounces of marijuana, grow three mature and three immature marijuana plants in their homes, and give (but not sell) marijuana to other adults. Residents will vote on the initiative on Nov. 4. Burnett will also push for other drug policy initiatives in addition to Initiative 71 and work with members of the D.C. Council on establishing the taxation and regulation of marijuana.

“Marijuana policy reform is part of the emerging picture of civil rights reform in the 21st century,” he says. “The District of Columbia has historically been a leader in enacting progressive policies, and the legalization of marijuana will go a long way towards reframing drug policy around a public health framework.”

A disproportionate number of minorities have been affected by the criminalization of marijuana, Burnett says. According to the FBI's annual Uniform Crime Report, in 2012 approximately 750,000 people were arrested for marijuana law violations, the majority for simple possession. Statistics compiled by groups such as the American Civil Liberties Union show that blacks and Latinos are more likely to be arrested even though these groups are no more likely than whites to use or sell marijuana. And in D.C., where Burnett focuses his efforts, he says such disparities “are probably the worst in the country.”

But he adds, “More and more people are seeing the failure of the war on drugs.” Two U.S. states, Washington and Colorado, recently legalized the recreational use of marijuana and several health advocacy groups including the World Health Organization and the American Public Health Association are calling for drug decriminalization.

Even with changing attitudes, Burnett knows he still has his work cut out for him—not only in educating the public about the racial disparities associated with the criminalization of drug use but also in shifting the conversation from crime to public health.

“Being able to apply medical knowledge and interpret it for the public is both a challenge and opportunity,” he says of his new job. “There are generally not a lot of physicians in the public policy debate” on drug use.

—Bernadette Gillis

In his new position with the Drug Policy Alliance, Malik Burnett fights for drug policy reform with the hope of eliminating racial disparities in Washington, D.C.



1960s

Edward S. Horton, MD, HS'62-'66, received the Master of the American College of Endocrinology (MACE) Award at the American Association of Clinical Endocrinologists (AAACE) 23rd Annual Scientific and Clinical Congress in May 2014. The MACE Award is given to an AAACE member who has received the Fellow of the American College of Endocrinology distinction and is recognized as a distinguished practicing endocrinologist. Horton is a professor of medicine at Harvard Medical School and a senior investigator at the Joslin Diabetes Center. He currently serves on the AAACE Board of Directors.

Jack W. Bonner III, MD, HS'65-'69, an *emeritus* professor at the University of South Carolina School of Medicine in Greenville, was selected by the American College of Psychiatrists as its archivist-historian at its annual meeting held in February 2014 in San Antonio, Texas. He is a past-president and Fellow of the college and completed service in February as its secretary-general. Bonner also served as examiner for the American Board of Psychiatry and Neurology at its examination held in March in Little Rock, Ark. He and his wife Myra split their time between homes in Greenville, S.C., and Asheville, N.C.

1970s

Mary Maitland DeLand, MD, HS'78-'82, has written a children's book that illustrates the positive actions children can take when they have a relative with type 1 diabetes. *Be a Hero! Help Prevent Diabetes with The Great Katie Kate* takes place at a diabetes day camp, where children with diabetes, as well as sisters and brothers without diabetes, attend together. The book introduces children to TrialNet, an international network of researchers who are exploring ways to prevent, delay, and reverse the progression of type 1 diabetes. A radiation oncologist specializing in the treatment of women's and children's cancer, DeLand has written several children's books on topics ranging from

cancer and diabetes to epilepsy and asthma. DeLand lives in Lafayette, La.

1980s

Ted George, MD, HS'80-'83, was a featured author at the 14th Annual Library of Congress National Book Festival in Washington, D.C. in August 2014. He spoke about his book *Untangling the Mind*, in which he explains that feeling extreme emotion is part of being human and aims to help people understand the biological and neurological basis of their behavior and that of others. George is an associate clinical director at the National Institutes of Health in Bethesda, Md., and a clinical professor of psychiatry at George Washington University School of Medicine.

David L. Halsey, MD, HS'86, has been appointed to serve a two-year term on the Board of Governors of the Jackson Preparatory & Early College in Jackson, Mich. Halsey is a physician practicing general internal medicine and endocrinology and has been affiliated with Allegiance Health System since 1986. He currently serves on the Allegiance Health Board of Directors, is chairman of the Jackson Health Network, and is medical director of both the Allegiance Health System Diabetes Center and the Allegiance Health System Osteoporosis Clinic. He lives in Jackson.

Keith Superdock, MD, HS'86-'89, proudly announces another Superdock will soon be walking the halls of Duke; his new daughter-in-law, Allie (Harjo) Superdock entered as a first-year student at Duke University School of Medicine this summer. His son, Matthew, will be teaching high school math at Jordan High School in Durham. Keith continues to direct the Lankenau Medical Center Kidney Transplant Program, which he helped found in 1993. He lives with his wife Jennifer, son Michael, and daughter Christina in Bryn Mawr, Pa.

James W. Gigantelli, MD, HS'90, is now serving his first term as a member of the American College of Surgeons' Board of Regents. He is a professor of ophthalmology at the University of Nebraska

Medical Center (UNMC), specializing in oculofacial plastic surgery. He also serves as vice chair of clinical affairs for his department and assistant dean of governmental affairs for the UNMC College of Medicine. He and his wife Lori have four children and live in Omaha.

Miriam S. Bettencourt, MD, HS'94-'96, '99, is the founder and director of Bettencourt Skin Center in Henderson, Nev., a dermatology practice that was recently acquired by Advanced Dermatology & Cosmetic Surgery (ADCS). She is a board-certified fellow of the American Academy of Dermatology (AAD) and is in practice in Las Vegas, Nev. She also is a clinical professor of dermatology at the University of Nevada and an adjunct professor at Touro University, where she contributes to the dermatology training of medical students in Las Vegas. She did a residency in internal medicine and dermatology at the University of Sao Paulo, Brazil, and completed residencies in family medicine and dermatology at Duke, where she was the first international physician ever accepted to the Duke dermatology program and was named chief resident of dermatology. She has been the director of the Bettencourt Skin Center for the past 10 years, where she specializes in clinical, surgical, and cosmetic dermatology, and clinical research.

Steven Glen Simonson, MD, MHS'96, HS'86-'89, HS'92-'93, has joined Discovery Laboratories, Inc., in Warrington, Pa., as vice president of clinical development. He will oversee all aspects of clinical research, with responsibility for design and execution of clinical trials. His initial focus will be on the development of AEROSURF, the company's combination drug/device, which currently is in phase 2 development to provide KL4 surfactant therapy through nasal continuous positive airway pressure (nCPAP) for respiratory distress syndrome (RDS) in premature infants.

Carey N. Barry, MD'49, died on March 8, 2014, in Greenville, S.C. He was 94. Dr. Barry held many honors throughout his life, including military honors for infantry service in the South Pacific during World War II. A urologist, he opened a solo practice in Ft. Myers, Fla., early in his medical career. He was active and involved in the Ft. Myers community, including serving two years as president of the Lee Memorial Physicians Group, chief of staff at Lee Memorial Hospital, and president of the Florida Urological Association.

Thomas D. Beardmore, MD, HS'68-'71, died July 22, 2014, at USC Norris Comprehensive Cancer Center in Los Angeles, Calif., after a four-month illness. He was 75. Since 1976, Dr. Beardmore had been affiliated with the University of Southern California, where he was a professor of clinical medicine. He was chief of rheumatology at Rancho Los Amigos National Rehabilitation Center, where he became an expert in the rehabilitation of severely disabled patients with rheumatic diseases. He volunteered at the Arthritis Foundation and was a member of Southern California Rheumatology Society.

William "Bill" D. Clarkson, MD, HS'61-'64, of Floyd, Va., died August 1, 2014. He was 82. Dr. Clarkson served two years as a medical officer in the U.S. Army. He was director of one of the first community mental health centers built in North Carolina. He was in private psychiatric practice from 1969-2006 in Salem, Va., at Lewis Gale Psychiatric Center (now Lewis Gale Medical Center for Behavioral Health). While in practice, he also did consulting work at mental health clinics in Rocky Mount, Martinsville, Roanoke, and Pearisburg.

continued on page 36

Full obituaries can be found on the Medical Alumni Association web site at medalumni.duke.edu. Please click on the magazine cover, then click on obituaries.

Thomas Edwin Curtis, MD'51, of Chapel Hill, N.C., died on July 7, 2014, in the Hock Family Pavilion at Duke Hospice. He was 86. Dr. Curtis attended pilot training for the U.S. Navy in the final days of World War II. He later became chairman of UNC's psychiatry department and served on staff at N.C. Memorial Hospital until 2006.

Adolphus W. Dunn Jr., MD'45, of Fripp Island, S.C., died June 13, 2014, at his residence. He was 91. Dr. Dunn served active duty in the Medical Corps of the U.S. Navy for 21 years, retiring in 1965, with the rank of captain. He then joined the Ochsner Medical Institution in New Orleans, La., where he was chairman and later *emeritus* chairman of the Department of Orthopedic Surgery at the Ochsner Clinic and Ochsner Foundation Hospital for 23 years. He was also clinical professor at Tulane University School of Medicine.

Warren R. Kadrmas, MD'96, died in a tragic accident on May 8, 2014, in San Antonio, Texas. He was 44. Dr. Kadrmas began his U.S. Air Force orthopaedic career at Wilford Hall Medical Center in San Antonio and then went on to the Hospital for Special Surgery in New York. He also served as the orthopaedic surgery consultant to the surgeon general of the air force.

Gordon K. Klintworth, MD, PhD, HS'62-'65, died August 8, 2014, after battling cancer for seven years. He was 82. Dr. Klintworth was the Joseph Wadsworth Distinguished Professor of Ophthalmology and professor of pathology at Duke. Around the year 2002, he created the web site eyepathologist.com to help people living in rural areas around the world find information about the diseases of the eye. In 2010, the Duke University Medical Alumni Association honored him with the Distinguished Faculty Award. In 2014, Duke University School of Medicine created the Gordon K. Klintworth Lectureship in Ophthalmology. He retired from Duke in June 2014 after 52 years of service.

Cooper D. Kunkel, MD, HS'61-'65, died at his home in New Bern, N.C., on May 3, 2014. He was 87. Dr. Kunkel served in the U.S. Army, trained as a gunner in a B-29, and was shipped to Okinawa, Japan, as part of the occupation force. His medical career included working for 20 years at Coastal Eye Clinic in New Bern, serving as chief of staff of Craven County Hospital, and operating free eye clinics in Arapahoe, Bayboro, and Ocracoke. Upon retirement, Dr. Cooper spent 10 years as a volunteer physician at the Merci Clinic in New Bern.

D. Parker Moore Jr., MD'52, HS'52-'53, of Lexington, S.C., died August 7, 2014. He was 90. Dr. Moore was one of the founders of Hopewell Medical Center and Colonial Heights Medical Center in Virginia, where he practiced medicine from 1955-1990.

Robert K. Myles, MD, HS'55-'57, of Reno, Nev., died at home on May 24, 2014. He was 87. Dr. Myles first opened a solo practice in Reno in 1958. He was one of the first professors of medicine at the Nevada School of Medicine, where he taught clinical diagnosis. His career also included working at the Washoe County Health Department, holding positions at Saint Mary's and Washoe Medical Center, and serving on

Washoe Medical Center's governing board. He retired from the Washoe County Regional Board of Health on his 80th birthday in 2006.

Sandra M. Smith, MD'67, HS'67-'68, '71-'72, '74, died July 7, 2014, at her home in Tucson, Ariz. She was 70. Dr. Smith spent her professional career caring for children in Tucson, Colorado, and California and as a volunteer physician in El Salvador, Saudi Arabia, Brazil, Sri Lanka, and at a Cambodian refugee camp following the Vietnam War.

C. Gilbert Tweed, MD'59, of Ormond Beach, Fla., died August 3, 2014. He was 80. Dr. Tweed served in the U.S. Navy from 1963-1966 as chief of neurology for the Neurodiagnostic Laboratory in Yokosuka, Japan, rising to the rank of lieutenant commander. In 1970, he joined in partnership with a colleague in Daytona Beach and practiced there until 1992. He then continued in his own solo practice, holding senior staff privileges at Halifax Hospital Medical Center until his retirement in 2008.

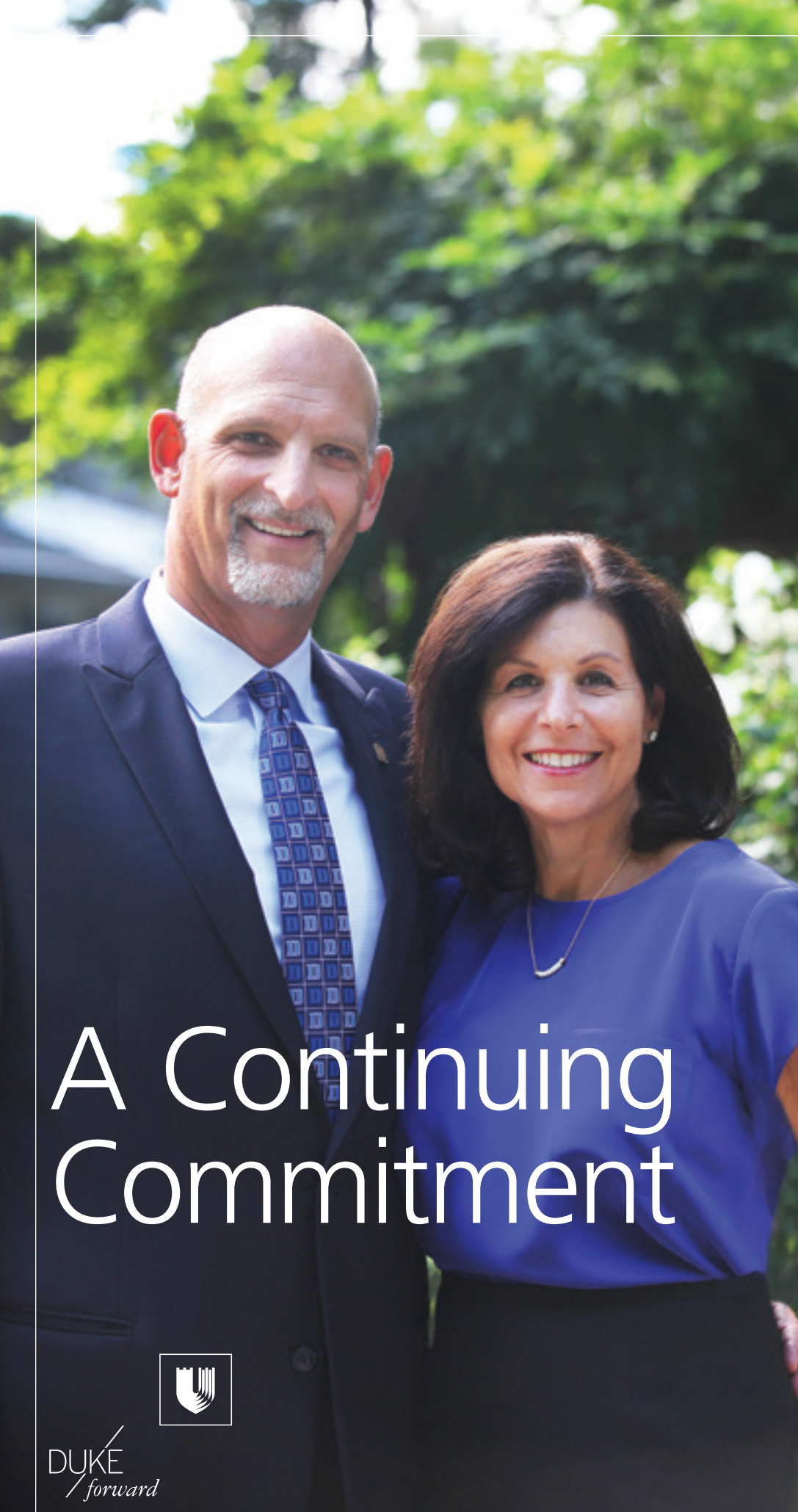
Charles R. Vernon Sr., MD'64, of Columbia, S.C., died July 9, 2014. He was 75. Dr. Vernon's military career included serving in the U.S. Marine Corps after high school until 1958. His medical career included practicing at Richland Memorial Hospital and G.W. Bryan Psychiatric Hospital in South Carolina.

Charles Virgin, T'60, MD'64, HS'64-'65, of Key Biscayne, Fla., died May 25, 2014, after battling bladder cancer. He was 75. Dr. Virgin served in the U.S. Air Force from 1965-1970. He was a team physician for the Miami Dolphins from 1970-1989 and the team's chief doctor when his father, Herbert, retired from that role in 1983.

Donald E. Warren, MD'52, HS'53-'55, of Palm Beach, Fla., died March 31, 2014, at Good Samaritan Medical Center. He was 86. A cardiologist and founding board chairman of Palm Beach Atlantic University, Dr. Warren was considered by many to be the private Christian college's first "fundraiser-in-chief." He held the post of chairman from 1968 until he retired and became a life trustee in December 2006. The university's library is named for Dr. Warren and his wife Betty Ann "Bebe" Welch Warren. He retired from cardiology in 1996 after 40 years.

David S. Werman, a former Duke faculty member, died June 3, 2014, in New York, N.Y., after a three-year fight with cancer. He was 92. Dr. Werman first moved to North Carolina in 1967, taking up a position in the Department of Psychiatry at UNC, while completing training at the Psychoanalytic Institute in Chapel Hill. He transferred to Duke University School of Medicine in 1975 and taught and practiced psychoanalysis until his retirement in 1992. He was a Fellow of the American College of Psychoanalysts.

Michelle P. Winn, MD, HS'92-'96, '99, associate professor of nephrology in the Department of Medicine at Duke, died July 23, 2014, after battling pancreatic cancer for more than a year. She was 48. Dr. Winn studied familial focal segmental glomerulosclerosis (FSGS) and other inherited kidney diseases. In 2005, in a landmark *Science* paper, she reported that mutations in the TRPC6 gene caused FSGS, and she became an internationally recognized leader in her field. She received many awards and honors, including the Blue Ribbon Diversity Award from Duke in 2004. In 2007, she received the Presidential Early Career Award for Scientists and Engineers.



A Continuing Commitment



DUKE
/forward

David L. Feldman,

T'80, MD'84, HS'89-'92, a plastic surgeon who now manages patient safety and risk management as chief medical officer for a large New York malpractice insurance company, and his wife Debra give back to Duke on a regular basis. This year they made a Leadership Council-level gift to the Davison Club in honor of David's 30th medical school reunion.

"We did a little more to mark the reunion, but it's really just a continuation of a commitment we believe in and intend to continue for years to come," Feldman says. The Duke connection extends to their children, two of whom were born at Duke Hospital during David's plastic surgery training. "Our youngest, Jessica, is a Blue Devil in her own right, having just earned an undergraduate degree from Trinity College," notes Debra, a development officer at hospitals in Newark, N.J. and New York City.

Gifts to the Davison Club provide critical unrestricted support for medical education at Duke through scholarships, curriculum enhancements, new technologies, and innovative research.

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WHITE COAT CEREMONY

Del Wigfall, MD, associate dean for medical education, and members of the incoming Class of 2018 pose for a selfie following the White Coat Ceremony. This year's class consists of **109 students** accepted from **6,148 applications**. There are 48 women and 61 men in the class, including 26 under-represented minorities. They come from **31 different states** and **55 undergraduate institutions**.

