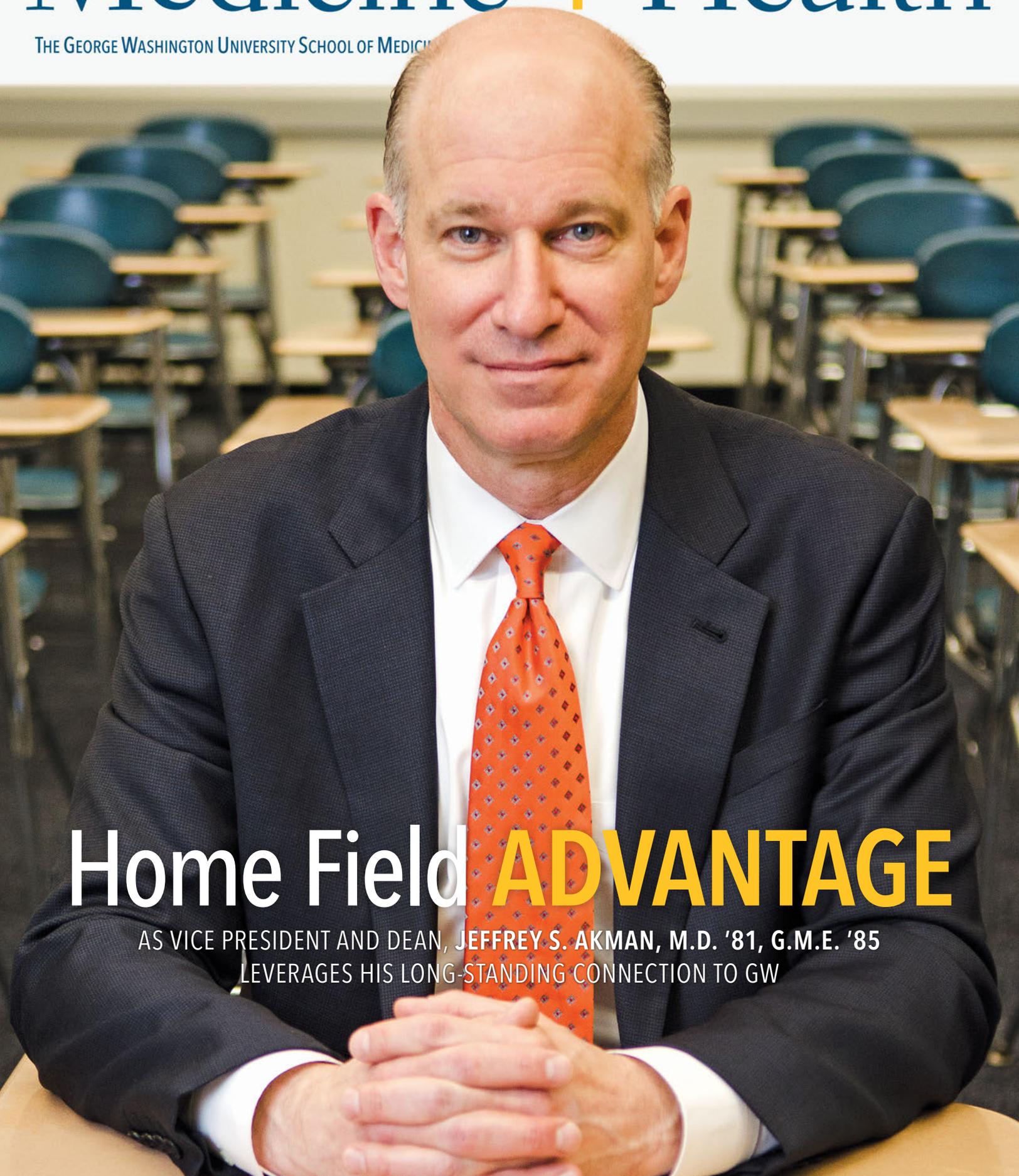


SPRING 2013

Medicine + Health

THE GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE



Home Field **ADVANTAGE**

AS VICE PRESIDENT AND DEAN, JEFFREY S. AKMAN, M.D. '81, G.M.E. '85
LEVERAGES HIS LONG-STANDING CONNECTION TO GW



Facing Our Future

This time of year, with graduation ceremonies taking place and excitement in the air, one naturally focuses on the future. Whether we are graduating from one of GW's health sciences or Ph.D. programs, completing medical school or residency, preparing for the incoming residents, or even turning in an annual report as a faculty member — we all have our eyes on what lies ahead. For many of us, it is a time to celebrate our successes, seize new opportunities, and create the future.

As I reflect on my own graduation from GW's School of Medicine and Health Sciences (SMHS) in May 1981, I remember deans Bowles and Keimowitz outlining the amazing opportunities that were ahead of us at the time. Their optimistic words of wisdom sent us off into a world that I now realize is much more unpredictable than I imagined that afternoon. In the following years, health care would experience unimaginable challenges, such as the HIV/AIDS epidemic, as well as major medical advances, including robots in the operating room. We would begin to realize the promise of genomics and personalized medicine.

Each year, our commencement speakers impress upon our graduates the importance of their roles as health professionals in society. They reflect upon the incredible accomplishments each graduate has already attained. They talk about the future, the path to success, and the exciting opportunities that await graduates. And as always, our graduates will transition into a world with new diseases ahead, technologies that have yet to be created, and undiscovered treatments that will transform the field.

Yet, this is the most exciting time to be in medicine, health care, and biomedical science. There will be challenges, of course, in the form of sequestration and cuts to NIH funding, along with new models of care and reimbursement under the Affordable Care Act — challenges unforeseen to classes of the past. However, with full confidence, I can assure our graduates that they not only will be prepared for the ever-changing health care landscape and scientific landscape, but they also have the knowledge, skills, and creativity to embrace these challenges and create the future of medicine and health care.

In addition to preparing students for the terrain ahead, GW School of Medicine and Health Sciences, as an institution, is also creating its own future. As you may know, in January, I was appointed as the vice president for health affairs and dean of the School of Medicine and Health Sciences. In this new role, I have traveled extensively, discussing potential opportunities, seeking new partnerships, and looking for creative ways for alumni and friends of the school to get involved with and support SMHS. I have benefited enormously from meeting our alumni eager to share stories about their GW experiences and to offer input on how to navigate our institution through the next decade and beyond. With our remarkable 188-year history as a foundation, and with a dynamic constituency of students, residents, faculty, and alumni as supporters, I am profoundly grateful for the opportunity to lead the GW SMHS during this most exciting time to its next level of greatness.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey S. Akman". The signature is fluid and cursive, with a long horizontal line extending to the right.

JEFFREY S. AKMAN, M.D. '81, G.M.E. '85
VICE PRESIDENT FOR HEALTH AFFAIRS
AND DEAN, SCHOOL OF MEDICINE
AND HEALTH SCIENCES

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STAFF WRITER
Kristin Hubing

CONTRIBUTING WRITERS
Steven Goldstein
Amy Maxmen

PHOTOGRAPHY
Barbara McGowan and Michael Leong,
Biomedical Communications

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editor@gwu.edu
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ON THE WEB

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March Match Up

In the minutes leading up to Match Day, Alex Sims, a fourth-year medical student at the George Washington University (GW) School of Medicine and Health Sciences (SMHS), was a mixed bag of emotions — nervous about possibly matching with a residency program far from her family, sad to leave the place she had called home for the past four years, and, most importantly, excited for her future.

Held on March 15 this year, Match Day is the transition point between medical school and residency.

“Match Day is a phenomenal day in the life of a medical student,” said Jeffrey S. Akman, M.D. ’81, G.M.E. ’85, vice president for health affairs and dean of SMHS. “Our students match with some of the leading medical institutions in the country.”

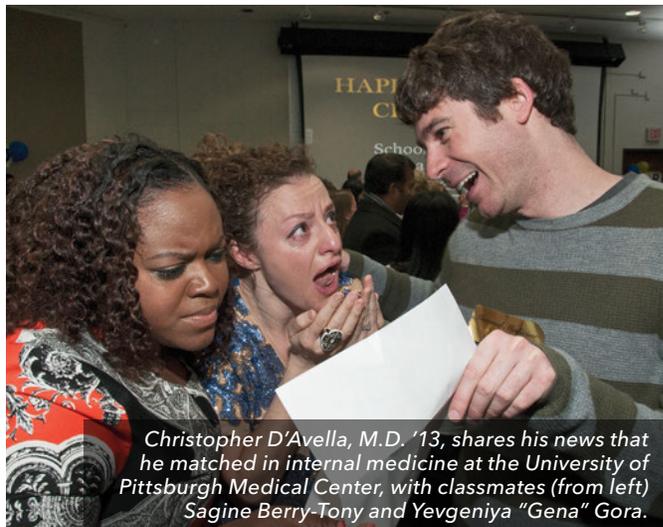
As the noon deadline, when medical students across the country get the news on their matches, neared, SMHS students filled Ross Hall to celebrate.

Cheers, tears, hugs, and laughter followed as SMHS students received and opened their envelopes from the National Resident Matching Program, a nonprofit corporation established to provide a uniform date of appointment to positions in graduate medical education in the United States.

Fighting back tears, Sims opened her letter. “I feel so lucky to get my first choice,” said Sims, who matched in pediatrics—primary care at Children’s National Medical Center in Washington, D.C.

Across the room, Siobhan Hartigan and Christal Achille, both fourth-year medical students at SMHS, couldn’t stop smiling after being matched. Best friends since middle school, Hartigan and Achille have always been there for each other. “It means a lot to me to have someone I know from home be by my side as I go through this process,” said Achille. The girls will be apart for the first time in years as Achille, a Long Island, N.Y., native, is going back home to Stony Brook University Medical Center, where she matched in pediatrics. Hartigan matched in urology at the University of Pennsylvania.

Children’s National Medical Center in Washington, D.C.; Johns Hopkins Hospital in Baltimore, Md.; and Vanderbilt University Medical Center in Nashville, Tenn., are just some of the leading institutions that SMHS students matched with this year. Thirteen students will continue their training here at GW. ■



Christopher D'Avella, M.D. '13, shares his news that he matched in internal medicine at the University of Pittsburgh Medical Center, with classmates (from left) Sagine Berry-Tony and Yevgeniya "Gena" Gora.



Daniel O'Neill, M.D. '13, opens his match letter as his father prepares to capture the moment in a photo.



Alexandra Sims, M.D. '13, is moved to tears by the news she matched with her top choice, Children's National Medical Center, as classmate Carrie Pinchbeck and friend Brandon Roberts look on.

>> ON THE WEB

Scan this QR code with any mobile device to view a complete list of this year's SMHS matches.





Third-year Ph.D. student Kristin Ceniccola presents her research poster at this year's Research Day.

Medicine and Health Research Day

Students and residents presented more than 300 posters at Medicine and Health Research Day. The scope of posters ranged from basic science research to translational science projects.

For many presenters, the day is the culmination of years of hard work, said Vincent A. Chiappinelli, Ph.D., interim associate vice president for Health Affairs and associate dean of the GW School of Medicine and Health Sciences (SMHS).

“Medicine and Health Research Day is a celebration for the school to highlight the research efforts of our faculty, graduate students, residents, and medical students,” said Jeffrey Akman, M.D. ’81, G.M.E. ’85, vice president for health affairs and dean of SMHS.

The theme for 2013 was HIV/AIDS. “We decided to focus on HIV/AIDS because our faculty has been at the forefront of HIV/AIDS research for decades,” added Akman.

Gary Simon, director of the division of infectious diseases, vice chair of the Department of Medicine, Walter G. Ross Professor of Medicine and of Microbiology and Tropical Medicine, and professor of biochemistry and molecular biology at SMHS, delivered the first keynote address.

Simon shared his personal journey with HIV/AIDS — from researching its causes and prevalence in the District to experimenting with different treatment drugs to uncovering new preventive measures.

Alan Greenberg, M.D. ’82, professor and chair of the Department of Epidemiology and Biostatistics at GW’s School of Public Health and Health Services, and director of the District of Columbia Developmental Center for AIDS Research (D.C. D-CFAR), delivered the second keynote address.

Greenberg gave an overview of HIV/AIDS epidemiology and prevention and addressed the HIV/AIDS work that is currently being done in Washington, D.C. ■

>> ON THE WEB

Scan this QR code with any mobile device to view a complete list of the 2013 Research Day award winners.





Renowned HIV/AIDS Researcher Joins GW

The George Washington University (GW) School of Medicine and Health Sciences (SMHS) is pleased to announce that HIV/AIDS researcher Douglas F. Nixon, M.D., Ph.D., will be joining the faculty on Oct. 1, 2013, as the Ross Professor of Basic Science Research and chair of the Department of Microbiology, Immunology, and Tropical Medicine (MITM).

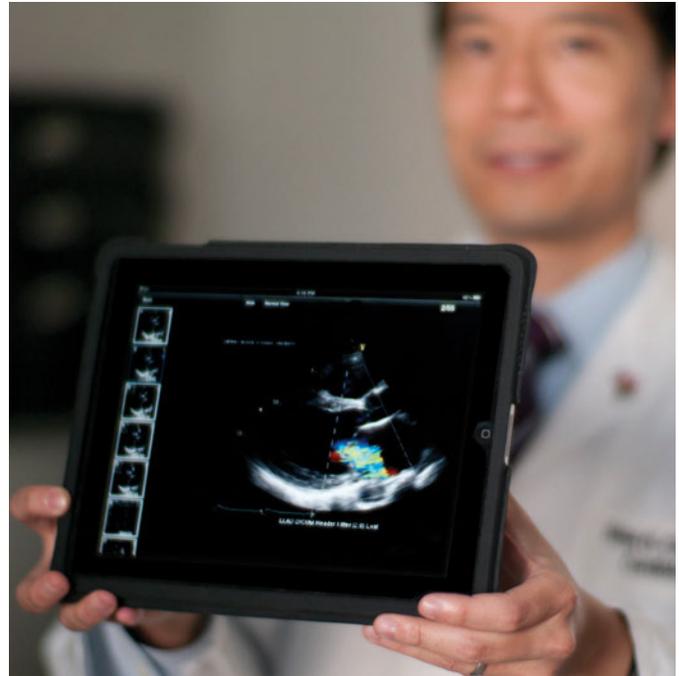
Nixon has pursued immunovirology research for more than 25 years; his studies have included clinical research, human immunology, basic virology, and molecular biology. Over the past two decades, he has focused on the cellular immune response to retrovirus infections and has published extensively on this topic. Nixon gained recognition for publishing the first identification of an HIV-specific cytotoxic T cell CTL epitope, in the journal *Nature*.

“Dr. Nixon is going to be a great addition and an inspiring leader for the department’s faculty, students, and staff. His expansive research portfolio and vast expertise will enable the department to maintain its highly regarded reputation and expand its signature programs,” said Jeffrey S. Akman, M.D. ’81, G.M.E. ’85, vice president for health affairs and dean of SMHS.

Nixon’s research is funded through grants from the NIH, including an NIH Merit Award, AmfAR, and the Gates Foundation. He is the chair of the NIH AIDS Vaccine Research Subcommittee, is a scientist of the Elizabeth Glaser Pediatric AIDS Foundation, delivered the Distinguished Science Lecture in 2009 at the NIH Rocky Mountain Laboratories, and is a member of several leading professional organizations.

He was named as one of the 2012 POZ 100, which is an elite group of scientists, researchers, advocates, politicians, and celebrities who are recognized by *POZ Magazine* for their significant contributions to speeding up the end of AIDS.

“Infectious diseases are a global problem, and also manifest at a local level. In Washington, D.C., the prevalence of HIV infection is one of the highest in the nation,” said Nixon. “By studying infectious diseases at a local and global level, research at MITM, in very close collaboration with colleagues throughout GW, can contribute to new discoveries for biomarkers, diagnostics, and vaccines, and novel treatments for these diseases.” ■



GW Heart and Vascular Institute Forges Public Health Partnership

The George Washington University (GW) Heart & Vascular Institute and The Wireless Foundation, in partnership with the D.C. Fire and Emergency Medical Services, announced an innovative new public health initiative. The collaboration is designed to improve cardiac care in the nation’s capital. Through this initiative, D.C.-area ambulances have been equipped with technology that enables rapid, wireless transmissions of EKGs to be sent to both the on-call physician’s wireless device and tertiary care hospitals.

“This technology will allow the medical team to make decisions early, in many cases before the patient even arrives at the hospital, and should significantly improve the outcomes of patients,” said Jonathan Reiner, M.D., professor of medicine at GW’s School of Medicine and Health Sciences. ■

Advocating Her Way to Wellness and a Better Education

Ask medical students what is most important to them and you get similar responses — support for their education and overall well-being. That’s certainly the case for Amy Waldner, a third-year medical student at GW’s School of Medicine and Health Sciences (SMHS), who will use her new leadership role to advocate for her fellow medical students. As of January, Waldner is the GW student representative to

the Organization of Student Representatives (OSR), and she was elected as a national delegate to the OSR Administrative Board. Founded to represent medical students nationwide, the OSR ensures that students actively participate in directing their education, while working with the Association of American Medical Colleges (AAMC) to improve the nation's health. Waldner will represent students in the AAMC by providing feedback on the programs and services that are sponsored by the organization, then disseminating that information to her fellow students.

The key to success in Waldner's new role is keeping current. "I have to stay up-to-date on everything from new recommendations for applications to residency, to away rotations, to national residency matching programs, to MCAT changes," she said. Most importantly, her role is to stand up for students, said Waldner.

In her new position, Waldner will work closely with Scott Schroth, M.D., M.P.H., associate dean for administration at SMHS and chair of the Group on Student Affairs (GSA) Steering Committee for the AAMC.

Student wellness is a major initiative that falls under the student affairs umbrella, said Schroth and Waldner. "We are trying to focus not just on emotional and mental health wellness, but also physical and spiritual wellness," said Schroth. Waldner echoes Schroth's desire to ensure that students' needs beyond academics are met. "It's my job to make sure that students know what resources are available in terms of wellness," said Waldner.

Waldner is also learning how to advocate for herself and, most importantly, her future patients. "In a sense, patients are voiceless. You need to know how the legislative system operates, as well as the different points of entry for advocating on behalf of your patients." ■

GW PA Students Support Clinical Officer Training Program in Rwanda

The GW Physician Assistant (PA) program and the Rwandan Embassy have joined forces to bring lab coats, training supplies, and textbooks to Rwandan health professional students.

Lisa Alexander, Ed.D., M.P.H., P.A. '79, director of GW's PA program, served as a Fulbright senior specialist to the Ministry of Education in Rwanda in 2009-10 to determine how best to meet the existing health workforce shortages, especially in rural primary care. After completing a feasibility study, she collaborated with faculty at the Kigali Health Institute to develop the curriculum. Even with these resources, and despite several attempts to secure additional

government or international monies, the funding for the program was severely limited.

The Clinical Officer program, however, has persevered through these challenges and has been able to accept its first class of students in 2012. It is in the process of training its first cohort of 150 students to function as the country's newest health professionals. ■

No Stone Unturned

In the United States, one in 10 men and one in 14 women has had a kidney stone. Jeremy Brown, M.D., associate professor of emergency medicine at the GW School of Medicine and Health Sciences, has received a grant to explore new ways to treat kidney stones.

Brown received a four-year, \$4.2 million cooperative-agreement research project grant from the National Institutes of Health and the National Institute of Diabetes and Digestive and Kidney Diseases. His research project will enroll patients with kidney stones in three emergency departments (EDs), including the ED at GW Hospital, and randomize them to either an active medication called Tamsulosin or a placebo.

Brown believes treatment with Tamsulosin may help patients pass their kidney stones faster and with fewer complications. ■

Headlining Hedgehogs

Many researchers believe that the Hedgehog (Hh) signaling pathway, which transmits information to embryonic cells for proper development and is important for regeneration, may actually regulate cell-to-cell adhesion and segregation — but there isn't any evidence it's true. Xiaoyan Zheng, Ph.D., assistant professor of anatomy and regenerative biology at GW's School of Medicine and Health Sciences, is working to change that. With a \$747,000 grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development at the National Institutes of Health, Zheng will focus on identifying the mechanism involved in this process.

"This is a very fundamental question, but a very important question, especially in the process of cancer development," said Zheng. "I'm trying to understand the basic, but very important question of how the Hh signal defines cell-to-cell interaction, which is what I am going to focus on with this grant."

The project, titled "Hedgehog-mediated regulation of cell adhesion," will be funded over a three-year period. ■



HOME FIELD ADVANTAGE

VICE PRESIDENT AND DEAN
JEFFREY S. AKMAN EMPLOYS
HIS GIFT FOR UNITING PEOPLE TO
BENEFIT THE SCHOOL OF MEDICINE
AND HEALTH SCIENCES

BY STEVEN GOLDSTEIN
PHOTOGRAPHY BY MICHAEL LEONG

Thanksgiving break, 1977. Jeffrey Scott Akman, union leader's son and Duke University graduate, returns to his family's Baltimore home having just completed his first few months of medical school at the George Washington University.

His pleased parents and grandparents sit with him at the kitchen table, filled with pride and expectation. His grandmother, Bubbe Rose, reaches into her ample pocketbook and pulls out an assortment of pill bottles, perhaps 10 in all, and asks: "So, Jeff, do you think I'm on the right medications?"

Akman laughs as he thinks back to the scene. "I'd been in school for three months. But it struck me that it's all part of how people see you and treat you as a doctor, and it's part of the evolution of your own identity."

So, years later, when a student approached Akman, by then director of medical student education in psychiatry and an assistant dean at GW's School of Medicine and Health Sciences (SMHS), and said that he'd figured out that medical school was just a glorified vocational institution, Akman encouraged him to reconsider. "You don't realize how you've evolved in your identity and your sense of yourself," he recalls telling the student. "I wanted him to understand the developmental process that students go through when they become physicians, how their confidence and their professionalism evolves."

Akman's own identity is inextricably tied to SMHS, where he has been a student (M.D. '81); a resident (G.M.E. '85); a faculty member; an administrator; the Leon M. Yochelson Professor and Chair of the Department of Psychiatry and Behavioral Sciences; the interim vice president for health affairs and dean; and, as of January 2013, the Walter A. Bloedorn Chair of Administrative Medicine, vice president for health affairs, and dean. He arrived at the school just four years after Ross Hall opened in 1973, and his long experience with SMHS is a huge advantage in his new role, he says.

"I know the DNA of the school. I know it from so many different perspectives," Akman says. "I know the culture and the history, and when I think about my role as dean, all my experiences are relevant." During a recent trip to California, Akman spoke with a 1970s-era alumnus who expressed the hope that SMHS remains as supportive of its students today

as it had been in his experience. "I replied that not only am I a product of that culture of collaboration, cooperation, teamwork, and support, I feel like I'm the guardian of it," says Akman.

This does not mean that the dean's stewardship equates to running in place. At a town hall meeting after he took office, Akman presented an ambitious list of priorities, including increasing the number of scholarships; maintaining tuition affordability; re-examining and revising the medical education curriculum; helping GW advance as a top-tier research university; enhancing diversity at SMHS; enlarging the school's footprint internationally, especially in China; finishing the renovations to Ross Hall and planning for a new building; increasing space for teaching and labs at GW's Virginia Science and Technology Campus in Ashburn; and,

"I know the DNA of the school. I know it from so many different perspectives," Akman says. "I know the culture and the history, and when I think about my role as dean, all my experiences are relevant."

finally, revising the strategic plan as soon as new leadership appointments are finalized. An expansive agenda, to be sure.

At the same meeting, Akman commented that it was "kind of nice" to have a psychiatrist in the dean's office. Although the remark drew knowing laughter, he was only half joking. "As a psychiatrist, you're trained to deal with a range of personalities and group dynamics. You're trained to listen carefully," he says. "You have to be a leader and also to communicate your vision and priorities, but ultimately if you want change to occur, you have to get buy-in — and being a psychiatrist helps with that."

When the search process began, says GW President Steven Knapp, he and Provost Steven Lerman were looking for a candidate who ideally had "the leadership and people skills necessary to serve as an ambassador for the university."

“This is a particularly complex role,” explains Knapp. “Not only does the position entail all of the responsibilities and requirements of academic leadership as dean of a professional school, but also the vice president for health affairs serves as the liaison between the GW Hospital, the GW Medical Faculty Associates, Children’s National Medical Center, and the VA.”

In the area of building consensus, Akman has had some strong influences in his life. As the son of a union leader, he holds vivid memories of union halls packed with hundreds of



Akman shares the excitement and joy of match day with members of the SMHS Class of 2013.

workers, and watching as his father spoke, persuading them to accept or reject a contract. When Akman first became interested in medicine as an undergrad at Duke, his father’s cousin, Leonard Akman, M.D. ’43, a cardiologist who graduated from GW, gave him his first microscope. There was also former Dean Robert Keimowitz, M.D., who encouraged his choice of psychiatry, as well as other faculty members, including the late Winfield Scott, Ph.D., who mentored Akman and in 1988 recommended him for the board of the National Lesbian and Gay Health Foundation.

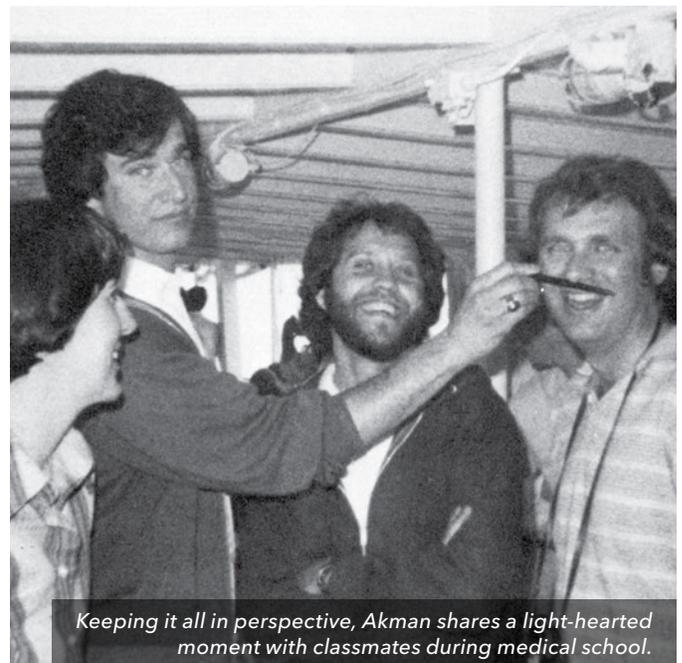
Akman was living in one of the hardest-hit areas of the HIV/AIDS epidemic in the early 1980s, and his work with the then fledgling Whitman-Walker Clinic and his treatment of HIV/AIDS patients is an enduring part of a medical career that has led to numerous honors, such as his selection by Washington, D.C., Mayor Vincent Gray to serve on the city’s Commission on HIV/AIDS. Akman also sees HIV/AIDS as an important research area on which to build; he recently hired Douglas Nixon, M.D., Ph.D., an internationally recognized HIV/AIDS researcher from the University of California at San Francisco, to chair the SMHS Department of Microbiology, Immunology, and Tropical Medicine.

He vividly recalls his early experiences as a clinician facing the burgeoning epidemic in 1984. Akman had a patient, a man in his 20s who was a photographer, who announced that he was suicidal. “He came into the hospital with an IV in his arm, as he was receiving intravenous treatments at home. He could have committed suicide if he really wanted to,” recalls Akman. “I learned that when patients say they want to die, frequently what they mean is that they want to live, and they are searching for hope. Despite his terminal illness, he was able to work through the pain and many of the losses he was dealing with. I learned a great deal from him.”

Akman has served as a willing role model for LGBT students and those unsure of their sexual orientation. His sense of inclusiveness prompted his friend and colleague Seymour Perlin, M.D., GW professor emeritus of psychiatry and behavioral sciences, to say that Akman “is an example of what every mentor or tutor hopes will emerge from their guidance and training. He possesses the gift of bringing people together.”

That gift will help Akman in his service to the school’s development office, which keeps him busy meeting alumni. “I truly value alumni and the role they play in the school; among other things, I’m prominently including them in special events such as our white coat ceremonies and graduations,” he says. One of Akman’s goals in the near future is to secure a gift for the naming of SMHS, which will go a long way in securing the school’s future.

“Set the bar high for medical and health sciences education, and our students will get there,” is how he expresses his education philosophy. Akman has set lofty heights for his own stewardship, and there is every expectation they will be reached. ■



Keeping it all in perspective, Akman shares a light-hearted moment with classmates during medical school.

Bopper Comes Back to GW

BY LAURA OTTO

Lawrence Deyton asks that you call him by his nickname, Bopper. After all, it's what his family, friends, and colleagues have always called him. "I didn't even know about the name Lawrence until I got to junior high school," insists Deyton. "My mother and older sister sat me down and told me that Bopper was a nickname given to me as an infant and the name just stuck." Whatever you call him, returning to the George Washington University (GW) is returning home for Lawrence "Bopper" Deyton, M.D. '85, who has joined GW's School of Medicine and Health Sciences (SMHS) faculty as a clinical professor of medicine. He will also serve as a professor of health policy at the GW School of Public Health and Health Services.

Driven by his passion for a healthier United States, Deyton brings to the university more than 30 years of experience in federal public health, health policy, health system administration, and clinical research. Deyton held leadership positions at the National Institute of Allergy and Infectious Diseases at the National Institutes of Health for 11 years, and served as the chief public health and environmental hazards officer for the U.S. Department of Veterans Affairs' Veterans Health Administration. And in the 1970s he co-founded the Whitman-Walker Clinic in Washington, D.C.

More recently, as the first director of the Center for Tobacco Products at the U.S. Food and Drug Administration (FDA), Deyton led the creation of the science, regulatory, and enforcement foundation for implementing the Family Smoking Prevention and Tobacco Control Act. The act was signed into law by President Barack Obama on June 22, 2009, becoming one of the president's first major public health accomplishments. Deyton led the implementation of rules and regulations that prohibited marketing tobacco products to children and adolescents; prohibited the manufacture and sale of cigarettes with fruit or candy flavors; banned the use of misleading descriptors ("light," "low," or "mild"); enacted requirements for disclosure of tobacco product ingredients to the FDA, and set the scientific standards for the introduction of new or modified-risk tobacco products.

Being back at GW, Deyton is most excited about engaging with students, trainees, and faculty. "I want to help



mold medical students into highly trained clinicians who can also be leaders in health policy and public health," says Deyton. Last summer, Jeffrey S. Akman, M.D. '81, G.M.E. '85, vice president for health affairs and dean of SMHS, asked Deyton to serve as the keynote speaker for the M.D. White Coat ceremony. Honored by Akman's invitation, Deyton says the experience transformed him. "Walking up to that podium in Lisner Auditorium, the very place where I took my Hippocratic Oath, was an extremely powerful moment for me," he recalls.

So much has changed at GW since those days when he was a medical student. The biggest difference, according to Deyton, is the university's growth. "When I came to GW, where the GW Hospital is now was a parking lot and the space that was the GW Hospital is now Whole Foods," recalls Deyton.

There is no doubt that Deyton is excited to be back in the classroom. "Hopefully GW students can benefit from my experiences in medicine, public health, and health policy," he said. "I want to encourage our trainees and faculty to take full advantage of GW's status as 'neighbor' to the White House and the decision makers in the federal agencies," said Deyton. "It is great to be back home." ■



Hippocrates and the Essence of Euripides

Medical humanities education illuminates the human condition, creates more effective clinicians

BY STEVE GOLDSTEIN

In the film *50/50*, based on a true story, a 27-year-old writer is blindsided by a cancer diagnosis and struggles with the disease, as well as the bewilderment of his friends and family. James L. Scott, M.D., former dean of GW's School of Medicine and Health Sciences (SMHS) and a professor in the Department of Emergency Medicine, teaches this movie in a film and medicine course. "It portrays living with cancer in a way we don't normally think about, with a young man dealing with it through black humor, with friends making fun of it, living with it in ways that wouldn't occur to most people," says Scott.

And it fits in with the goals of humanities education at SMHS, which is aimed at using the arts to deepen the understanding of the human condition. Or, to put it another way, adding the essence of Euripides to the ethos of Hippocrates.

Vice President for Health Affairs and Dean of SMHS Jeffrey S. Akman, M.D. '81, G.M.E. '85, an avid supporter of the program begun by Scott in 2005, and himself a former English major at Duke University, says: "I think the arts and humanities give us particular insights into the human condition that are relevant to being a physician. I want to support my students, residents, and faculty so that they think about people in a complex way, and arts help us to do that. I think that's what drives people to medicine — the notion of humanity."

GW holds a unique and prominent place in medical humanities education in the United States. Although a majority of medical schools offer some courses in medical humanities, only a relatively small percentage offer as robust a program as SMHS, according to Therese Jones, Ph.D., interim director of the Center for Bioethics and Humanities

at the University of Colorado, Denver. And the emphasis at GW is growing.

“Medical humanities” is typically defined as an interdisciplinary field of humanities (literature, philosophy, ethics, history, and religion), social science (anthropology, cultural studies, psychology, sociology), and the arts (literature, theater, film, and visual arts) and their application to medical education and practice. Apart from providing insight into the human condition, studying literature and the arts helps to develop and nurture skills of observation, analysis, empathy, and self-reflection — skills that are essential for humane medical care.

Linda Raphael, director of the medical humanities track curriculum at SMHS, emphasizes the interdisciplinary nature of the program. “When any discipline sees itself as separate from all other things, it tends to suffer,” she says. “Medical education is very vigorous and demanding. The humanities offer an opportunity for students to think and talk about what they’re doing in a different language and through different perceptions. It takes them a little back into the world they’ve come from.”

At GW, medical humanities electives are offered in the first, second, and fourth years. In the third year, Raphael leads one to three sessions in all of the clerkships — psychiatry has three, for example. So even if a student chooses not to take any electives, he or she will attend humanities sessions in the clerkship year. “By the fourth year, the number of students exposed to classes in medical humanities is at least one-third of the 170 students in each class,” she says. There are also those who choose the humanities track for all four years, although this cohort is small.

Raphael, who teaches a course on graphic literature involving medicine called “Commix,” recalls a neurology track student who was particularly moved after viewing a film meant to stimulate discussion about the distinction between sympathy and empathy. “She said it meant a lot to her to have an opportunity to talk about these things,” Raphael says.

Another innovation at SMHS is a Theater in Medicine program, developed by Charles Samenow, M.D., assistant professor of psychiatry and behavioral sciences and director for medical student education, and GW visiting professor Jeffrey Allen Steiger, who directed a theater program at the University of Michigan. A team of actors, some of whom have a background in health care, use common issues such as personal relationships, stress, and competitiveness among practitioners to highlight theories of professionalism.

One performance, called “Milestones,” is a dynamic, interactive multimedia production focused on professionalism, burnout, and disruptive behaviors. Samenow believes that information delivered through the medium of theater — “a safe learning environment” — resonates with students and faculty,

and makes lessons on communications, conflict resolution, and teamwork more vivid and, often, longer lasting. Feedback from students and professionals has been very positive.

Psychiatrist and philanthropist Assad Meymandi, who received his M.D. from GW in 1962, has been a vocal supporter of humanities education at his alma mater. “The most important thing for me is to bridge the gap between basic sciences and the humanities and the arts,” he says. “I see so many humanists who don’t know anything about science and so many scientists who know nothing about the humanities. I want to bring the two bodies together.” Meymandi says he’d love to add a course to the humanities curriculum about “what it means to be a human.”

Samenow believes that information delivered through the medium of theater — “a safe learning environment” — resonates with students and faculty, and makes the lessons on communications, conflict resolution, and teamwork more vivid and, often, more permanent.

Humanities education at GW is not restricted to medical students. Christopher Bayne, a urology resident, is chair of the Arnold P. Gold Humanism Honor Society chapter (see page 32). “The Gold Foundation and others like it are trying to bring the human element back into what is almost algorithmic care,” he explains. “Medicine used to be a very personal interaction; now it’s not.”

Akman spends significant time speaking to alumni and potential donors about supporting the humanities education program. He is proud of the humanities history at the school, which he says actually began with popular professor Frank N. Miller, B.S. ’43, M.D. ’48, GW professor emeritus of Pathology, who originated a Medicine in Literature course way back in 1967.

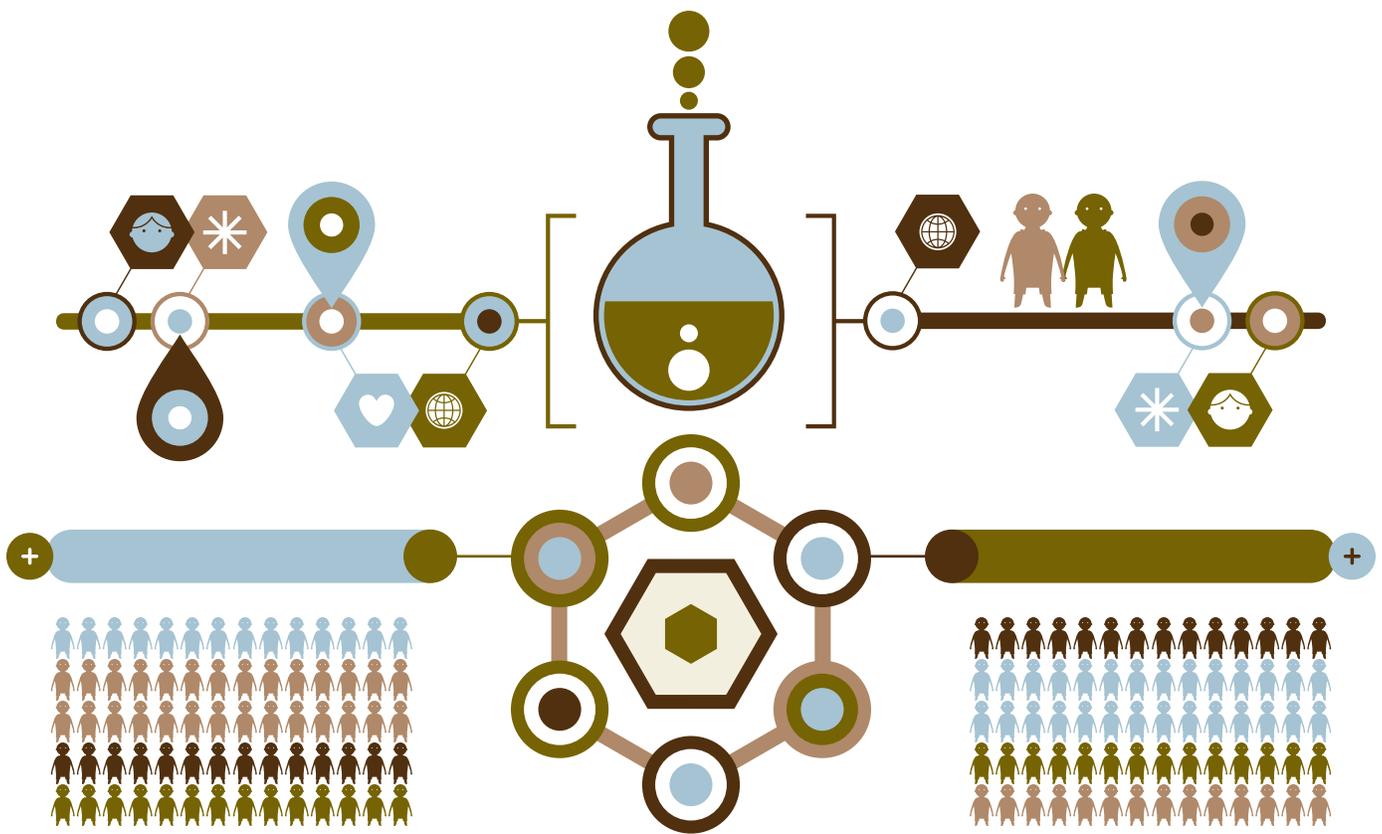
Akman himself teaches a course with Raphael. A theater buff, he was momentarily overwhelmed with ideas when asked what play he would teach. “Angels in America by Tony Kushner,” he reasons. “It deals with HIV/AIDS, and he builds an epic play around a medical illness.

“If I could have medical students see one play, that would be it.” ■

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Comparative Speaking

Clinical Research and Leadership Professor **Shawneequa Callier, J.D., M.A.**, weighs in on the implications of human genome research

BY KRISTIN HUBING

In the summer of 1996, the scientific community was stirring with the news of the birth of Dolly the sheep — the first mammal to be cloned from an adult cell. Shawneequa Callier was still a high school student in Queens, N.Y., at the time, but she was already captivated by the ethical concerns that arose from this breakthrough.

During her freshman year at Princeton University, Callier enrolled in her first bioethics course. It was taught by renowned political scientist and philosopher Amy Gutmann, Ph.D., who now serves as chair of the Presidential Commission for the Study of Bioethical Issues and president of the University of Pennsylvania. “My most vivid memory of any college professor is of Dr. Gutmann,” recalls Callier. “She eloquently presented us with case studies and thought experiments that trained us to think about transparency, accountability, and ethical decision making. I continue to admire her as an instructor and thought leader.”

Shawneequa Callier, J.D., M.A., assistant professor in the Department of Clinical Research and Leadership at the George Washington University School of Medicine and Health Sciences (SMHS), has since dedicated herself

to the study of the ethical, legal, and social implications of human genome research. She says she “fell in love with the field” as a graduate student interning at the World Health Organization’s Human Genetics Programme in Geneva (before that, Callier studied bioethics at Monash University in Australia), where she had the opportunity to review international guidelines related to genetic research and the ethical conduct of such research.

After stops at Georgetown University Law Center and the Case Western Reserve University Center for Genetic Research Ethics and Law, Callier joined the SMHS faculty in the spring of 2011. She currently teaches online health sciences courses in bioethics and health care law. Callier, a self-proclaimed fan of social media, enjoys teaching online. She utilizes discussion boards and reflection journals, and says that “unlike in a classroom where five to 10 students might speak all the time, I know what’s going on in every single student’s head.”

She recently built a wiki (a website that enables users to add or change content) for her bioethics class and asked her students, many of whom are adult professionals already

working in health sciences, to contribute to a list of issues they would want a patient to understand before donating DNA to a biobank. “Teaching in a classroom is great too,” Callier says, “but these students are leading very busy lives. They want to get a degree while they’re also being leaders at the office, and this is a great way to allow that.”

When she’s not teaching, Callier is immersed in her research. As a co-investigator on a grant funded by the National Human Genome Research Institute at the National Institutes of Health, she addresses the ethical, legal, and social issues raised in personalized medicine within the context of comparative effectiveness research (CER). “There is a potential conflict between CER and personalized medicine,” Callier explains. “CER aims to identify the most efficient and effective strategies for treating the average patient suffering from a particular disease, but personalized medicine focuses on medical interventions tailored to fit each person’s unique genetic profile. Ideally, the two will evolve together so that providers can place patients into subgroups and then pinpoint the most cost-efficient strategies for each person within those subgroups.” Two graduate students from GW’s School of Public Health and Health Services, Rachel Simpson and Monica Gonzalez, assist Callier with her research on this grant, as well as her work as one of three principal investigators evaluating providers’ use of race and genetics in medical care.

According to Joseph Bocchino, Ed.D., M.B.A., senior associate dean for health sciences, Callier’s work is essential, given the important role that bioethics plays in how health care will be shaped and delivered in the future. “Dr. Callier’s contributions to SMHS will be particularly important as the school engages in more health outcomes and comparative effectiveness research,” Bocchino says. “Also, her passion for this field is now being transferred through her classroom to the next generation of health practitioners and researchers.”

Callier is deeply concerned about gaps in research that limit our understanding of genetic contributions to disease globally and therefore our understanding of the role of rare mutations domestically. This unease prompted her to co-author an article titled “Why personalized medicine will fail if we stay the course,” which was published in the November 2012 issue of the journal *Personalized Medicine*. Callier’s other recent publications include “GINA and preemployment criminal background checks,” which is a *Hastings Center Report* piece about the Genetic Information Nondiscrimination Act, and a target article in *The American Journal of Bioethics* about whether universities should be allowed to facilitate educational DNA testing.

Currently, Callier is also collaborating with investigators at the National Human Genome Research Institute and at universities in Africa who share her interest in the just and equitable distribution of the benefits of genomic

research. “I’m co-authoring a manuscript now with another Georgetown Law alumna who lives in Nigeria. We’re evaluating legal issues raised by genomic research in Nigeria and assessing the role of local laws and customs,” she says.

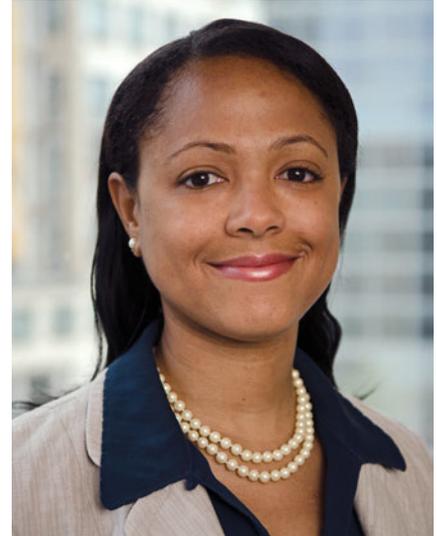
Callier sees herself evolving in the genetic research world, but can’t imagine ever leaving it. She is currently following the

Maryland v. King Supreme Court case, which addresses whether the Fourth Amendment allows states the right to collect and analyze DNA from those who have been arrested and charged with serious crimes. “I’m collaborating with a colleague at the Center for Research on Genomics and

Global Health on a paper about what it takes to qualify an expert witness on genetic testing,” Callier says. “Given the rapid advancement of genomic technology and the simultaneous controversies raised by the regulation and reliability of genetic testing services, debate about the utility, validity, and safety of gene-based, medical decision making will eventually find its way into the courtroom.”

When it comes to the regulation of genetic research, Callier says she is a fan of information, education, and dialogue. “I don’t think we can really know what the regulations should be until we have a conversation with the people who are going to be impacted by those regulations,” she says. “Experts who study the consequences of these technologies should interact with the people who are going to be affected by the technologies. We have to protect the informed consent and the health and safety of every single person we involve in research, but we want to have an idea of the community’s needs and we want to make sure we address them as we pursue research.”

Throughout it all, Callier remains grateful for the support of her colleagues at GW. “I’ve moved around quite a bit, and this is one of the first times where I feel like I’m in the right environment,” she says. “And that’s kind of cool.” ■



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JUMPING TO SOLUTIONS

Researcher **Sally Moody** uses frog embryos to clear the knowledge gap in neural regeneration

BY STEVE GOLDSTEIN

Sally A. Moody is a lab rat. She works with frogs in service to the world's mammals, especially the two-legged kind. If her research at GW reaches its full potential, it will mark a significant breakthrough in neural regeneration through the manipulation of stem cells.

Sally Moody, Ph.D., a professor of anatomy and regenerative biology at the George Washington University School of Medicine and Health Sciences, is currently exploring the cascade of interactions that instruct lineages to give rise to the frog nervous system. In collaboration with fellow GW professor and

Working with a gene called *FoxD4* in *Xenopus laevis*, the African clawed frog, Moody and her team wanted to influence a cell that would otherwise make gut or skin to instead make nervous system.

GW Institute for Neuroscience Director Anthony-Samuel LaMantia, Ph.D., Moody is trying to determine whether what she has learned about manipulating a gene in the frog embryo is applicable to mouse embryonic stem cells.

The 60-year-old personable, tattooed (yes — more on that later) former music major, who grew up on a dairy farm in upstate New York, is celebrating the 30th anniversary of her lab, which she began at the University of Virginia as an assistant professor. To fully appreciate Moody's dedication to her lab, let's reflect on the story of Max Mandelbaum. Last year, Mandelbaum, an eager GW freshman from the Philadelphia suburbs, signed up for a stem cell course that Moody was offering. Unfortunately, he was the only enrollee, so Moody offered him a choice of dropping the course or taking a one-on-one seminar with her each Wednesday.

Mandelbaum was amazed. "I think most professors would have just canceled the course," he said later.

One Wednesday, Mandelbaum found Moody's office door locked. "I had simply forgotten," she explains, "so he tracked me down in the lab." Moody explained she was working with frog embryos and the student was enthralled. And that's how Max Mandelbaum became one of three undergrads now working for credit in her lab. "I'm trying to get him a grant so he can work in the lab this summer," Moody says. "He's very gung-ho."

Mandelbaum says his career path has changed. "I was originally focused on med school," he says, "but the more I work in her research lab, the more I'm thinking of getting a Ph.D. and pursuing my own research."

Moody spends a lot of time with her undergrads, teaching them how to do research and working with them at the bench. "I really enjoy this," she says. "I had a similar experience as an undergrad doing independent research — once I figured out I wanted to do biology." In fact, if not for her wanting to escape rural New York and having a lack of confidence in her own musicianship, the world might have lost an eminent researcher.

Her desire for independence led Moody to leave high school after her junior year after being accepted early by Goucher College in suburban Baltimore. Halfway through her second year, Moody says, she "realized there was no way I was ever going to make a living as a music major because I wasn't that good." The longtime self-described "science

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nerd" switched to biology and again graduated after only three years. Seeking financial independence, Moody finally landed a job as a lab tech in the anatomy department at the University of Maryland School of Dentistry. "They taught me to do histology and I loved it," she says. "And they asked me if I wanted to get a master's because they saw how interested I was."

Moody did research in neuroscience under the tutelage of Richard Meszler, Ph.D., and her career path exploring the nervous system was launched. She earned her Ph.D. in neuroscience from the University of Florida and served a



Moody is looking for a method to control the gene expression of embryonic cells to encourage them to make neurons that could be used to replace damaged brain tissue.

postdoctoral fellowship at the University of Utah until 1983. She then went to the University of Virginia and served on the faculty of the Anatomy and Cell Biology Department, the Department of Neuroscience, and the Developmental Biology program. She came to GW as a full professor in 1994.

So what goes on in her lab? Moody and her team are working on two grants from the National Science Foundation and the National Institutes of Health. Working with a gene called *FoxD4* in *Xenopus laevis*, the African clawed frog, Moody and her team want to influence a cell that normally makes gut or skin to instead make nervous system. “What we’re trying to do is understand how an embryonic cell makes the decision to become a neuron,” she says. “It doesn’t have to do with the frog’s nervous system; the frog is just the medium in which it’s easiest to do the experiments. When they start out, embryonic cells are pluripotent — that is, they can make lots of different tissues. So it’s those early decisions we’re trying to parse out, really looking at a network of genes and how they interact to cause this conversion of a cell that can make anything to a cell that can only make nervous system. That’s pretty cool.”

The collaboration with LaMantia’s lab “grew out of our shared interest in the early steps of specifying neural stem cells,” says LaMantia. “Sally had done pioneering work on a family of genes, the forkhead or Fox genes, that she had shown clearly were key for neural stem cell identity in the frog. My colleagues and I found that the mouse equivalent of one of these genes had a dramatic increase in expression just as the forebrain — the part of the embryonic brain that will make all of the regions that do the ‘heavy lifting’ of cognition, learning, and memory — becomes distinct as a defined region. I think we really have been able to establish

an approach that will allow us to begin to sort out just what the ‘switches’ are that direct a stem cell to become a neural stem cell.”

Also in Moody’s lab, research scientist Bo Yan, M.D., Ph.D., professor of Anatomy and Cell Biology and of Genetics, is working on a two-year grant from NIH’s National Institute of Dental and Craniofacial Research, for its project on identifying novel genes involved in neural tube and craniofacial birth defects.

If the research gods smile upon Moody’s work, scientists will be able to control development of embryonic cells, whether they are in an embryo or a stem cell, and to force them to make neurons in a controlled way. “We want to control their gene expression so that they make neurons, which would be useful for regenerative medicine,” says Moody. “This could be used to replace neurons in damaged neural tissue, as occurs in stroke — to grow replacements and then transplant them. It’s a long way off, but that’s the ultimate goal.”

Throughout her research, Moody continues to teach — in school, in her lab, and outside the university. Not long ago, she was giving a talk at an elementary school not far from the Rockville, Md., home she shares with her husband, Steven L. Klein, an NSF program director. Moody was wearing sneakers with low-cut socks, and suddenly one of her young listeners burst out: “Oh. My. God. She has a frog on her leg!”

Moody raised her pant leg above her right ankle, so everyone could see. Sure enough, it was a blue-ink tattoo of *Xenopus*, the product of a mother–daughter bonding experience with daughter Rachel at a Gaithersburg tattoo parlor.

Some folks wear their heart on their sleeve, metaphorically. Sally Moody carries visible testimony of her devotion to research with every step she takes. ■

Physical Therapy on the Brain

GW's Health Sciences Programs Prepare to Launch PT Neurologic Residency Program

BY KRISTIN HUBING

When Elizabeth Ruckert graduated from Ithaca College with her Doctor of Physical Therapy (DPT) degree in 2006, she immediately accepted a job at a rehabilitation hospital in New Jersey, where she joined the traumatic brain injury rehab team. After just six months at the hospital, she began to question her decision. “I was feeling like there was so much I didn’t know, and I was realizing how hard it was to have structured, dedicated mentorship in this fast-paced health care environment,” she says. That’s when she began investigating physical therapy residency programs.

There were only two neurologic residency programs in the country at the time, and Ruckert chose to apply to the one at the University of Southern California (USC). She was accepted and spent the next year at Rancho Los Amigos National Rehabilitation Center, USC’s partner facility, where her foundational knowledge of neurologic practice and her clinical skills were further developed and refined through expert mentorship. The residency program also involved teaching in USC’s DPT program and conducting research in the school’s Neuroplasticity and Imaging Laboratory. “Each component of the residency program helped me attain a greater understanding of what comprises expert physical therapy practice. These experiences set the foundation for my path toward a future career in academia,” Ruckert says.

Ruckert, DPT, PT, NCS, GCS, now assistant professor in the Physical Therapy (PT) Program at GW’s School of Medicine and Health Sciences (SMHS), still cherishes her residency experience. So much so, in fact, that she is working with leadership in the Physical Therapy Department to develop a neurologic residency program here at SMHS in collaboration with the MedStar National Rehabilitation Network.

In accordance with the American Physical Therapy Association’s (APTA’s) strict credentialing requirements, a one-year pilot of the residency program will commence in August 2013. “Our mission is to develop neurologic specialist practitioners who demonstrate advanced clinical reasoning, assessment, and intervention skills for individuals with neurologic disorders across practice settings,” Ruckert says. The program will offer “very focused experiences and mentorship in neurologic physical therapy practice,” much like the experience offered in SMHS’s orthopedic residency program, which has existed in partnership with Johns Hopkins University since 2012.

Joyce Maring, Ed.D., DPT program director and associate professor at SMHS, notes that the field of physical

therapy, like health care in general, is becoming more complex. “In order to provide the best-quality services, you really need practitioners and leaders who have advanced qualifications to be able to address the needs of a particular population,” Maring says.

Neurologic physical therapy focuses on the evaluation and treatment of individuals who have movement problems as a result of disease or injury of the nervous system. “We’re movement dysfunction specialists,” Ruckert says. “The goal is to maximize someone’s return to function, to life roles.”

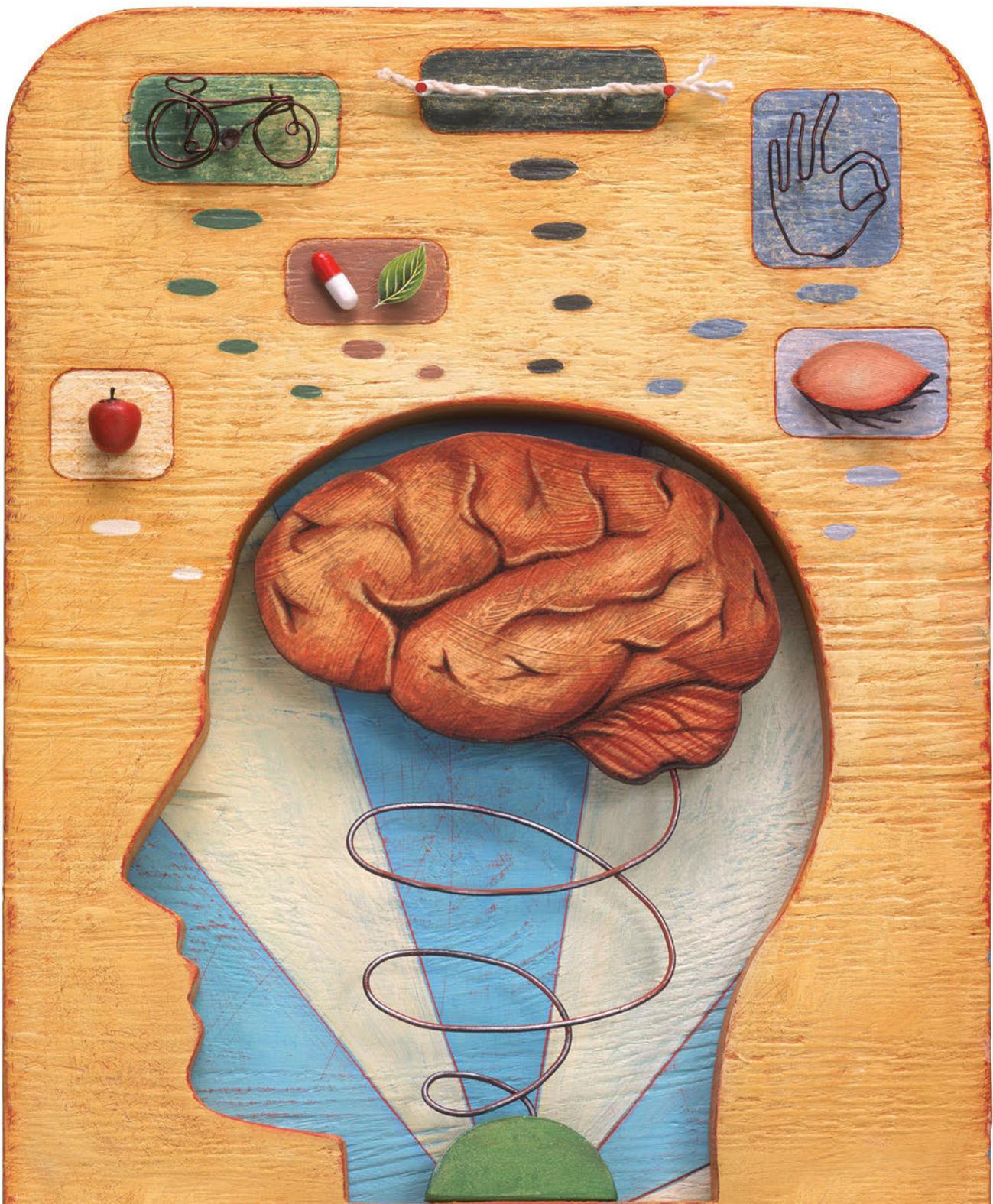
The challenging curriculum requires residents to immerse themselves in different components of neurologic specialty practice. The program has four primary focus areas: clinical practice, teaching, research, and didactic education. The residents — ideally there will be two during the pilot year — will be responsible for treating patients for 20 hours per week. The first four months will be spent on acute care, the second four months on acute rehabilitation, and the final four months on outpatient rehabilitation.

They will also have a clinician mentorship, which Ruckert calls the hallmark of the residency program. “It’s focused time with a neurologic rehab specialist,” she says. “It gives the resident the opportunity to ask any questions they might have and engage in higher-level discussion related to clinical decision making, problem solving, and reflection.”

In addition to getting exposure to the entire health care continuum, the residents in the program will also have teaching opportunities within SMHS’s DPT program. Ruckert stresses the importance of including a teaching component in the model because “teaching requires synthesis of information at a much higher level. That’s very important to the development of a specialist’s understanding.”

Ruckert has a palpable enthusiasm for expanding postgraduate education opportunities for new PT. “These programs are so important to the development of our new clinicians,” she says. “I’m impassioned about finding ways to let other people have the same opportunities that I feel so privileged to have had.” ■





WHERE SEIZURES FREEZE

At GW, bridges between the clinic and the bench may revolutionize epilepsy care

When Carrie Morgan¹ turned 10 years old, she learned she had a seizure disorder. For the next 28 years, she would try to calm the intense and sudden attacks with every anticonvulsant in the book. Nothing worked; the seizures grew more frequent. By 2000, she was suffering as many as 10 seizures per day. “My life was so restricted,” Morgan recalls. “I went from neurologist to neurologist, and they would just give up on me.” Then, Morgan met Samuel Potolicchio, M.D., the director of the Neurophysiology Center at the George Washington University Hospital (GW Hospital). He told her that by surgically removing a portion of her temporal lobe, the region of the brain where the seizures originated, he might be able to put an end to her attacks.

Taking out a piece of the damaged brain is a scary proposition, but not as scary as a life with uncontrolled seizures. Before committing to the surgery, however, the team needed to determine which side of Morgan’s brain dominated her verbal memory recall. Potolicchio and Anthony Caputy, M.D., professor and chair of the Department of Neurosurgery, had to confirm which sides of the brain had good or poor memory recall. More importantly, however, they needed to confirm that the side opposite of where the seizures were focused had good recall. To do that they performed the WADA test, named after Canadian neurologist Juhn Atsushi Wada, to determine the language and memory dominance between the hemispheres of the brain.

The team anesthetized the right side of Morgan’s brain, and they asked her what Dr. Potolicchio held in his hand. “A pen,” she correctly answered. When he anesthetized the left side, Morgan recalls, “I couldn’t say what he was holding. I understood, but I just couldn’t say it.” Immediately, Potolicchio told her she an excellent candidate for the procedure, and that her WADA test results confirmed that she was quite safe in terms of her memory. Shortly after her 38th birthday in 2001, Caputy performed surgery. She has not experienced a seizure since then, moreover she no longer takes medications to control her seizures, allowing her to fulfill her dream of graduating from college and becoming a medical technician. “I now have a new lease on life,” she says.

One-third of people with epilepsy cannot control their seizures with ordinary anti-epileptic drugs. Like Morgan in her teenage and young adult years, people with untreatable epilepsy are often barred from normal activities like swimming or driving because they frequently lose control of their bodies. Unlike her, a subset of these patients are not able to be treated through surgery. Neurologists and neuroscientists at George Washington University (GW) find this outcome terribly troubling. The Epilepsy Center at GW Hospital has

long helped those patients, and now it aims to do even better by translating cutting-edge science into patient care. For example, GW recently installed state-of-the-art equipment to monitor brain activity, which will help doctors pinpoint the origin of seizures so that they can tailor treatment to the individual. What’s more, collaborations between clinicians and researchers focused on the brain across the GW campus promise to usher in a wave of new and personalized seizure treatments in the years to come.

“My vision for the center is to be at the forefront of utilizing the most advanced technology for the care of individuals with epilepsy, to be at the forefront of research, and to be a leader in epilepsy education,” says Mohamad Koubeissi, M.D., a neurologist directing the center. “Luckily,” he adds, “these objectives are interwoven.” Indeed, translational research requires an ever-flowing partnership between the scientists at the bedside and the bench.

A PLANNED ATTACK

Koubeissi’s interdisciplinary attack resonates among his colleagues at GW, as does his sense of urgency. “Only frequent dialogue between clinicians and basic scientists can make inroads into the big problems that have prevented cures for epilepsy thus far,” says Anthony LaMantia, Ph.D., director of the GW Institute for Neuroscience (GWIN).

Methods to intervene with epilepsy have stalled in part because the brain is such a complicated organ to observe and manipulate. However, new technology that can image and monitor brain activities, and improved tools for analyzing the genes that reveal a risk of epilepsy and drug toxicity, may foster the next wave of advances. To this end, the center’s new system for monitoring the electrical activity in patients’ brains does not require patients to remain in their beds with wires connecting sensors on their scalps to computers at their bedsides. Now, the sensors wirelessly communicate with a hospital computer, meaning patients may be monitored more comfortably for longer periods. With this additional electroencephalogram (EEG) data, neurologists can more accurately predict where seizures arise in a person’s brain, and whether

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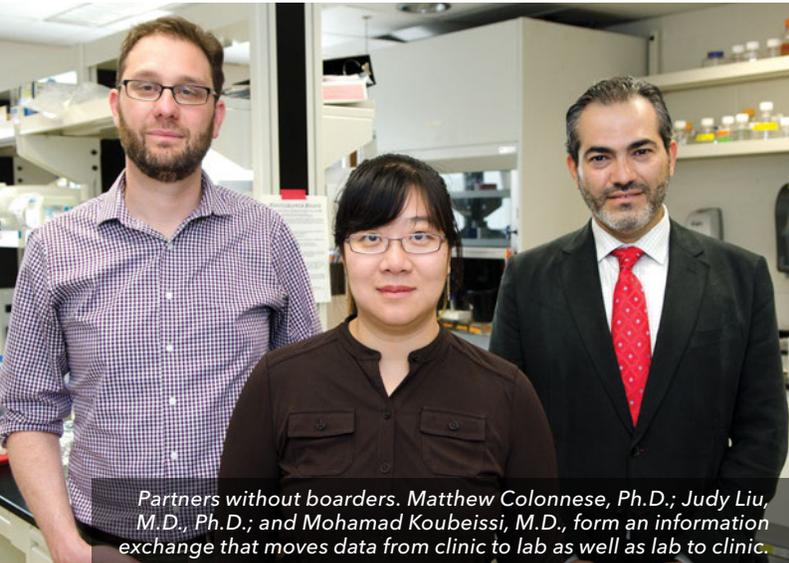


that person may be amenable to surgery or another investigational option.

People who are not safe candidates for surgery may soon seek solace at GW too. GW has been exploring memory loss for several years with other researchers on campus, including GW’s Department of Psychology in the Columbian

¹ The name has been changed to protect the patient’s identity.

College of Arts and Sciences. Koubeissi is investigating a couple of procedures that may avoid memory loss. One involves short-circuiting the seizure-generating section of the brain by snipping connections between it and neighboring regions. The second procedure is to electrically stimulate the malfunctioning area in order to get its signaling back on track. Through clinical trials to test these procedures at the GW Epilepsy Center, patients with no viable options would



Partners without borders. Matthew Colonnese, Ph.D.; Judy Liu, M.D., Ph.D.; and Mohamad Koubeissi, M.D., form an information exchange that moves data from clinic to lab as well as lab to clinic.

be offered the opportunity to try something new. “Following the textbook, we currently tell these patients, I’m sorry, there’s nothing we can do; you will live with your seizures,” Koubeissi says. “In the future, we want to explain that we’ve done everything in the textbook, but there may be procedures we can offer that might help you without interfering with your memory.”

BACK IN THE LAB

For many years GW and the Department of Neurosurgery has been a leader in the exploration into procedures using electrical pulses, called deep brain stimulation. Continuing in that tradition, Koubeissi is investigating his own techniques into the procedure. In preparation for the trials he hopes to soon lead, Koubeissi is refining new methods of delivering electrical pulses using rats with epilepsy. He studies them in his laboratory in GW’s Institute for Neuroscience. “People talk about moving findings from the lab to the clinic, but it works both ways,” Koubeissi says. “It’s clinic to lab, lab to clinic. It’s this type of dynamic relationship that we want to foster at GW.”

Judy Liu, M.D., Ph.D., assistant professor of pediatrics at the GW-affiliated Children’s National Medical Center (Children’s National) and member of its Center for Neuroscience Research, operates in a similar manner. She focuses on the neurological disorder lissencephaly, in which a person’s brain cells do not migrate to the correct spot during early childhood. By age 10, children begin suffering from seizures and

mental disabilities. Various mutated genes underlie the disorder, and Liu learns how these genes affect neuronal migration by altering them in mice, and analyzing the downstream changes in proteins that occur. “If we can figure out which proteins become dysregulated in the mice,” Liu says, “we can think about trying to alter proteins in patients in order to counteract seizures.”

Liu’s laboratory work also focuses on samples from patients, which ensures that what she discovers in mice is applicable to humans. Liu collaborates with neurologists at Children’s National. Weekly, she and the neurologists gather to discuss difficult cases, including any children who might go to surgery to ameliorate their epilepsy. When surgeries are performed, Liu, or a member of her laboratory, heads to the operating room to learn more about the patient and to observe exactly which part of the brain the neurosurgeons remove. They then cart the extracted tissue back to Liu’s laboratory for analysis. “We usually find that the tissue is more prone to [electrical] excitation, and we examine which genes are on and off compared to normal brain tissue,” Liu explains. “Next, we recapitulate those changes in mice so that we can understand the problems those genes cause.” Soon, Liu hopes to collaborate with neurologists at the Epilepsy Center to examine adult brain tissue.

Neurologists at the Epilepsy Center already converse with GW’s neuroscientists on a regular basis. Recently, Koubeissi helped Matthew Colonnese, Ph.D., an assistant professor at the GWIN, understand patterns he saw in an EEG from a rat brain. Colonnese studies the erroneous brain development that occurs in the genetic disorder Fragile X syndrome. In humans, the disorder is a common cause of epilepsy and mental disability, but parents often do not detect that their child has the disorder until they are at least 2 years old. If scientists could pinpoint when neurons begin to misfire during a baby’s development, Colonnese suspects they might develop a way to intervene before the problem becomes irreversible. To learn when the problems begin, Colonnese experiments with rats, engineered by an outside firm to bear a similar genetic mutation, observing them as they develop Fragile X syndrome. He has already had promising results: Before the rats showed any behavioral signs of having Fragile X syndrome, Colonnese noticed that some of their EEGs looked different from the EEGs of normal rats. “I saw crazy activity patterns, and so I asked Mohamad [Koubeissi] to look at the graph,” says Colonnese. “He pointed to a spike followed by a wave of activity and described the type of seizure it was.” Although the baby rats’ muscles were not seizing up, the rats were enduring the first neurological components of seizures.

BRIDGE BUILDERS

Translating findings from the laboratory to the clinic begins with interdisciplinary collaborations like these. To facilitate

those interactions, clinical and neuroscience departments host seminars, and the Epilepsy Center hosts a monthly series of lectures by epilepsy experts from around the world. In addition, GW researchers can conduct their brain-related experiments in a well-stocked core facility located at the GWIN (see sidebar). Henry Kaminski, M.D., the chair of GW's Department of Neurology, trusts that basic findings will move to the clinic at GW because the heads of each component actively push for translation. "I meet with scientists and clinicians in other departments spontaneously because I want to promote this type of interaction," Kaminski says.

Kaminski suggested expanding the Epilepsy Center in 2011 for several reasons. First, he knew that top neurologists and neurosurgeons at the center recognized the importance of research in finding new treatments, and therefore, that they might interact with neuroscientists like LaMantia elsewhere on the GW campus. Second, Kaminski and GW Hospital's clinical partners appreciated an unmet need for the Epilepsy Center in the greater Washington, D.C., area. "GW is among the few places that patients with difficult cases can go," says Kaminski.

"We have the opportunity to establish a continuity between pediatric neurology at Children's National and adult neurology at GW," says Vittorio Gallo, Ph.D., professor of pediatrics and of pharmacology and physiology at GW, and the Wolf-Pack Chair in Neuroscience and director of the Center for Neuroscience Research at Children's National.

The collaborative work between Colonnese, Koubeissi, and Liu, adds Gallo, is a prime example of how investigators can find colleagues whose research interests interface with their own. That exchange, adds Gallo, goes both ways. Normally, he says, research flows from basic science questions to translational research and ultimately ends up as clinical applications. "What we are able to do in this setting is reverse that pipeline. Physicians are able to find partnerships to study mechanisms that are at the basis of therapeutic applications by working together with investigators who are using animal models of disease."

One of the greatest medical challenges of the 21st century is finding cures for brain disorders. Neurological problems have been nearly impossible to solve because the brain is difficult to study and difficult to treat. Despite these hurdles, the army of clinicians and researchers across GW are well positioned to make a serious dent in the toll that seizures take on patients. On their side are modern medical and scientific tools, the push to interact across sectors, and raw drive. "As a doctor, I got tired of telling patients and their parents, we don't know why these seizures happen and we can't tailor our therapy to you or to your child," Liu says. "That's why a lot of us are back in the lab, so that five to 10 years down the road we can target therapy to specific patients." ■

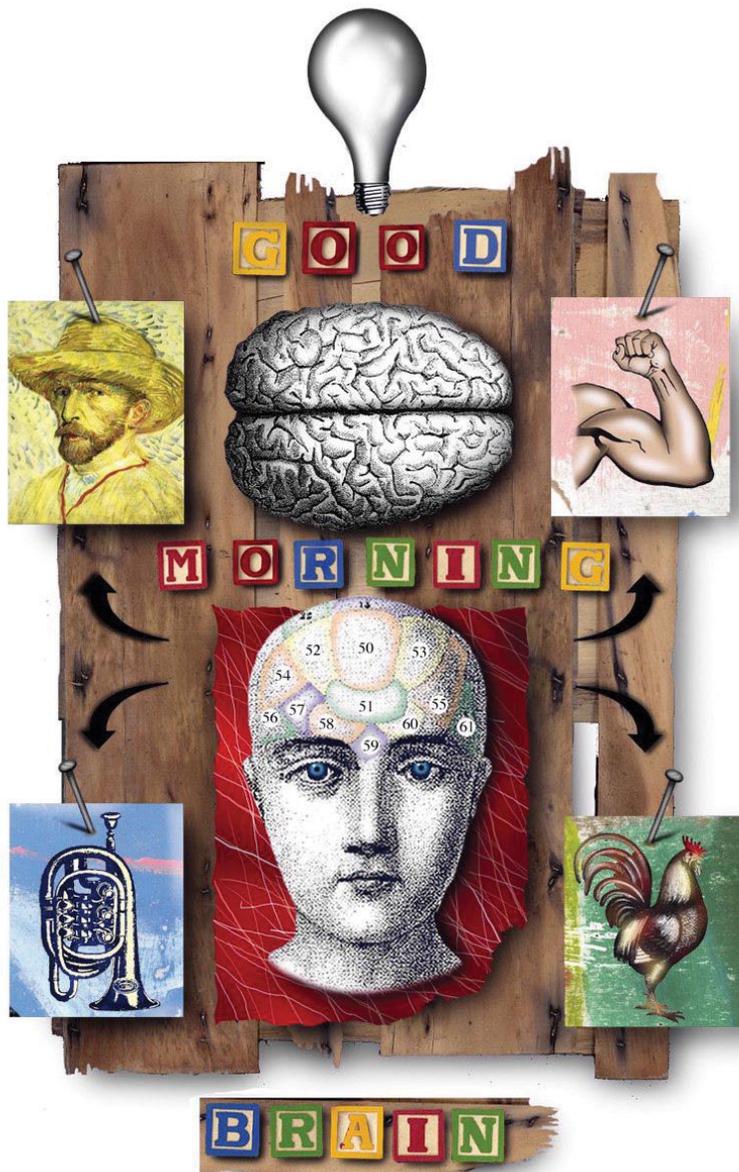
Core strength

Collaborative research is engineered into the Institute for Neuroscience. At the institute's Biomarker Discovery and Analysis Core Facility, researchers from the Neurology Department as well as myriad other centers across the GW campus gather in search of molecular biology services, tools, and expertise. There, researchers can have the DNA within their samples analyzed with high-throughput polymerase chain reaction platforms, microarrays, and *in situ* hybridization. Alternatively, they may visit the core facilities to conduct experiments that involve fluorescence microscopy; transgenic animals, plants, and bacteria; or embryonic stem cells from mice. This consolidation of resources saves money for individual laboratories on campus because they do not need to purchase their own equipment from scratch. In addition, it allows investigators to pursue questions outside their laboratory's—and often their department's—reach. Finally, it offers investigators from disparate realms a place to collaborate. "You can't force people to do things together, but you can provide opportunities that enable people with a variety of interests to cooperate," says Anthony LaMantia, Ph.D., director of the GW Institute for Neuroscience.

Much of the work conducted at the core facility applies directly to biomedical issues. For example, Thomas Maynard, Ph.D., director of the facility, uses tools at the core to analyze changes in gene expression that result in seizures, learning disabilities, and other symptoms of DiGeorge syndrome. Scientists know that the syndrome is caused by a DNA deletion in a part of the human genome called 22q11.2; however, they do not yet understand how this defect disrupts protein networks to cause neurological problems. Maynard's findings unexpectedly aided Irene Zohn, Ph.D., of Children's National Medical Center, when she visited the core facility to learn which genes and proteins caused neurological defects in malformed mice embryos. Maynard and Zohn realized that a protein from Maynard's experiment on DiGeorge syndrome, the nutrient retinoic acid (or vitamin A), also went awry in Zohn's embryos.

A Call to Arms

National tragedies prompt health care leaders to move mental health to the forefront



BY THOMAS KOHOUT

At 9:40 a.m. on Dec. 14, 2012, a troubled 20-year-old walked into Sandy Hook Elementary School and gunned down 20 children and six adults. The tragic event followed a pattern of 16 similar events that year, crisscrossing the nation and leaving 88 men, women, and children dead. The horrible nature of the crime reignited a long-simmering debate over access to guns, weapon types, and the capacity and availability of ammunition magazines.

Just a few days removed from the events, however, Kurt Newman, M.D., president and CEO of Children's National Medical Center (Children's National), and professor of surgery at GW's School of Medicine and Health Sciences (SMHS), raised his voice to offer a new focus to the discussion — pediatric mental health.

The tragedy in Newtown, Ct., offered the opportunity to draw attention to an issue Newman and other health care

professionals believe is long overdue. Immediately following the incident, issues involving guns and gun violence were on everyone's lips. "While that's probably appropriate, it's almost entirely an after-the-fact approach," says Newman. "There is another big dimension to this, and that is the mental health of children.

"To me, it doesn't feel like our country is focused on kids' mental health — pediatric mental health is not being addressed in the same way we address other diseases," explains Newman.

Soon after, Newman penned an editorial, titled "The Treatment of Mental Conditions Must Start Early," which was published in the Dec. 27 edition of *The Washington Post*. In it, he outlined the scope of the problem and offered several steps for addressing gaps in pediatric mental health care and thereby securing a better future for the nation's children.

First among Newman's recommendations was to take a moment to simply accept the magnitude of the problem. Shooting incidents like the ones that occurred at Sandy

Hook, Virginia Tech, and Columbine High School paint a picture of pediatric mental health in the extreme. The real tragedy, he argues, is in the scope of the issue, not the severity of a few iconic cases. According to the National Institute of Mental Health, one in five children in the United States suffers from a mental health-related problem; of the 15 million children affected by such conditions, only 20 percent ever receive treatment.

Such an outsized figure might seem farfetched, explains Paramjit T. Joshi, M.D., professor of psychiatry and behavioral sciences at SMHS, director of psychiatry at Children's National, and president-elect of the American Academy of Child & Adolescent Psychiatry, but that is because public attention is often drawn to more intense mental health disorders such as schizophrenia. "Among the 20 percent of children with a mental health diagnosis, roughly 5 percent have a serious mental health condition," says Joshi. The majority of cases "experience an array of difficulties that are very treatable, such as depression, anxiety, eating disorders, and ADHD."

The key to addressing the mental health needs of children and adolescents is early screening. As with any other illness, making an early diagnosis often leads to better outcomes. Therefore, it is very important to identify children who either are at risk or may already be exhibiting some symptoms of these disorders. Although externalizing disorders such as ADHD and oppositional defiant disorder come to adult attention readily, says Joshi, internalizing disorders such as anxiety or depression do not. "You don't see it, but children feel it." Most children with internalizing disorders might never be diagnosed, especially if they have no overt behavioral difficulties. If they are diagnosed, often there is a long delay between symptoms and identification.

The average length of time between when a child begins experiencing symptoms and diagnosis and treatment is between eight and 10 years, according to Newman. By that time, the child is well on the way to becoming an adult, when behaviors become more entrenched. "If we could move that timeline forward," he says, "we could get them into treatment sooner and we could have a major impact on their long-term quality of life — and the safety and health of our larger society."

Enlisting aid from the basic sciences is another area where Newman sees hope for solutions. Discoveries in genetic research have already begun to transform the landscape for cancer and metabolic disease treatment, and both Newman and Joshi see discoveries in genetics and predictive or anticipatory medicine as offering the potential for very individualized diagnosis and treatment in the future.

As is the case in every discussion about health care, access to care is the linchpin that holds together any plans for improvement. In many ways, the United States is ahead of

the rest of the world in terms of pediatric mental health care. Among U.S. allied health professionals, there are nearly 8,700 child and adolescent psychologists, as opposed to roughly 400 in Canada. But, in a nation of almost 314 million people, with children under age 18 making up about 24 percent of the population, there are still huge gaps in coverage.

Even in a densely populated region like Washington, D.C., Children's National is the only pediatric emergency mental health care facility in the area. Each month, more than 200 children pass through its doors seeking emergency psychiatric care. "In terms of inpatient facilities,

According to the National Institute of Mental Health, one in five children in the United States suffers from a mental health-related problem; and of the 15 million children affected by such conditions, just 20 percent ever receive treatment.

Washington, D.C., has two facilities," says Joshi. Children's National, one of those two inpatient facilities in the city, has just 26 beds available; 12 beds for children under the age of 13, and 14 beds for patients between 14 and 18 years of age.

Elsewhere in the country, she says, are states with no psychiatric inpatient facilities for children and adolescents. In those cases, patients are admitted to facilities in nearby states. "You can just imagine how disjointed that makes the care," Joshi says. "The family is unable to participate in a meaningful way because the child is so far removed." And that, says Joshi, can have serious ramifications for treatment outcomes.

Newman adds that it's possible the health care system needs to consider new models of care, such as co-locating a mental health professional with pediatricians, or training teachers or school nurses as virtual mental health care first responders.

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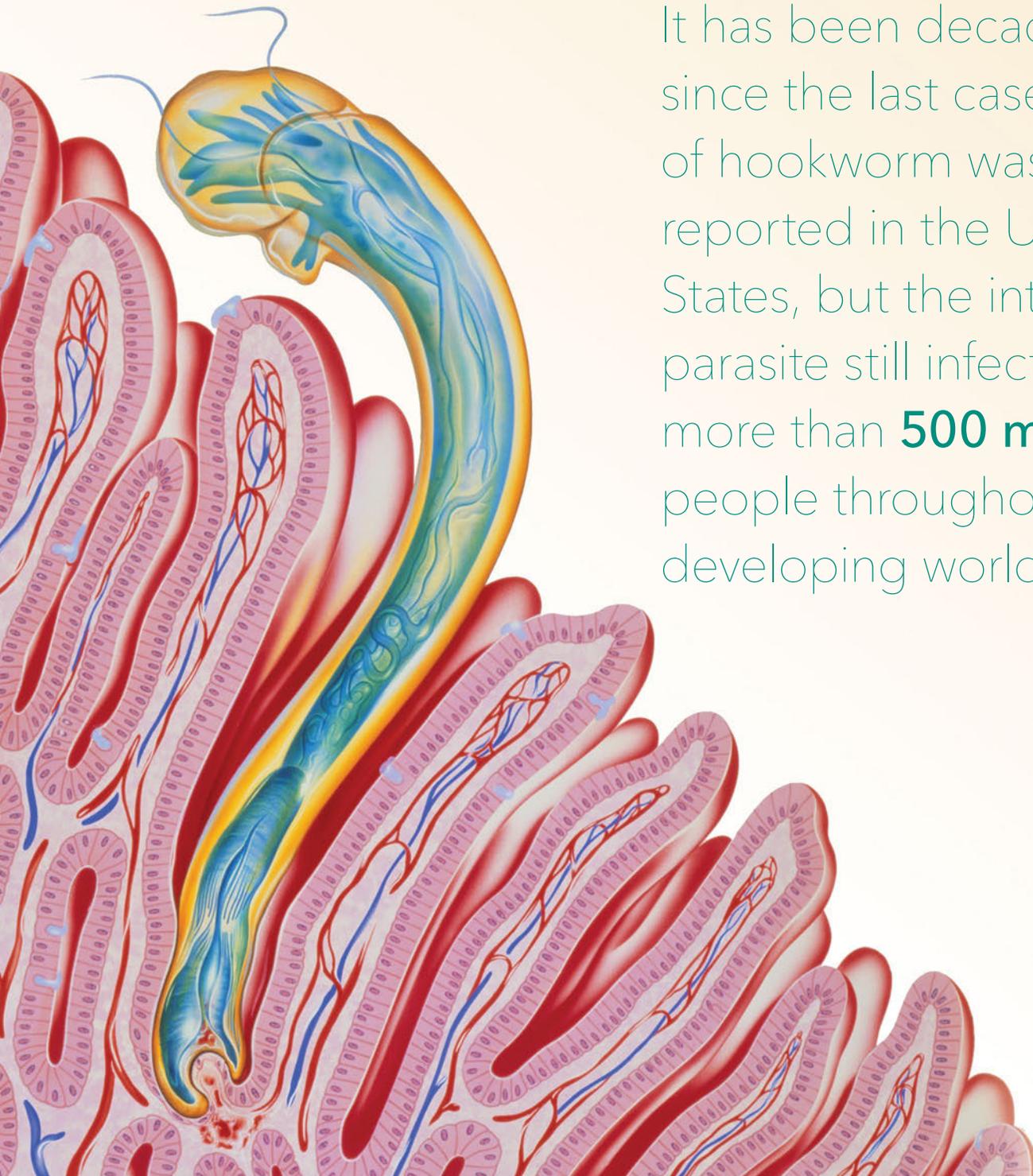
"One of the issues that becomes apparent is that we aren't training enough people," says Newman. "As a nation, we aren't educating enough health professionals and psychologists to deal with these great numbers."

Partnerships like those between SMHS and Children's National have the resources, expertise, and inclination to take a leading role in this national initiative. "That's an important role I think George Washington University can fill. We need the research, we need the education, and we need advocacy. In order to be effective, all of these assets and the clinical care given to kids at Children's National need to move in parallel," says Newman. ■

Off the Hook

GW Researchers Close in on **Hookworm Vaccine**

It has been decades since the last case of hookworm was reported in the United States, but the intestinal parasite still infects more than **500 million** people throughout the developing world.



On the surface, the groundbreaking research being performed by Jeff Bethony, Ph.D., and David Diemert, M.D., which involves bringing hookworm back to the United States, may seem counterproductive. But they're well on their way to developing a vaccine that could eradicate this persistent tropical disease worldwide.

After more than 15 years of research, Bethony and Diemert, both associate professors of microbiology, immunology, and tropical medicine at GW's School of Medicine and Health Sciences (SMHS), are currently conducting first-in-human studies of two hookworm vaccine candidates, *Na-GST-1* and *Na-APR-1*. A vaccine for hookworm — a disease that causes anemia and can lead to problems with physical and cognitive development in children — could revolutionize the way it is controlled.

The current strategy is based on mass drug administration, an approach in which anti-worm drugs are given to all children in endemic areas once a year. Diemert says that in addition to being logistically challenging, the strategy is ineffective. "Kids get re-infected after they are treated," he says. "And there is evidence that the drugs become less effective over time."

For these reasons, Bethony and Diemert are focused on developing a vaccine that would prevent serious hookworm infections from occurring in the first place. Their unique approach is to attenuate the nutritional process of the hookworm — effectively starving it out. "It's a very new, novel way of creating an anti-parasite vaccine," Bethony says.

With support from the Sabin Vaccine Institute Product Development Partnership (formerly known as the Human Hookworm Vaccine Initiative), Bethony and Diemert are developing the first challenge model that has ever been done for hookworm. "This will allow for early assessment of proof of concept," Diemert says of the Phase I clinical trial, which is proposed to take place at the GW Medical Faculty Associates.

After undertaking a safety feasibility study with oversight from the U.S. Food and Drug Administration and GW's Institutional Review Board, the researchers will inoculate healthy volunteers with their candidate vaccine. They will then give the volunteers an effective dose of hookworm larvae, which is transmitted through skin penetration, to test for the protective effect of the vaccine.

"This will help us enormously as far as speeding up the timelines for allowing decisions to be made as to which vaccine candidates are the most promising," Diemert says. There are currently two vaccines in consideration, which they plan to combine into a single product. Bethony adds that once this model is established, "if any other hookworm vaccines come along, this will be the basis on which they'll test it."

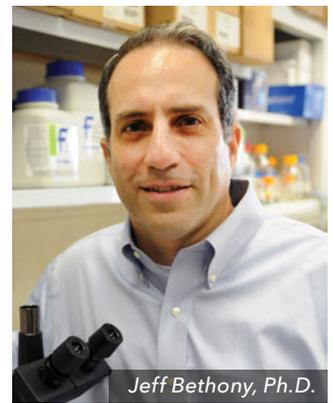
Although the U.S. "challenge" study is still more than a year off, Bethony and Diemert have already begun a Phase I clinical trial of *Na-GST-1* in the state of Minas Gerais in southeastern Brazil, where they've been working in conjunction with the Ministry of Health since 2003.

There, they've built a lab and a clinic in partnership with the Oswaldo Cruz Foundation (FIOCRUZ), which houses a staff of more than 30 people, including clinicians, nurses, regulatory affairs specialists, lab technicians, and researchers. The Brazilian government, very supportive of the initiative, recently gave FIOCRUZ a \$1 million grant to conduct additional clinical trials of the hookworm vaccine.

Back in the United States, Bethony and Diemert are excited to be making plans for the clinical trials to begin at GW. "It's a big step for us to do vaccine studies here," Bethony says. "It really integrates us. We use the whole GW infrastructure and get to involve more faculty." John



David Diemert, M.D.



Jeff Bethony, Ph.D.

Hawdon, Ph.D., associate professor of microbiology, immunology, and tropical medicine at SMHS, will be managing the sampling of the pathogen when it arrives here in Washington, D.C.

Bethony and Diemert are especially grateful for the funding they've received for another Phase I trial of *Na-GST-1* from GW, through the Clinical and Translational Science Award (CTSA) program. This study is currently underway at Children's National Medical Center and has enrolled more than 20 healthy adult volunteers. "The pilot funding from the CTSA has been critical," Bethony says. "It allowed us to establish a clinical structure, learn how to recruit in D.C., and train our lab in how to receive samples and work on human biomaterial."

"It's important in terms of vaccine development, too," Diemert adds. "We're testing different formulations and different ingredients to see if we can fine-tune immune response. It's contributing to us being able to make a better vaccine." ■

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FOCAL POINT

GW's Mary Ann Stepp, Ph.D., probes the healing potential of stem cells to save the sight of millions

BY STEVE GOLDSTEIN

If the eyes are the windows to the soul, then Mary Ann Stepp, Ph.D., has the most soulful research job in medicine. Her focus is the eye, and specifically the cornea, the clear outer layer, in studying the cellular mechanisms related to wound healing. Mysteries of sight are revealed, and the potential for healing corneal damage finally realized. Windows indeed!

And thanks to a dearth of doctoral programs, Stepp, who was an aspiring nutritionist, changed direction to become one of the leading researchers in her field.

As a member of the GW Stem and Progenitor Cell Research Group, Stepp has been working with adult stem cells found in the cornea to probe their potential for healing damage from splashed chemicals, thermal burns, and other injuries. Corneal erosions can develop after ocular trauma, causing chronic inflammation and interfering with the quality of life for millions of Americans. Corneal surface injuries are painful and expose the eye to infectious microorganisms that can impair vision.

A professor of anatomy and regenerative biology and of ophthalmology at GW, Stepp received her first R01 grant for corneal research from the National Institutes of Health in 1990 and has been continuously funded by NIH since then — a winning streak of dynastic proportions. Her secret? “Write a good proposal, and if your interests match theirs, you’ll be successful,” she explains. But then the slight, self-effacing scientist accumulates honors at a daunting pace, including a 2010 Gold Fellow award from the Association for Research in Vision and Ophthalmology (ARVO). Stepp is also a tireless advocate for female Ph.D.s at GW and for her lab partners.

Stepp examines the roles played by cell matrix adhesion molecules, called “integrins,” during corneal and skin wound healing, and in maintaining the stem cell population that gives rise to the cells that make up the corneal surface. She wants to understand how the cells that form the epithelial niche of the cornea are maintained and what happens to those cells and their niche when the tissue they serve is

injured. “To be able to prevent stem cell loss and recurrent corneal erosions,” she says, “we need to understand how they happen.”

Corneal abrasions are the most common reason a person seeks out an ophthalmologist and are a regular cause of visits to the ER, usually triggered by an errant fingernail. Infants waving little hands often cause injury to their parents. Soldiers experience eye trauma from shrapnel or debris. “Usually the eye responds normally and there are no complications,” says Stepp. “But I’m exploring how wound healing occurs so we can help those who do have complications.” Such complications may include lasting pain, watering of the eyes, the sensation that something is in the eye, or scratchiness.

“When you sleep at night, your cornea swells because it’s generating carbon dioxide, which builds up,” she explains. “So your first blink of the morning is like a shirt that’s too tight — the outer layer of cells can come off. You get focal erosions that have to heal and can be painful. Every time that happens, you weaken the adhesions of the epithelial to the basement membrane. It’s like a spiral.”

Dimitri Azar, M.D., M.B.A., dean of the University of Illinois College of Medicine and a cornea expert, calls Stepp “one of the most highly talented researchers in the field of corneal wound healing. Her studies on the role of epithelial cells during a corneal wound, either in a situation of recurrent erosion syndrome or during wound healing, have had a significant impact on our understanding of the mechanisms of wound healing and our therapeutic interventions.”

Stepp’s upbringing shaped the course of her life. Her father had a long career working for the Public Health Service and her mother taught school. “I got an interest in the allied health fields from my dad, and my mom gave me a sense that you had to have a career and marry someone who’s supportive of that career,” recalls Stepp.

Yet it was the stomach, not the eye, upon which she first set her sights.

“One of the appropriate jobs for women when I was growing up was a nutritionist or dietitian. There weren’t very many programs, but I was able to get a scholarship to go to Simmons College in Boston as a work-study student and major in nutrition,” she says. But there were few Ph.D. programs in nutrition, so Stepp was advised to pursue a doctorate in biochemistry to advance in her chosen field. The pivotal point in her career came during her doctoral studies at Boston University, where she was working in a lab studying the extracellular matrix, the part of animal and human tissue that usually provides structural support to the animal cells and is the defining feature of connective tissue in animals. “That’s when I gave up on nutrition,” she recalls. “I got interested in the extracellular matrix and the biochemistry of that.”

That led to postdoctoral work at MIT in a lab directed by Richard Hynes, Ph.D., well known for his work with fibronectin, one of the extracellular matrix proteins. “It was very exciting to study a new family of proteins called integrins. They integrate the intracellular part of the cell with the extracellular matrix,” she explains. While attending a New Hampshire conference related to her research, Stepp met Ilene K. Gipson, Ph.D., of Boston’s Schepens Eye Research Institute. Gipson recruited Stepp. “It seemed to me a niche field was a good place to go because you could be identified as an expert and have an impact,” Stepp says. “What attracted me to the corneal studies was the simplicity and beauty of the models that existed to study cell migration.”



Within eight months she had written a grant and received funding through the National Eye Institute at NIH. She was 32 years old. Her first office at Schepens was a coat closet, but her salary doubled and she was able to

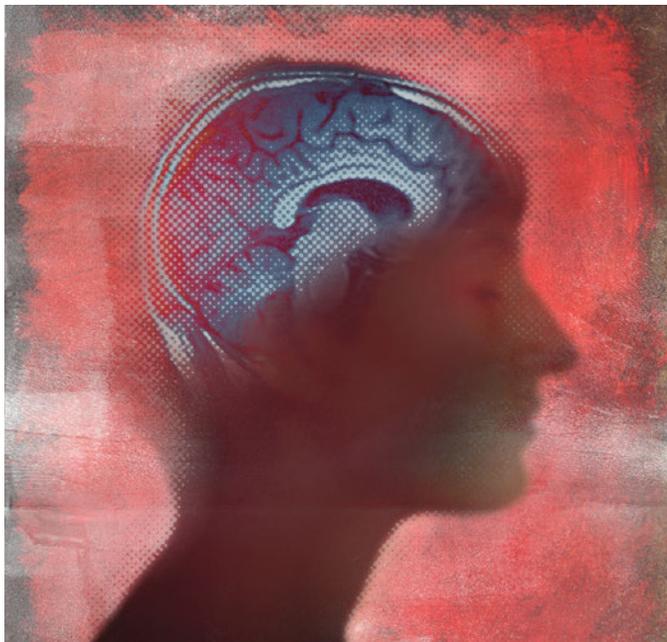
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pay her child care costs. In 1992, when her husband, Jerry Bell, got an offer to work at the American Association for the Advancement of Science in Washington, D.C., Stepp joined the GW School of Medicine and Health Sciences as a research assistant professor.

A new grant will allow her to continue research on treatment of perceived stem cell deficiencies in the cornea. “I’m attempting to overthrow a paradigm,” she says with a quick grin. Don’t bet on the paradigm. ■



Genetic Lesion Blocks Neuron Critical for Cortical Development

A little-known genetic irregularity has been identified as the prime suspect in a developmental genetic defect leading to disorders such as autism. Anthony-Samuel LaMantia, Ph.D., professor of pharmacology and physiology at GW's School of Medicine and Health Sciences (SMHS) and director of the GW Institute for Neuroscience, along with postdoctoral fellow Daniel Meechan, Ph.D., and Thomas Maynard, Ph.D., associate research professor of pharmacology and physiology at SMHS, authored the study, titled "Cxcr4 Regulation of Interneuron Migration Is Disrupted in 22q11.2 Deletion Syndrome," in the journal *Proceedings of the National Academy of Sciences (PNAS)*.

For nearly a decade, LaMantia and his colleagues have been investigating how illnesses such as autism, attention deficit hyperactivity disorder (ADHD), and schizophrenia arise during early brain development. This latest research focuses specifically on the effects on cortical circuit development of having lower levels of the gene 22q11.2.

According to LaMantia and his team, research shows for the first time that genetic lesions known to be associated with autism and other behavioral diseases disrupt the mechanisms that ensure normal development of a key type of cortical neuron: the interneuron. Previous investigations found that among people who have these diseases, too little of another type of cortical neuron, the projection neuron, is generated during cortical circuit development. Interneurons, according

to LaMantia, are formed in the correct numbers outside the cortex, but are not able to move properly into the cortex where they are needed to control cortical circuit activity.

"This gives us two pieces of the puzzle for this genetic developmental disorder," says LaMantia. "These two pieces tell us that in very early development, those with 22q11.2 deletion syndrome do not make enough cells in one case, and do not put the other cells in the right place. This occurs not because of some degenerative change, but because the mechanisms that make these cells and put them in the right place during the first step of development have gone awry due to mutation." ■

Keeping the Cardiology Community on the Beat

Cynthia Tracy, M.D., professor of medicine at GW's School of Medicine and Health Sciences, and associate director of the GW Medical Faculty Associates' Division of Cardiology, was recognized by the American College of Cardiology Foundation (ACCF) and the American Heart Association (AHA) for her efforts as writing group chair for the team that updated the ACCF/AHA clinical practice guidelines.

The new guidelines will provide evidence-based guidance to physicians and other health care providers practicing cardiovascular medicine. The standards will also help provide a foundation for other applications, such as performance measures, appropriate use criteria, and both quality improvement and clinical decision support tools.

Tracy was chosen for this initiative because of her expertise and leadership at the national level and her service to the cardiology community at large. ■





Speaking Out in Support of Nutritional Standards for Pregnant Women

Pregnant women in the United States face possible serious side effects for both themselves and their unborn children due to low levels of iodine in their diets. In an article from the December 2012 edition of the *Journal of the American Medical Association*, Alex Stagnaro-Green, M.D., MHPE, professor of medicine and professor of obstetrics and gynecology at GW's School of Medicine and Health Sciences (SMHS), along with co-author Elizabeth Pearce, M.D., M.Sc., associate professor of medicine at Boston University School of Medicine (BUSM), supports guidelines issued by the American Thyroid Association, Endocrine Society, and Teratology Society calling for pregnant women to take daily iodine supplements.

"Iodine levels in the United States have been decreasing, which has the potential to negatively impact the mother and unborn child," says Stagnaro-Green. "It's time for all health care professionals to make sure that every pregnant and breast-feeding woman gets supplemental iodine during pregnancy and while she is breast-feeding."

Iodine is not naturally made in the human body and must be consumed through foods rich in the element or through supplements. Iodine is required for the production of thyroid hormone, and adequate thyroid hormone levels are critical for normal fetal neurodevelopment. National and international health organizations currently recommend that pregnant women take at least 150 milligrams of potassium iodide daily.

"There is concern that even mild iodine deficiency in pregnant women could lead to children with lower IQs," says Pearce. Iodine deficiency remains the leading cause of preventable mental retardation worldwide. ■

Health Sciences Faculty Honored for Teaching Excellence

GW School of Medicine and Health Sciences faculty members Jennifer Halvaksz, M.A., assistant clinical professor of physical therapy and health care sciences, and Karen Schlumpf, M.P.H., lecturer in clinical research and leadership, received the 2013 Bender Teaching Award for their demonstrated excellence in teaching and high academic standards for achievement.

Halvaksz and Schlumpf join the ranks of other SMHS faculty members who have been awarded the Bender Teaching Award, including Gaetano Lotrecchiano, Ph.D., assistant professor of clinical research and leadership; Ozgur Ekmekci, Ed.D., M.B.A., assistant professor of clinical research and leadership; and Ellen Costello, Ph.D., associate professor of physical therapy and health care sciences. Each award includes a \$1,000 prize to be used by the winners for developmental activities. ■

Research Team Identifies Biomarkers for Acute Kidney Injury

Two biomarkers used in combination can improve risk assessment of acute kidney injury (AKI), according to new research from an international multicenter study. AKI strikes up to 7 percent of hospitalized patients and is associated with significant morbidity and mortality.

The results, published in the journal *Critical Care*, address one of the most costly and deadly conditions affecting critically ill hospitalized patients. The findings provide much-needed insight into the most compelling biomarkers of AKI.

AKI is a complex and increasingly prevalent condition. Although it occurs quickly (over the course of hours to days), it commonly presents a challenge in risk assessment due to the inadequate tools currently available to physicians. Failure to recognize and manage AKI in the early stages can lead to devastating outcomes for patients and increased costs to the health care system.

Lakhmir Chawla, M.D., associate professor of anesthesiology and critical care medicine at GW's School of Medicine and Health Sciences, and John A. Kellum, M.D., professor of critical care medicine at the University of Pittsburgh, were part of a two-part study on AKI, along with Kianoush Kashani, M.D., assistant professor of medicine at the Mayo Clinic.

Researchers evaluated nearly 340 biomarkers to define the two best biomarkers with the highest correlation to risk of AKI.

Chawla and Kellum led researchers from 35 medical centers in validating the effectiveness of the two novel biomarkers in 740 critically ill patients and comparing their performance with other biomarkers, including serum creatinine.

The research teams confirmed that insulin-like growth factor-binding protein 7 (IGFBP7) and tissue inhibitor of metalloproteinases-2 (TIMP-2), both inducers of G1 cell cycle arrest, were key mechanisms implicated in AKI. “The results are striking not only in terms of identifying new robust markers that have improved performance characteristics when directly compared with existing methods for assessing risk of AKI, but also in terms of bolstering understanding of the mechanism of this disease,” says Chawla. ■

GW Faculty Members Lead the Way for Women in Medicine

GW School of Medicine and Health Sciences faculty members Katherine Chretien, M.D., associate professor of medicine; Carolyn Clancy, M.D., associate clinical professor of medicine; and Laura Tosi, M.D., associate professor of orthopedic surgery, were among five distinguished women honored at the sixth annual American Medical Student Association (AMSA) Women Leaders in Medicine Awards.

According to Lexi Light, chair of AMSA’s Gender and Sexuality Action Committee, Chretien, Clancy, Tosi, and their fellow awardees “have committed themselves to education, social justice, and civic engagement.” ■



SMHS Alumna Named Chair of Dermatology

Alison Ehrlich, M.D. ’96, M.H.S., clinical professor of dermatology and director of dermatology clinical research, has been named the new chair of the Department of Dermatology at the GW School of

Medicine and Health Sciences (SMHS).

“The GW School of Medicine and Health Sciences is proud to have Dr. Ehrlich as its new chair of dermatology,” says Jeffrey S. Akman, M.D. ’81, G.M.E. ’85, vice president for health affairs and dean of SMHS. “Her years of clinical experience, research, and leadership in the field of dermatology make her the right candidate to lead and expand this

department. We are especially pleased to have one of our very own SMHS alumnae in this position.”

Ehrlich is an expert in the field of allergic contact dermatitis and founder of the GW Medical Faculty Associates’ psoriasis clinic, which offers patients a wide variety of therapy options, including phototherapy, laser, biologics, and clinical trials. She has been listed among America’s Top Physicians by the Consumers Research Council of America and has been named a *Washingtonian Magazine* “Top Doctor.” ■



Study Explores Methods to Better Pair Patients with Treatments

A study led by Robert G. Hawley, Ph.D., professor and chair of the department of anatomy and regenerative biology at the GW School

of Medicine and Health Sciences (SMHS), may help predict which patients with multiple myeloma will respond better to certain treatments. The study, titled “Identification of an ABCB1 (P-glycoprotein)-positive Carfilzomib-resistant Myeloma Subpopulation by the Pluripotent Stem Cell Fluorescent Dye CDy1,” was published in April 2013 in the *American Journal of Hematology*, 88(4), 265-272.

Multiple myeloma, the second most common blood cancer in the United States, is an incurable malignancy involving the white blood cells that normally produce antibodies. As the disease progresses, the cancerous cells accumulate in the bone marrow, causing painful bone lesions and preventing normal blood cell production.

“Our hope is that the fluorescent assay we have developed will help physicians monitor the newest treatment option for multiple myeloma patients and determine how well it is working,” says Hawley.

Hawley and his team of researchers reported a test that could be used to detect the multiple myeloma cells that survive chemotherapy and are responsible for disease relapse (referred to as tumor-propagating cells).

The researchers tested the hypothesis that the tumor-propagating cells in multiple myeloma exhibit stem cell-like properties that confer resistance to the chemotherapeutic agents used to treat patients. The team’s long-term goal is to characterize these so-called “cancer stem cells” in order to develop new targeted therapies that will eradicate the cells and cure the disease. ■

The next phase of the project, which is supported by a pilot research grant awarded in 2012 by the Dr. Cyrus and Myrtle Katzen Cancer Research Center at GW, will be to translate the laboratory findings to the clinic. This work, which will be carried out in collaboration with Imad Tabbara, M.D., professor of medicine at SMHS, will involve screening multiple myeloma patients to determine whether the CDY1 assay can help guide treatment decisions or predict which patients will respond better to carfilzomib. ■

Art and History in Urology

Harry C. Miller Jr., M.D., professor and chair emeritus of the Department of Urology at GW's School of Medicine and Health Sciences (SMHS), recently received the William P. Didusch Art and History Award from the American Urological Association (AUA), for his outstanding contributions to the written and photographic history of urology. The AUA awards program honors the contributions of physician researchers and educators to the field of medicine, the specialty of urology, and the association. Miller was a key member of the SMHS faculty for 23 years, beginning in 1973, until his retirement in 1995.

In retirement he remains active in medical organizations, serving on the boards of directors of the American Urological Association and the American Association of Clinical Urologists. ■

The Next Phase of the Fantastic Voyage

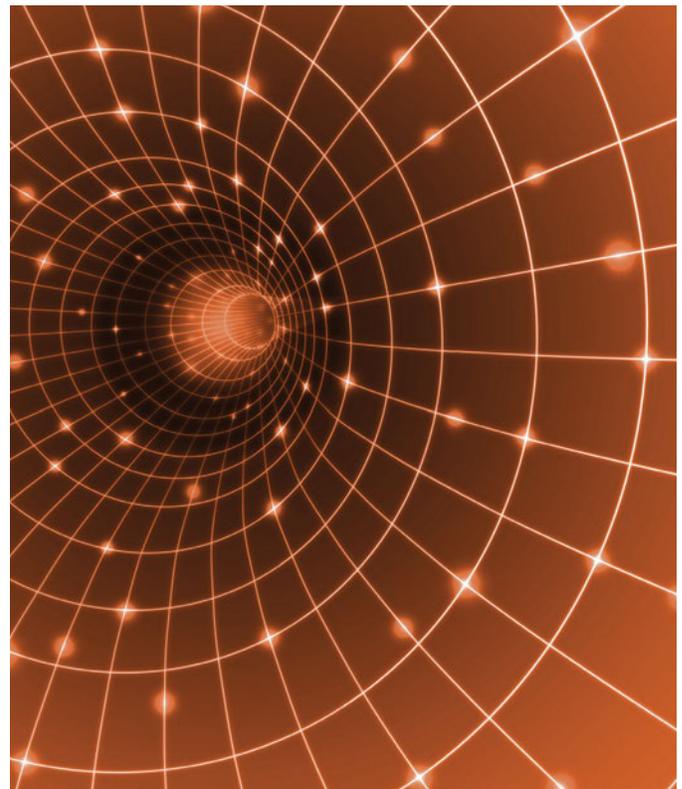
In the 1960s, it was the stuff of science fiction: the prospect of journeying inside a patient to locate the source of illness and identify the most effective means of treatment. Then, about a decade ago, physicians began making that voyage through the body by means of tiny video cameras the size and shape of an oversized pill swallowed by the patient. Now, emergency departments are exploring the use of video capsule endoscopy to detect potentially life-threatening acute upper gastrointestinal bleeding, enabling patients with gastrointestinal hemorrhages to be treated without needing to be admitted to the hospital.

A new study, titled "Video Capsule Endoscopy in the Emergency Department: A Prospective Study of Acute Upper Gastrointestinal Hemorrhage," published in *Annals of Emergency Medicine*, is the first to examine the use of capsule endoscopy by emergency physicians for suspected acute upper gastrointestinal bleeding.

"Video capsule endoscopy performed by emergency physicians was very accurate and nearly universally tolerated by patients," says lead author Andrew Meltzer, M.D., assistant professor of emergency medicine at GW's School of Medicine and Health Sciences. "This is an example of the 'whiz-bang' side of emergency medicine that has the potential to save the health care system a great deal of money by preventing the hospital admissions that are typically required for esophagoduodenoscopy, a procedure used to diagnose acute bleeding."

Meltzer and his team enrolled 25 patients with suspected acute upper gastrointestinal hemorrhage in their pilot study. Capsule endoscopy was well tolerated by nearly all (96 percent) of the patients and showed 88 percent sensitivity and 64 percent specificity for the detection of fresh blood. There was 92 percent agreement between gastroenterologists and emergency physicians on test results.

The current gold standard of care for patients with acute upper gastrointestinal hemorrhage is emergency esophagoduodenoscopy, performed almost exclusively by gastroenterologists on patients who are admitted to the hospital. In 2011, 236,000 patients received the procedure in the hospital; they had an average hospital stay of four days, costing \$23,549 per patient. By comparison, the average Medicare fee for the video capsule endoscopy is \$750 per patient. ■





A Resident's Humanistic Approach to Medicine

BY LAURA OTTO

As a resident, it's easy to get overwhelmed by the countless hours worked, the number of patients seen and treated, and the volume of information digested. Christopher Bayne, M.D., knows all about trying to balance long hours and little sleep as a second-year resident at the George Washington University School of Medicine and Health Sciences (SMHS), without losing sight of what's important and rewarding about his job.

Bayne grew up not far from Washington, D.C., in Lake Ridge, Va. As a star athlete in high school, Bayne experienced a sports injury that first drew his interests toward medicine. "I suffered a pretty bad ankle fracture playing soccer. My doctor told me he thought I might walk with a limp," he recalls. Bayne underwent two orthopedic surgeries, sidelining him for most of his freshman year. Despite the painful procedures during the ordeal, Bayne has fond memories of his surgeon. "In my mind, my surgeon was a miracle worker. Not only was I able to kick a soccer ball again, but I went on play lacrosse."

Initially, Bayne had no plans to pursue urology. He vividly recalls a grueling review session on genitourinary anatomy during his first year at Eastern Virginia Medical School (EVMS). "I remember saying to myself, 'There is no way I'm going to become a urologist or even an obstetrician/gynecologist,' because the anatomy was so confusing and the problems were so complex," he says.

It wasn't until Bayne met Joshua Logan, M.D., chief resident at EVMS, who would later become his mentor, that he decided urology was the right choice for him. "The urology program at my medical school ran a clinic for people who couldn't afford health care. As part of my internal medicine rotation, I spent one day working with Dr. Logan treating homeless men and women with urology problems," he says. Everything changed for Bayne after working one-on-one with Logan.

Impressed by the cutting-edge robotics work going on in GW Hospital's Urology Department, Bayne knew this was where he needed to be. For him, there was something different about residents training in an urban environment.

Bayne had seen a da Vinci robotic procedure at other hospitals, where surgeons used the high-tech device to remove the prostate, but never with the level of professionalism he had witnessed at GW Hospital. "At the time, most medical schools using robotics were in the trial-and-error phase, but at GW it had obviously been perfected," he recalls.

Because a resident's routine is so demanding, it's easy to lose sight of what's really important and rewarding about the job. "At the end of the day, everything you do impacts your patient directly," Bayne says. "You can choose to go about it routinely or you can take a little extra time to get to know your patient and inject some kind of humanistic personalized care." This is precisely why Bayne is currently leading the Arnold P. Gold Foundation's new resident Gold Humanism Honor Society chapter at SMHS. The Gold Foundation is a nonprofit organization designed to bring humanistic, patient-centered care back at every level of health care. Bayne hopes SMHS will serve as a model for other medical schools to follow. Going forward, he plans to organize small events that interject a little humanism into the life of the residents. It could be something as simple as an essay contest with a humanistic theme. "We want to encourage residents to reflect on the elements of their job that they find rewarding," he explains.

"As a resident, you have demands coming from every corner," Bayne continues. "Nothing can ever be done fast enough or efficiently enough, and it's easy to get bogged down by the long hours and a heavy patient load." For him, it's about the small, personal things, taking five extra minutes to get a patient some fresh sheets and a pillow, for example. Even though it's not typically a doctor's job, it helps his patient sleep better. "Taking a little extra time to get to know your patient and incorporate some kind of humanistic personalized care gives your patient not only great medical care, but a great health experience," says Bayne. ■



In the Race for Research

BY LAURA OTTO

Kristin Cenicola feels at home standing before a lab bench collecting and analyzing data for her latest research project. After all, it's what she does best, and she has the award to prove it. Cenicola, a third-year Ph.D. student in the Institute for Biomedical Sciences (IBS) and a research assistant in the Department of Pharmacology and Physiology at the George Washington University School of Medicine and Health Sciences (SMHS), earned top honors at GW's 2012 Health and Medicine Research Day during her second year of doctoral studies, for her poster "The Glucagon Receptor Functions as a Tumor Suppressor That Is Lost in Advanced-Stage Hepatocellular Carcinoma." Research Day is an annual event at which students, faculty members, and residents present their medical research initiatives and compete for awards in posters and oral presentations. For Cenicola, being named the oral presentation winner for IBS solidified the

notion that she was on the right track. "Receiving that honor meant that people were interested in the research I was conducting and that it was important enough to be presented to the academic community," she recalls.

Currently, Cenicola works with Norman H. Lee, Ph.D., professor of Pharmacology and Physiology at SMHS, looking at a receptor in liver cancer that functions as a tumor suppressor. Until now, the receptor has been studied only in the context of metabolism because it plays a role in diabetes and other diseases that are not linked to cancer. Knowing that this receptor plays an important role in cancer development, Cenicola is exploring how she can best utilize or exploit it for potential treatments.

Lee's lab was a perfect fit for Cenicola because it offered her the mix of cancer research and molecular biology that she couldn't find in other labs, and Lee has also taken on a mentorship role for Cenicola. "Dr. Lee is very involved in all the aspects of my projects," says Cenicola. "His door is always open if I have a question or need advice."

Cenicola earned her bachelor's degree in chemistry from Cornell University. Her first research job involved protein analysis of hydrogel particles. However, this type of research didn't have the impact she was looking for, and it didn't offer the amount of real-time bench science she craved. Cenicola decided to transition to biochemistry. GW's School of Medicine and Health Sciences caught her attention because the IBS Department offered a mix of studies: cancer, physiology, biology, and pharmacology. "I knew GW would give me experience in a variety of different areas in biological sciences," she says.

When she's not in the lab, Cenicola is pounding the pavement training for marathons. An avid runner, she sees a lot of similarities between pursuing a Ph.D. and training for a marathon, and running offers the perfect respite after hours in the lab. "I can take some time out of my day and go for a run and clear my head and think about things that need to be done in the lab or related to my projects," she says.

Cenicola completed the 2012 Marine Corps Marathon in an impressive 3 hours and 42 minutes. For her, it is important to find the right training plan to fit her busy schedule so that she can achieve optimal results both at the bench and on the pavement. "I like the way she approaches her marathon training, which has great parallels with how she conducts her research," says Lee.

Cenicola says it's important for medical students interested in pursuing research to keep their options open and be willing to explore different avenues of study. "Don't be married to your hypothesis," says Cenicola. "Because you may end up finding something even more interesting and promising." ■



Pulling a Prestigious Career from a Country Doctor's Bag

The well-worn paths of a country doctor lead Floyd D. Loop, M.D. '62, from rural Indiana to the center stage of cardiovascular surgery

BY STEVE GOLDSTEIN

His left hand in his father's, his right clutching the black doctor's bag, young Floyd Loop made the rounds with his dad on the rural farms of Lafayette, Ind. It seemed the right kind of life to the boy, the country doctor's life. "I interacted with a lot of patients and I saw their appreciation and the gratification my father received," he recalled seven decades later.

And he did become a doctor, but events conspired to pluck him from the pastoral setting of spending his career as a rural

family doc, and led him to become one of the world's leading heart surgeons and head of the renowned Cleveland Clinic.

As graduation ceremony speaker for the GW School of Medicine and Health Sciences (SMHS) class of 2013, Floyd D. Loop, M.D. '62, will speak about the opportunities ahead for medical graduates. After graduating from Purdue University and GW Medical School in 1962, he received postgraduate surgical training at GW. He served in the United States Air Force at Andrews Air Force Base, and later

trained in cardiothoracic surgery at the Cleveland Clinic. In 1971 Loop was appointed to the staff of the Cleveland Clinic. He became chair of the Department of Thoracic and Cardiovascular Surgery in 1975, a post he held until 1989 when he was named chief executive officer of the Cleveland Clinic and chair, Board of Governors.

Floyd Loop has performed more than 12,000 open-heart operations and is the author of 350 papers on all aspects of cardiovascular surgery. During his 15-year tenure as chief executive, he led a reorganization of the clinic and enhanced its academics. Under his leadership, the clinic built new specialty and research buildings on campus and designed a new health delivery system by acquiring eight Cleveland-area hospitals and constructing an additional 14 outpatient clinics. The Cleveland Clinic Lerner College of Medicine, the first new U.S. medical school in 25 years, opened in 2002.

His experience in Washington, D.C., shaped his career. Unlike the modern digs of today, the medical school of Loop's days at GW was housed in a Civil War-era building in the 1300 block of H St., N.W. "I liked to go to the old bookstores and browse for hours," he recalls. "You could walk everywhere. My roommates and I lived in northern Virginia and I had an old Vespa motor scooter we used to get to class. I remember seeing Vice President Richard Nixon, who was being driven to 'work.' He always waved to us. Washington was a real sleepy town then."

Following his second year, Loop started his rotation through the various services and quickly took a liking to surgery. This brought him into contact with Brian Blades, M.D., the former Lewis B. Saltz Chair of Surgery. "The surgeons on his staff were superb, and they were excellent teachers," says Loop. In return for a draft deferment to finish his residency, Loop agreed to serve in the Air Force. Blades arranged for Loop to serve at Andrews Air Force Base, where he gained surgical experience. "I got a year's credit on my residency and returned to GW to complete my residency," Loop says.

After completing his third year of training, Loop sought out Blades and related his intended plans. "He listened patiently and then he said, 'No, you're going to the Cleveland Clinic,'" Loop remembers. "His first resident, Don Effler, M.D., ran the program there. Blades said things were changing in cardiac surgery and Effler and his staff were in the forefront. I took his advice and that was a defining moment."

Loop gained an international reputation as a heart surgeon. He assembled a group of skilled and experienced thoracic and cardiovascular surgeons who helped enhance the clinic's reputation. Loop and his colleagues were responsible

for today's widespread use of arterial conduits in coronary artery surgery, innovations in valve repair, and pioneering technical improvements for re-operations.

Under his leadership, the Cleveland Clinic rose to be ranked consistently in the 10 top hospitals in the United States. "He had a solid vision for growth for the clinic's health system," current CEO Delos Cosgrove, M.D., told *Crain's Cleveland Business*. "He pushed the organization in the right direction that was fundamental to achieving our current status."

Loop says he foresees further innovations in heart surgery for less invasive surgery. Today he serves on public and private corporate boards. In 2009, he published a book, titled *Leadership and Medicine*. "I think physicians should lead health care institutions," he explains. "They can talk to fellow doctors better than business people can, and they can always learn business fundamentals."

Under his leadership, the Cleveland Clinic rose to be ranked consistently in the 10 top hospitals in the United States. Loop was named one of 30 persons who made the greatest contributions to Cleveland in the past 30 years.

Orchids, gardening, and orchards form Loop's horticultural passions. His constant companions are a pair of golden doodles named Lewis and Clark. He also keeps in close contact with his four daughters. He was married for 25 years to cardiologist and former National Institutes of Health (NIH) Director Bernadine Healy, M.D., who died in August 2011. "We kept an apartment in Washington when she was at NIH and the Red Cross, but she came home to Cleveland every weekend," he says. Healy was the first woman to lead NIH.

Loop says he once imagined himself as a civil engineer, but that career path was "always a distant second." His father's experience was instructive — and seductive. Nevertheless, the boy clutching his country doctor father's black bag, dreaming of a life of bucolic medicine — "delivering babies, fixing hernias, making house calls" — got a little sidetracked. "Those were good days, and they gave me some incentive," Loop says. Doubtless, those residents of rural Indiana who may rue the loss of a young practitioner, but will admit Loop's heart was always in his work. ■



SMHS Alumnus Richard Popiel Awarded the 2013 Alumni Outstanding Service Award

Richard Popiel, CCAS B.A. '75; SMHS M.D. '81, G.M.E. '83; and member of the GW

Alumni Association's board of directors, representing the School of Medicine and Health Sciences, was awarded the 2013 Alumni Outstanding Service Award on Apr. 18. Not only does Popiel lend a balanced voice on important issues pertaining to GW, but he is working to raise more than \$100,000 to endow a scholarship for the M.D. class of 1981. Last fall, Popiel was invited by GW President Steven Knapp to present on the topic of health care management and leadership at the president's reception in New York on Oct. 23.

As a leading expert on health care management, Popiel was recently named senior vice president, health care services, and chief medical officer for all of the Regence Group's health insurance plans. In this role, Popiel leads medical strategy and provides executive leadership on addressing care initiatives and cost management.

Prior to joining the Regence Group, Popiel served as president and chief operating officer of Horizon Healthcare Innovations. Under his leadership, Horizon Healthcare Innovations launched more than 30 pilot programs involving 80,000 members, such as medical home projects and accountable care organization partnerships. These accomplishments, which improved health outcomes while curbing costs, are cited as effective industry case studies.

He has held leadership positions for key organizations throughout his career. Popiel served as vice president and chief medical officer at Horizon Blue Cross Blue Shield of New Jersey, was a member of the board of directors of Horizon Healthcare of New Jersey, and was the chair of the National Council of Physician and Pharmacist Executives, among other notable roles.

In addition to his degrees earned at GW, he holds an M.B.A. from Northwestern University. Popiel lives with his wife in Portland, Ore. Their two sons are current undergraduates at GW. ■

Sogani Ascends to American Urological Association Presidency

Pramod C. Sogani, M.D., G.M.E. '71, FACS, FRCS, a urological oncologist and attending surgeon at Memorial Sloan-Kettering Cancer Center (MSKCC), assumed the presidency of the American Urological Association (AUA). The 110-year-old association is the premier professional association for the advancement of urologic patient care.

Sogani served as president-elect from May 2012 until the AUA annual meeting in San Diego, May 8, 2013. Previously he served as treasurer, president, and representative to the board of directors for the New York section of the AUA. He was the recipient of the Sasruta Award of Excellence in Urology of the Indian American Urological Association, the John K. Lattimer Award of Excellence in Urology of the Kidney Foundation of America, the Distinguished Service Award of MSKCC, the Award of Distinction of Weill Cornell Medical College, and the Russell W. Lavengood Distinguished Service Award of the New York section of the AUA. ■

1960s

LEONARD WARTOFSKY, M.D. '64, B.S. '59, received the 2012 Robert H. Williams Distinguished Leadership Award of the Endocrine Society. In 2011, Wartofsky received the GW Distinguished Alumnus Award. He is also editor-in-chief of *The Journal of Clinical Endocrinology & Metabolism*.

MARILYN RENFIELD, M.D. '65, G.M.E. '66, GW assistant clinical professor of psychiatry and behavioral science, received the Elaine W. Cotlove, M.D. Award for Excellence in Psychiatric Education.

1970s

BRIAN SCHULMAN, M.D. '71, B.A. '68, was named to *Washingtonian Magazine's* Top Doctors 2012 edition for psychiatry.

ROBERT BRANSFIELD, M.D. '72, recently published the following journal articles: "Can Infections and Immune Reactions to Them Cause Violent Behavior?" in the *Proceedings of the 11th Psychoimmunology Expert Meeting*, Gunzburg, Germany, March 10, 2012, *Neurology, Psychiatry, and Brain Research*, 18(3); "Relationship of Inflammation and Autoimmunity to Psychiatric Sequelae in Lyme Disease,"

Psychiatric Annals, 42(9), 337-341; "The Psychoimmunology of Lyme/Tick-Borne Diseases and its Association with Neuropsychiatric Symptoms," *The Open Neurology Journal*, 6 (Suppl 1-M3), 88-93; and "Long Term Antibiotic Therapy May Be an Effective Treatment for Children Co-Morbid with Lyme Disease and an Autism Spectrum Disorder," with Kuhn et al., *Medical Hypotheses*, 78(5), 606-615.

GEORGE KORENGOLD, M.D. '72, was named to *Washingtonian* magazine's Top Doctors 2012 edition for pediatrics. Korengold was also named the 2012 Montgomery-Prince George's County Pediatric Society's Pediatrician of the Year.

DAVID KESTENBAUM, M.D. '74, a gastroenterologist with Kaiser Permanente in Fontana, Calif., will retire after nearly 40 years of practice. He served as chief of the division of gastroenterology for 22 years at Kaiser.

ALAN SAGER, G.M.E. '76, GW associate clinical professor

of Psychiatry, was named to *Washingtonian* magazine's Top Doctors 2012 edition for psychiatry.

DONALD W. ALLEN, M.D. '77, adjunct associate professor of family and preventive medicine, University of Utah School of Medicine, received the 2012 Outstanding Teacher Award, University of Utah Physician Assistant program. In addition to holding his faculty position, Allen serves as medical director for both Park City Medical Center, and Utah and Idaho — Encompass Home Care and Hospice.

DALE H. ISAACSON, M.D. '77, G.M.E. '81, was named to *Washingtonian* magazine's Top Doctors 2012 edition for dermatology.

BARBARA SNYDER, M.D. '79, associate professor of medicine and chief of the Division on Adolescent Medicine at Robert Wood Johnson School of Medicine, was named a "Best Doctor" by *New York Magazine* for 2012. It marks the fifth consecutive year Snyder has made the list.

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Kassan Masters Rheumatology

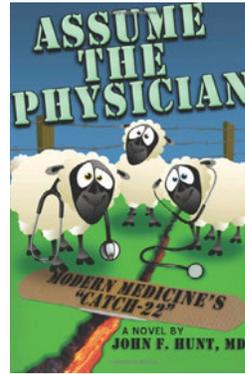
Stuart Kassan, M.D. '72, member of the George Washington University board of trustees representing the School of Medicine and Health Sciences, was awarded the title of master by the American College of

Rheumatology (ACR) during the November 2012 ACR Annual Meeting, in Washington, D.C.

The distinction is conferred by the board of directors of ACR, for those members who have made outstanding contributions to the field of rheumatology through scholarly achievement and/or service to their patients, students, and profession.

Kassan serves as chief medical officer with Aspire Behavioral Health in Denver and has served as a clinical professor of Medicine at the University of Colorado Health Sciences Center since 1994. He also currently practices at the Colorado Arthritis Associates in Lakewood, Colo. ■

Health Care Humorist



John F. Hunt, M.D. '92, associate professor at the University of Virginia, and co-founder of the Trusted Angels Foundation — a nonprofit organization that works for children in Liberia, West Africa — recently published *Assume the Physician*, a satirical novel about the current health care system and the causes of medical hyperinflation. ■

1980s

KEVIN MICHAEL GIL, M.D. '80, was named to *Washingtonian* magazine's Top Doctors 2012 edition for family medicine/geriatrics.

JANE BENING, M.D. '81, was the featured speaker at the Vibrantly You Women's Wellbeing Symposium, La Costa Hotel and Spa, Carlsbad, Calif., in January 2013.

1990s

RAJ GOYAL, M.D. '93, B.S. '89, recently served as the primary investigator in pivotal clinical trials of iStent.

KAREN ALTON, M.D. '95, was voted a Southeast Michigan Top Doc in Adolescent Health for 2012 by www.hourdetroit.com.

DOMINIQUE HOWARD, M.D. '97, G.M.E. '00, GW assistant clinical professor of medicine, was named to *Washingtonian* magazine's Top Doctors 2012 edition for gastroenterology. Howard was also elected to serve as president of the William Earl Clark Society.

2000s

THERESA JERUSSI, M.S. '00, was recently appointed as an adjunct faculty member of GW's Physician Assistant program.

IAN W. MARKS, M.S. '00, wrote the chapter "Spine" for the textbook *Orthopaedics for Physician Assistants* (Elsevier), published April 2013. Lt. Marks, U.S. Coast Guard, recently returned from deployment to CENTCOM as a medical officer supporting Operation Enduring Freedom and Operation New Dawn.

DAVE BRIGHT, M.D. '01, is the teaching attending physician at Mercy Medical Center, and assistant professor of medicine, University of Maryland School of Medicine.

THOMAS W. SORBER, M.S. '01, was named chair of the Physician Assistant Executive Committee at University of Rochester Medical Center.

ERIC WOLLINS, M.D. '02, was named a 2013 "Top Doctor" in gastroenterology by *Northern Virginia Magazine*, and was named among the 2013 "Super Doctor Rising Stars" by the *Washington Post Magazine*.

JEFFREY ANDERSON, M.S. '07, board-certified pharmacotherapy specialist, was named system director of pharmacy services for Yavapai Regional Medical Center — Prescott and Prescott Valley, Ariz.

KAREN BUIKEMA, M.S. '08, received the 2013 Marquette University College of Health Sciences Alumni Award for

Professional Achievement. In 2010, Buikema received the United States Air Force Medical Service Clinical Laboratory Manager of the Year award.

JACLYN ALBIN, M.D. '09, will serve as pediatric chief resident at Texas Children's Hospital for the 2013–14 academic year.

THOMAS JOSEPH MARUNA, B.S. '09, who passed the United States Public Health Service boards and was commissioned in April 2013, has been promoted to hospital administration, focusing on quality assurance.

MINDY DITCH, M.S. '10, was recently promoted to clinical project manager at St. Jude Medical, where she manages a pediatric heart valve clinical trial.

ANDREW H. GORDON, M.D. '10, was elected president of the Resident Physician Council Board of the American Academy of Physical Medicine and Rehabilitation (AAPM+R)

for 2012–13; serves on the AAPM+R Board of Governors for 2012–13; and was accepted to the pre-application phase of the Rehabilitation Medical Scientist Training Program.

TOMMY LEE, M.S. '11, published the article "Spray-applied Cell Therapy with Human Allogeneic Fibroblasts and Keratinocytes for the Treatment of Chronic Venous Leg Ulcers: a Phase 2, Multicentre, Double-blind, Randomised, Placebo-controlled Trial," in *The Lancet*, 2012; 380, 977–985.

SHILPA AGARWAL, M.D. '12, B.A. '08, completed her residency in family medicine, and is board certified in both family medicine and integrative and holistic medicine.

REHAN M. HUSSAIN, M.D. '12, B.A. '08, ophthalmic pathology fellow for 2012–13 at Bascom Palmer Eye Institute, recently matched into an ophthalmology residency program at Indiana University (beginning July 2014).

New job? Publication? Change of address? Share your news. **Please send your Class Notes to: Email, smhsalumni@gwu.edu, call (202) 994-7511, or log on to smhs.gwu.edu/alumni/update-form**

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In Memoriam



FRANK MILLER, M.D. '48, B.S. '43, professor emeritus of pathology at GW's School of Medicine and Health Sciences (SMHS), passed away April 24, 2013.

"As a professor, mentor, and friend, Dr. Miller was one of the most beloved faculty members in the history of GW's School of Medicine and Health Sciences, and he will be missed by so many within our community," said Jeffrey S. Akman, M.D. '81, G.M.E. '85, vice president for health affairs and dean of SMHS.

Miller's dedication and influence as a teacher, shaping the future careers of generations of medical students from 1944 until his retirement in 1985, earned him GW's Distinguished Teacher Award in 1998. Because of his ability to connect with students and mentor residents and fellows, he was GW's first recipient of the "Golden Apple" award, presented to him for excellence in teaching the basic sciences. By the time Miller retired, he had been awarded seven such prizes — an unprecedented total at the time.

Miller was embedded in the cultural fabric of GW. His legacy will live on through the Dr. Frank N. Miller Endowed Professorship, which supports a distinguished teaching professorship in SMHS, and the Dr. Frank Miller Award, given annually to a pathology resident or fellow in recognition of excellence in teaching.

Miller is survived by his wife, Caroline Sykes Miller; son, Donald Miller; and daughter, Catherine Sluder, manager of the Bloedorn Technology Center in GW's Himmelfarb Health Sciences Library.

GAETANO MOLINARI, M.D., former chair of neurology at GW's School of Medicine and Health Sciences (SMHS), died Dec. 14, 2012, after a long illness. He was 76 years old. In the early 1970s, Molinari was the head of stroke research at the National Institutes of Health; he joined the SMHS faculty in 1976. Molinari retired in 1994, but he continued lecturing as a clinical expert on stroke for many years afterward. He was a member of Alpha Omega Alpha, a former captain in the U.S. Air Force, and a Vietnam veteran.

Alumni

PHILIP J. BALESTRIERI, M.D. '87
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 ZALE P. BERNSTEIN, M.D. '80
 HERBERT E. BLOCK, M.D. '40
 ANITA M. BOSCH, PA '00
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Investing in the Future of Medicine



The George Washington University School of Medicine and Health Sciences (SMHS) is making great strides in its mission of education, patient care, and research. In these pages, you'll find many stories about SMHS programs of excellence that are elevating GW's reputation and changing the face of medicine.

Achieving our goals requires major financial investments, and we invite our community to help us. Philanthropy has never been more important. In addition to outright gifts, there are a number of creative and sophisticated methods of giving that can result in substantial tax and financial advantages to donors. For example, GW has a very active real estate donation program. SMHS accepts a broad range of real estate gifts, subject to approval by the GW gift acceptance committee. Some examples are below.

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Thank you,

Dennis Narango, M.A., C.F.R.E.

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