

THE GEORGE WASHINGTON UNIVERSITY
SCHOOL OF MEDICINE AND HEALTH SCIENCES

Medicine + Health

SPRING 2018



**TURNING UP
THE VOLUME
ON RESEARCH**

A NOTE FROM ROSS HALL



Dear colleagues,
May, June, July, and August. Yes, it's that time of the year in academic medicine when we celebrate the accomplishments of our students, residents, and fellows as they take the next steps in their careers, and we welcome to the George Washington University (GW) School of Medicine and Health Sciences (SMHS) another cohort of outstanding individuals to pursue its dreams in medicine, health care, and science. Each year at this time I find myself truly inspired by the SMHS education mission and the number of bright, talented, and altruistic individuals that come through SMHS for their education and training. These learners are truly the best that humankind has to offer, and I am in awe of their personal stories and their potential to cure the sick, improve their communities, and make important medical discoveries.

The stories within this magazine offer a glimpse of the drive, values, and generous spirit of a few of our learners. You'll meet a resident who will complete her training in Washington, D.C., with her eyes set on returning to the medically underserved community where she grew up. You will also read about a faculty member in the Physician Assistant Program who has created a nonprofit to care for Malawian children with burn injuries.

The stories in this magazine are a reflection of the importance that we, as an institution, place on social responsibility and community action – a part of SMHS that continues to be a point of immense pride. Leveraging our location in the nation's capital, SMHS faculty, students, residents, fellows, and staff are actively engaged with our local, national, and international neighbors to make a difference.

Our students learn to see the whole patient, not just the illness, through a transformative curriculum that continues to evolve. We also work to fortify our relationships with our clinical partners to strengthen our mission, our footprint, and our ability to provide excellent care to our community.

SMHS is an exciting place with an extraordinary level of achievement. I am truly humbled and honored to be a part of this community that inspires me every day!

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Moiré Marketing Partners

Medicine + Health

is published by:

Office of Communications
and Marketing

2600 Virginia Ave., NW
Suite 329

Washington, D.C. 20036

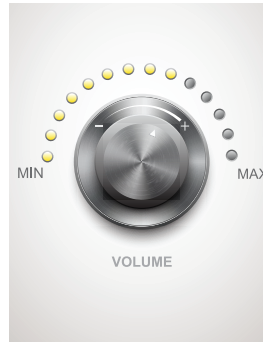
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MAKING THE ROUNDS



Moving on Up

Competition for top placement in U.S. News and World Report rankings can be stiff, so the Health Sciences section of the George Washington University School of Medicine and Health Sciences (SMHS) came up with a solution: the Undergraduate Task Force.

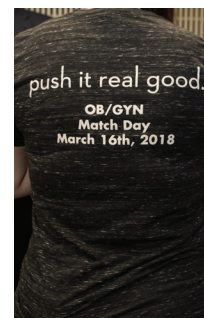
The task force, which evaluated previous submissions for the SMHS online bachelor's degree programs, looked for meaningful, value-added strategies to implement, with the ultimate goal of improving the student experience. Within short order, the online programs jumped in the rankings from 59 in 2017 to 23 in 2018, with an overall score of 85 out of 100.

U.S. News and World Report assesses schools in four general categories: student engagement, student services and technology, faculty credentials and training, and peer reputation. The task force's recommendations, designed to strengthen the online programs, will finish rolling out by 2019. ■

Match Madness

On March 16, George Washington University (GW) School of Medicine and Health Sciences (SMHS) MD students waited with anticipation to discover where their residency training would begin. Once the clock struck noon, they ripped open the white envelopes and the room erupted with shouts of joy.

The GW National Resident Matching Program match rate was 97 percent. The top locations where students will be heading for residency this year are California, New York, and Washington, D.C. Thirteen SMHS students matched at GW, and two will complete their training at Children's National Health System. ■



Engaging Alumni

Tracy Church, MBA, CPA, joined the George Washington University (GW) School of Medicine and Health Sciences (SMHS) last fall as executive director of development and alumni relations. In the role, she is crafting and executing a multiyear development plan to raise major and principal gifts for SMHS and engaging with alumni.

Church serves as an adviser to the dean and associate vice president on development communications and alumni relations strategies. She also coordinates with the executive director of clinical care and research in developing gift opportunities and priorities for GW Hospital and the GW Medical Faculty Associates. ■

Reaching Out

A young attendee at the annual NBC4-Telemundo44 Health Expo, held March 10 and 11 at the Walter E. Washington Convention Center, tries on the headset of the George Washington University (GW) Hospital's new virtual reality (VR) tool. The event, which welcomed 80,000 people, featured a GW Health Village booth, where volunteers from GW Hospital, the GW Medical Faculty Associates, and the GW School of Medicine and Health Sciences showed off the VR tool, conducted health screenings, consulted with attendees, and performed a healthy cooking demonstration. ■



A New Name

The George Washington University (GW) School of Medicine and Health Sciences (SMHS) Department of Physical Therapy and Health Care Sciences has been renamed the Department of Health, Human Function, and Rehabilitation Sciences to better reflect its mission.

That mission is to prepare individuals to practice in an evidence-based and ethical manner, respectful of patients and clients from all backgrounds, across the life span, and through the continuum of care.

"The breadth and depth of the work of our faculty have evolved and grown significantly in recent years," said Reamer L. Bushardt, PharmD, PA-C, DFAAPA, senior associate dean for health sciences and professor of physician assistant studies at SMHS. "Health, Human Function, and Rehabilitation Sciences captures the broad array of education, clinical practice innovation, and research being accomplished."

Joyce Maring, EdD, DPT, continues in her role as chair and associate professor of the newly renamed department; Ellen Costello, PhD, serves as director of the Physical Therapy Program. ■

Trudy Mallinson Joins Leadership Team

Trudy Mallinson, PhD, OTR/L, FAOTA, has been named associate dean for health sciences research at the George Washington University School of Medicine and Health Sciences (SMHS).

Mallinson is serving as liaison to chairs in the health sciences departments to shape and support the careers of early and mid-career investigators and scholars. She also facilitates and promotes strategic planning for research within health sciences departments and centers, nurtures the careers and professional development of researchers and research staff, improves the quality and impact of research, and fosters growth of regional, national, and international research collaborations.

Mallinson has been a member of the SMHS faculty since 2013, first as a visiting associate professor and most recently as an associate professor of clinical research and leadership. Previously, she held faculty positions at the University of Southern California and Northwestern University. ■

MAKING THE ROUNDS



Carolyn J. Drew Joins Development and Alumni Relations

In her new role as associate dean and associate vice president for development and alumni relations at the George Washington University

School of Medicine and Health Sciences (SMHS), Carolyn J. Drew leads the development and alumni relations teams to advance the education, clinical, and research missions of the school.

Drew is also responsible for setting the strategic direction of development initiatives in collaboration with clinical partners, overseeing principal gift fundraising for priority areas, establishing innovative programs to engage prospects, enhancing grateful patient programs, and optimizing volunteers and development councils.

She most recently served as a development consultant for SMHS and has deep industry experience, having led development initiatives at the University of Wisconsin-Madison, Stanford Medicine, the University of Cambridge, Yale University, and Harvard Medical School. ■

Combined MD/MPH Degrees to Create Clinician Leaders

The George Washington University's (GW) School of Medicine and Health Sciences (SMHS) and the Milken Institute School of Public Health (Milken SPH) are joining forces to prepare clinician-leaders for their future careers.

Starting this summer, SMHS students will have the option of earning a Doctor of Medicine with a Master of Public Health (MPH) or an MD with a Graduate Certificate in Public Health.

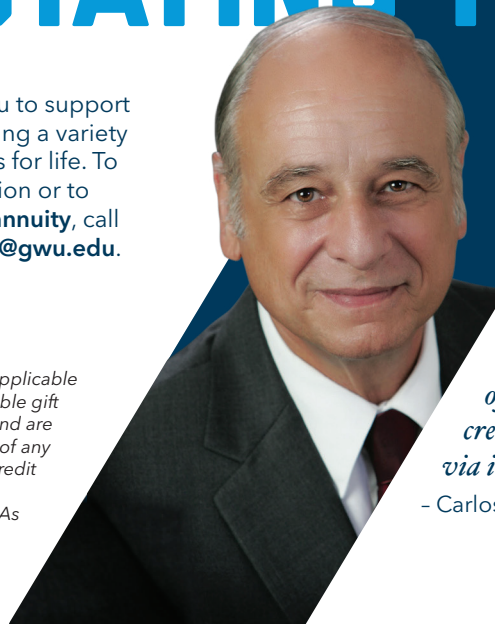
The dual-degree MD/MPH program can be completed in just one additional year outside the current medical program curriculum, with the option of choosing from 11 residential MPH programs. Students are required to earn 45 credits for the MPH degree; 30 credits are taken at Milken SPH, and 15 are cross-credited for MD coursework. MPH coursework may be started during the summer following either the first or the third year of the MD program.

Students in the MD/MPH program will be granted a one-year leave of absence from the MD program to complete the required MPH coursework and fieldwork. ■

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A charitable gift annuity allows you to support GW's important work while receiving a variety of tax benefits and fixed payments for life. To receive your personalized illustration or to learn more, visit go.gwu.edu/giftannuity, call 877-498-7590, or email pgiving1@gwu.edu.

The charitable deduction will vary with the applicable discount rate at the time of your gift. Charitable gift annuities are not investments or insurance and are not regulated by the Insurance Department of any state. They are backed by the full faith and credit of GW. Consult with your legal and financial advisors regarding the characteristics of CGAs for your specific age and financial situation.



"My family has had a presence at George Washington University since my father earned his MD in 1934. With the continued growth of GW, my wife and I wanted to create a legacy for our family here via its medical research programs."

- Carlos Diaz, MD '72

DAR3291



Fun at Follies

Students from the George Washington University School of Medicine and Health Sciences had the audience in stitches in March at Follies, an annual event that features dances and skits performed by students.

The event was one of celebration, for the students and their

fourth-year colleagues who will soon head off to residency as well as for the faculty recipients of the Golden Apple Awards. The awards are part of the nominating process for the American Medical Student Association's National Golden Apple Award for Teaching Excellence. ■



2,018 in 2018

With time ticking away, quick treatment of sudden cardiac arrests, which affect more than 300,000 people every year, is critical – and the Rodham Institute is making sure more hands are available to save lives. With a goal of getting 2,018 people trained in CPR in 2018, the institute, led by Jehan “Gigi” El-Bayoumi, MD, RESD '88, professor of medicine at the George Washington University School of Medicine and Health Sciences, is reaching out to residents of Wards 7 and 8 in Washington, D.C. Currently, only 6 percent of residents in Ward 8 know how to perform CPR, or cardiopulmonary resuscitation, said El-Bayoumi. CPR, however, is relatively easy to learn, and when performed early, it can significantly increase patients' chances of survival. ■

Advocating for Research Relationships

Christina Pugliese, now a second-year MD student at the George Washington University (GW) School of Medicine and Health Sciences (SMHS), found herself spending the summer after her first year of medical school in an unlikely place: Gabon, Africa.

“It was really wonderful,” said Pugliese, who conducted research on cryptosporidium, a parasite that causes diarrhea in a large proportion of children under age 5. “For me, it’s been the highlight of my schooling so far. That’s a huge thing, to take advantage of the [research] opportunities that are here; supplementing your education with things you’re passionate about makes it more exciting and enriching.”

Pugliese, whose abstract is featured in the student-led journal Fusion, was also selected as third-place winner of the William H. Beaumont Medical Research Honor Society Student Research Award. The prize is given annually by research faculty to three research abstract authors, coinciding with GW’s Research Days.

First-place winners Nicole Casasanta and Sarit Toltzis, and second-place winner Dara Baker, along with Pugliese, also presented their research to their peers. Their discussions perfectly illustrated what keynote speaker Mary Woolley, president of Research!America, believes researchers need to do: advocate for

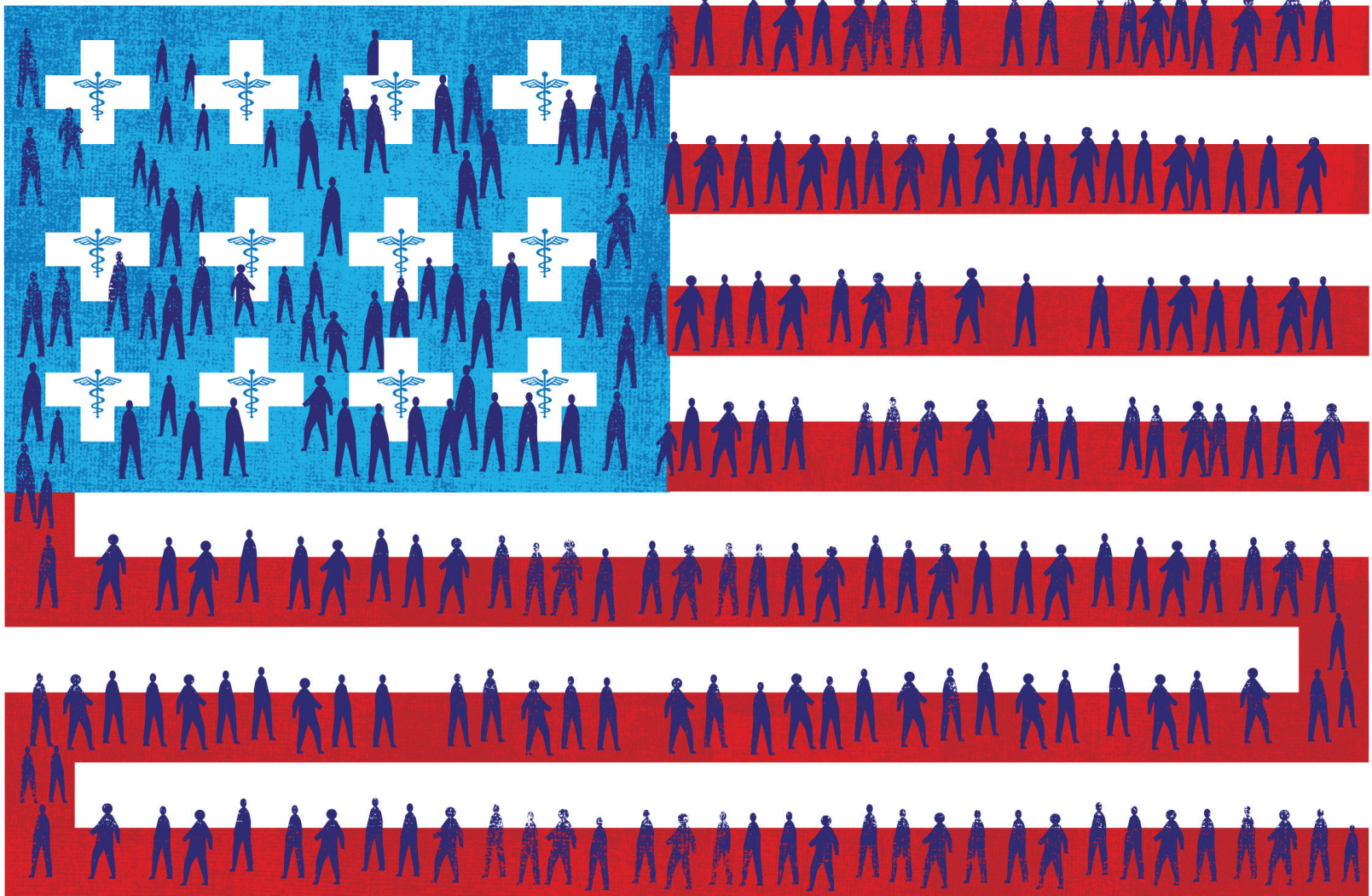
their work by talking about it.

“Advocacy is about making the case – enthusiastically, I might add – for something that we’re passionate about and proud of being part of. [As with] anything else, when you’re trying to convince people to be on your side of a movement, something giant or something smaller, it’s about building relationships.”

At the SMHS level, more than 350 students presented posters on their research, discussing methods and results with fellow classmates, professors, and Research Days attendees.

To download a copy of the most recent edition of Fusion, visit smhs.gwu.edu/research/publications/fusion. ■





HEALTH CARE BEYOND THE EXAM ROOM

BY CAROLINE TRENT-GURBUZ

During their third-year OB/GYN rotation, a group of medical students at the George Washington University (GW) School of Medicine and Health Sciences (SMHS) filtered through the mock-exam rooms of the Clinical Learning And Simulation Skills Center (CLASS Center). The standardized patients, or “SPs,” they met — actors taking on temporary roles — discussed typical maladies and conditions an OB/GYN would potentially diagnose. One patient, however, was different. This SP was a sexual assault survivor.

“That one single SP encounter [stood out] because I was so caught off guard,” recalls Billy Vintzileos, now a fourth-year medical student. He and the cluster of students who worked with the SP came away feeling unsettled and wanted

to learn how to do more to help sexual assault survivors.

“It was a curveball,” explains Rebecca Surrey, a fellow fourth-year MD student. “Now as residents, we’re going to be the ones to provide that medical care, and we are the ones people ask for help, so we should know what to do.”

Motivated by the opportunity to enrich training for future classes, Surrey and Vintzileos, along with a handful of their classmates, seized on the topic of sexual assault training for medical providers, primarily through curriculum implementation, for their Clinical Public Health Summit project.

The yearlong projects, explains Lawrence “Bopper” Deyton, MD ’85, MSPH, senior associate dean for clinical public health and Murdock Head Professor of Medicine and

Health Policy at SMHS, build on the summits that students participate in throughout their first three years of medical school. The goal is for students to learn how, as clinicians, they can take active roles in public and community health issues to tackle complex problems, such as childhood asthma, obesity, and HIV/AIDS. They are tasked with creating solutions and presenting them to experts, sometimes with real consequences; student proposals from the 2015 HIV/AIDS summit, for example, were included in Washington, D.C.'s, new HIV/AIDS Action Plan.

It was the students, as well, who proposed picking their own topics for their culminating Clinical Public Health Summit; Deyton said yes.

“To be able to choose a topic, especially one in their chosen specialty, and work on it for a full year has particular salience for the rest of their careers,” he explains.

Topics included traumatic brain injuries in children and the opioid crisis, and individual projects were, in large part, sparked by personal experiences.

Cate Mackenzie, for example, a nurse before enrolling in medical school, wanted to build on her experience keeping patients mobile. “We know that’s really important for patients to prevent complications of hospitalization,” she says. “There’s a rule of thumb that for people over the age of 65, every day in bed requires about a week of recovery for them to get back to their baseline.”

Her interventions include adding mobility boards for both patients and providers in hospital rooms, installing more handrails in the hallways of GW Hospital, and training medical students on how to mobilize patients.

Education was also a critical part of Mary Piechowiak’s project. Climate change, she says, can directly impact health; for instance, an increase in temperature is linked to more kidney stones and can negatively affect outcomes in patients with diabetes, cardiovascular disease, and obesity. Professional medical organizations have issued statements on the correlation, and the American College of Physicians offers a tool kit, but, she says, “in medical education, there isn’t a lot of incorporation of climate change.”

Her aim, inspired by her participation in last year’s Women’s March and the March for Science, is to

enact change from the ground up. She’s gathering potential data on folding climate change into the medical curriculum, and she’s hoping to meet with leadership once her research is complete.

“A year ago I knew a little bit, but compared to now, I didn’t know anything about how climate change affects health. I hope it gets into the curriculum,” she says. “One of the things I’m planning to do is come up with my own PowerPoint [presentation] so that next year when I go into residency ... I have something I can share with my peers and teach them about climate change.”

The presentations, says Kaylan Baban, MD, MPH, assistant professor of medicine at SMHS and lead faculty member of the summit, were inspiring — and they illustrated that all clinicians can take a direct, active role in public health.

“There is no specialty that does not have areas of significant relevance for our broader public health conversation,” Baban says. “It’s thrilling to see this understanding taking root in real time, and hopefully the relevance of clinical public health ... will not even be a second thought for these students in the future.” ■



Getting Out of Their Comfort Zone

BY ASHLEY RIZZARDO

The population of Guyana, a small country on South America's northern coast, stands at around 800,000. The population of the country's capital, Georgetown, is about 240,000, or 300,000 in the surrounding metro area. The city is home to one of the country's few hospitals, Georgetown Public Hospital. Experts in specialties such as urology are scarce — you can count the number on one hand.

People in Guyana “have a public health system, but access to health care is delayed and limited,” explains Vikram Sabarwal, MD, a fourth-year urology resident at the George Washington University (GW) School of Medicine and Health Sciences (SMHS). “As a result, many of the Guyanese who need surgical procedures must wait long periods, often in pain as their condition deteriorates.”

In November 2017, the Department of Urology and the Department of Anesthesiology and Critical Care Medicine deployed a team of attending physicians and residents to help address the backlog of urologic procedures and teach surgical and anesthesiology residents some methods and procedures to help them care for these patients.

During the weeklong mission, the group had three objectives for the trip, says Daniel Stein, MD, residency director for the Department of Urology and assistant professor of urology at SMHS. The first was to help a group of patients in desperate need of care. The second was to collaborate and help train urologists in Guyana to perform surgical procedures and get them comfortable enough to train others.

“They knew we were coming and were lined up for treatment,” Stein says. “We did around 20–25 surgeries while we were there for patients who were challenging to the surgeons in Guyana, or [for whom] there weren't the resources to treat the patients.”

The third objective? Encourage the SMHS residents to function outside their comfort zone. The team spent a week working in a different health care environment and experienced how medicine is practiced in another area of the globe.

“It's always good to have a sense of global perspective in terms of different resources that exist for different populations,” says Kate Hindle, MD, residency director and assistant professor of anesthesiology and critical care medicine at SMHS. “There are a lot of things that we do [in the United States] where we do have access to multiple medications and we do have access to different devices. It's important to understand that there are many places in the world with different resources.”

The mission trip was a new experience for Sabarwal, who performed his first open pyelolithotomy — the removal of kidney stones.

“In the U.S., we frequently use a minimally invasive approach for many surgeries,” he says. “The facilities in





Guyana don't have many of the tools needed to perform surgeries through such an approach."

Instead, they performed a classic open urologic surgery that is no longer routinely performed in the U.S., making a large incision, opening the kidney, and taking out the stones.

"At GW, we typically make a small hole in the kidney and use endoscopic instruments to crush and extract kidney stones," Sabarwal explains. "This is a sharp contrast from the large incision needed to perform a pyelolithotomy."

The same was true for anesthesia, says third-year anesthesiology resident Harsha Nair, MD. "It was interesting to see the resources they reused in Guyana that we don't reuse here," he says. "Also, the availability of certain drugs — drugs that we take for granted here weren't available there."

Nair also had the opportunity to demonstrate and teach the anesthesia residents in Guyana nerve blocks and pain management techniques that are well-suited to the urologic surgical procedures being performed.

The SMHS team worked each day from 7:45 a.m. until as late as 6:30 p.m., and saw between three and five patients each

day, says Nair. However, they did have the opportunity to explore the coastal city. The team spent the first and last days visiting the markets of Georgetown and taking in the unique flair of the country, which has a mix of French, Caribbean, and Indian influence.

The trip was coordinated through Doctors International, a nonprofit group within the GW Medical Faculty Associates, and organized by Michael Phillips, MD, clinical professor of urology at SMHS, in coordination with the Department of Health in Guyana. Doctors International organized the first trip to Guyana in 2013 and has organized several other visits since, including a recent one to Guatemala.

Sabarwal says the experience affected his perspective and goals. He now looks forward to taking similar trips and hopes to eventually assist in establishing continued aid. "It's one thing to visit [developing nations] and perform surgeries for a short period of time," he says. "It's another thing to be able to set up a sustainable program in an effort to provide the native surgeons, physicians, and hospital staff the resources to improve patient care moving forward." ■

RIDING
A
WAVE
OF
NANOTECHNOLOGY



BY STEVE GOLDSTEIN

Gazing at the iconic 19th-century Japanese woodcut known as “The Great Wave off Kanagawa,” one would hardly suspect it contains a key to a medical breakthrough. Yet the pigment in the artwork has opened a new perspective in the treatment of juvenile cancer.

The artist, Hokusai, used Prussian blue pigment in his masterpiece. By combining the same deep blue nanoparticles with an immunotherapy class called checkpoint inhibitors, researchers have engineered a “nanoimmunotherapy” for treating neuroblastoma, a leading cause of cancer-related death among children. The nanoparticles are administered to neuroblastoma tumors where they are activated with near infrared light. The light activation causes the nanoparticles to heat and destroy tumor tissue and elicit a robust anti-tumor response from the immune system. These anti-tumor effects are made more potent by the administration of the checkpoint inhibitor treatment.

Nanoimmunology, as the field is called, is really the synthesis of nanotechnology and immunotherapy — a marriage of engineering and medicine. Nano is the science of tiny, explains Rohan Fernandes, PhD, the leader of a team in the George Washington University (GW) Cancer Center that is integrating nano science with the immune response. “Nanoimmunology takes these tiny particles that can interact with the immune system to elicit a robust response for any therapeutic purpose, whether it be infections or cancer,” says Fernandes, who also serves as assistant professor of medicine at the GW School of Medicine and Health Sciences (SMHS).

How small are nanoparticles? The particles are measured in nanometers, or one billionth of a meter. Nanotechnology is concerned with the use and control of structures that range from one to 100 nanometers in size.

Fernandes, 39, is an engineer by training who earned his PhD in bioengineering from the University of Maryland. After a fellowship at Johns Hopkins University, he came under the mentorship of Catherine Bollard, MD, associate center director for translational research and innovation at GW Cancer Center, and professor of pediatrics and of microbiology, immunology, and tropical medicine at SMHS. Fernandes joined the GW Cancer Center last December. “I thought my field (of nanotechnology) would be useful for immunology,” says Fernandes, adding that the science “is actually the dynamic interplay between the nano world and the immunotherapy world.”

Over his career, Fernandes saw a lot of neuroblastomas. As a grad student, he’d become familiar with the story of Alexandra “Alex” Scott who, after being diagnosed with neuroblastoma before her first birthday, set up a front-yard

lemonade stand to raise money for research. A year after Alex died in 2004, her parents started the Alex’s Lemonade Stand Foundation. “Alex’s courageous struggle was one of the motivations to undertake research that is more translational,” he explains. In January 2018, Fernandes and his team received more than \$700,000 from the foundation for neuroblastoma research.

The research is focused on what Fernandes calls “nanoimmunotherapy,” which leverages the properties of nanoparticles with checkpoint inhibitors to treat neuroblastoma. The nanoparticles are sent to battle neuroblastoma tumors spurred on by near infrared light. Once activated, the nanoparticles heat and destroy tumor tissue and cause the immune system to deliver a robust anti-tumor response.

Checkpoint inhibitors are molecules that block immune checkpoints, which are receptors or ligands that modulate the immune response. In a lot of cancers, tumor cells express these checkpoints to “hide” from the immune system. Blocking the immune checkpoint “releases the brakes” on the immune system.

“We try to break up the tumor so that the tumor cells are killed by the nanoparticles, and in doing so we present the dying tumor cells to the immune system,” Fernandes explains. “Simultaneously, we take the brakes off the immune system, which recognizes the tumor cells, so the immune system can go after what we want.”

Nanoparticles are made of metallic polymers that absorb the near infrared light and dissipate the resulting energy into heat through a process known as “photothermal conversion.” This process helps limit the effect on healthy cells. “We get the majority of the tumor but there will be collateral damage to some surrounding tissue,” says Fernandes.

In a newly published paper by the team led by Fernandes, researchers describe a technique using temperature control to turn immunotherapy on or off in a tumor environment.

“When temperatures are at 60 degrees, the tumors are not immunogenic, meaning that the immune response cannot recognize the nanoparticles,” reports Juliana Caro-Mejia, a University of Maryland bioengineering PhD candidate. “With the heat varying in a window of 60 to 65 degrees, the tumor cells are expressing immunogenic markers. Finding this window was very exciting!”

The process has already been tested on mice. The results to date indicate that treatment can boost long-term survival by 50 percent in the treated animals. Testing on humans is not imminent, however. “The Food and Drug Administration is very stringent about allowing pediatric trials,” says Fernandes. His goal is to get into clinical trials within the decade. ■



HARNESSING THE POWER OF THE IMMUNE SYSTEM

BY KATHERINE DVORAK

The future of cancer research, in the opinion of Katherine Chiappinelli, PhD, at the George Washington University School of Medicine and Health Sciences (SMHS), centers on combining immunotherapy with other treatments. Pairing immunology with epigenetics, the study of changes in organisms caused by modifications to gene expression, she seeks to better understand the mechanisms behind epigenetic control of immune signaling in cancer cells.

“The body’s own immune system is our most potent weapon against cancer cells,” says Chiappinelli, assistant professor of microbiology, immunology, and tropical medicine at SMHS.

While immunotherapy alone can work to fight cancer, Chiappinelli notes, it is most successful in patients who already have immune cells in their tumors. “Those patients in general respond to immune therapy, but there’s another set of patients [whose] tumor cells are growing very fast and there are few or no immune cells in the tumor to fight it,” she says. “These patients don’t do well with drugs that release the brakes on the host immune system. That’s a big problem in the field.”

And it’s a problem her lab is tackling head-on.

During a postdoctoral fellowship with Stephen Baylin, MD, at Johns Hopkins University, Chiappinelli found that a drug that turns on tumor suppressor genes also has a strong

immune effect. She likened it to a changing stoplight — if the gene is turned to green, it means go, but if it's red, it's turned off.

“When we treated cancer cells with this drug, they had more immune signaling coming from the tumors and more immune cells in the tumors. But we didn't know why,” she says.

It turned out the answer was in our genomes. “Only about 2–3 percent of [human] DNA codes for proteins. However, about half of our DNA is repetitive sequences, and we don't really know what they do,” she says. Originally, that was characterized as junk DNA, but it's not junk, according to Chiappinelli. Those sequences include endogenous retroviruses, or dead viruses in our genetic code. Our cells turn off these viruses on purpose. But epigenetic drugs turn them back on.

We don't get viral particles that can infect the cell when the retroviruses get a green light, Chiappinelli explains, but the viral RNA is transcribed, and that sets off an alert in the cell. “The alert makes tumor cells think they are infected with a virus, and they die or send out signals to host immune cells to come and kill them,” Chiappinelli says. “So the big effect in human cancer cells and in mouse models of cancer is that you get more immune cells coming in to kill the tumor and a good anti-tumor effect, especially when you combine that with immune therapies.”

Chiappinelli's interest in medical research dates back to high school AP biology. It was a hands-on class full of lab work that showed her how pursuing science could mean doing something different every day and enjoying the excitement of not knowing what would happen next.

“That can be frustrating sometimes,” she says about the unknowns of scientific research, “but I think it also makes for a really interesting career.”

She adds that she gravitated toward epigenetics, a new field during her time in graduate school, because not much was known about it then, and there's still a lot for researchers to learn.

“I think, for a young person, there's the opportunity to make important discoveries. It's a field where there's still a lot of progress to be made, in terms of both basic science discoveries and impact on patient care,” she adds.

Now a clinical trial Chiappinelli was involved in during her postdoctoral work at Johns Hopkins is underway, combining epigenetics with immune therapy. But even with the discoveries she's helped make, Chiappinelli has more questions to answer: Which sequences do this? What things are being secreted to bring in the host immune cells? What are the best combinations to fully eradicate tumors?

That's what Chiappinelli says she likes most about her work, day in and day out: “There's always something new to discover.” ■

FUNDING BOTH PROFESSIONAL AND PERSONAL

Establishing the Marlene and Michael Berman Endowed Fund for Ovarian Cancer Research was both personal and professional for Michael Berman, MD '67, RESD '69, a specialist in gynecologic oncology at the University of California, Irvine Medical Center.

On a warm September day in 2017, Berman toured the George Washington University (GW) Cancer Center as part of Reunion Weekend at the GW School of Medicine and Health Sciences (SMHS); it was on that tour he met Katherine Chiappinelli, PhD, assistant professor of microbiology, immunology, and tropical medicine at SMHS, and spoke with her about her research on immunology and epigenetics.

Berman, always interested in discoveries that could benefit the patient population he has been taking care of for nearly 50 years, was intrigued, and not long after speaking with the young researcher, wrote a \$100,000 check to help with the growth of the Chiappinelli Lab.

“We're on the threshold for major advances in immunology and immunological treatments of cancers, and Dr. Chiappinelli's research is the kind that will lead to positive developments in the care of patients with ovarian cancer,” he said.

That was the professional reason for Berman's generous donation. His personal reason hit closer to home; Berman's wife, Marlene, who passed away in 2014, had breast cancer. Later, all four of his daughters tested positive for the BRCA gene, which places them at a higher risk for developing breast or ovarian cancers.

“It's a strange set of events, when you think about it,” Berman said. “I'm an oncologist with all four daughters at risk for cancer. But I think we're not too far away from some major breakthroughs that may help patients suffering from this devastating disease.”

He added that the donation also was made to show his appreciation for the alma mater to which he feels greatly indebted.

“GW has permitted me and many others to have an impact on the lives of the people who trust us to make correct decisions and do the right things for them,” he said. “It's that indebtedness that made me want to give back.” ■

TURNING UP THE VOLUME ON RESEARCH



STRATEGIC HIRES, CORE LABS,
AND RESEARCH SUPPORT PROGRAMS
HELP BOOST THE RESEARCH ENTERPRISE

Alberto Bosque, PhD, MBA, was at a crossroads. He'd moved from his Spanish homeland to the United States to complete a postdoctoral fellowship, and he'd started to fulfill one of his life's wishes: having his own lab.

"That has always been one of those dreams, [but] I didn't know where [my lab] was going to be, whether I was going to continue in the States, whether I was going to go back to Spain," recalls Bosque, whose research focus is HIV/AIDS. "The opportunities that I have in the States are exceptional, and I decided to stay here."

He built his lab from the ground up, Bosque says, and earned a tenure-track position at the University of Utah, where he had been doing research. But a year later, he made another decision: to uproot his research and move to the George Washington University (GW) School of Medicine and Health Sciences (SMHS).

"One of the reasons that I moved my lab ... was the environment here," says Bosque, now assistant professor of microbiology, immunology, and tropical medicine at SMHS. "The other HIV/AIDS researchers in the department, together with investigators at the DC Center for AIDS Research, make for an exceptional community that addresses the HIV/AIDS epidemic from multiple perspectives, including basic science, epidemiology, and clinical research."

Bosque's attraction to SMHS — its blossoming reputation for research, its effort to remove silos and offer opportunities to both new and established investigators — is emblematic of the school's growth.

Layer by layer, SMHS leaders such as Robert Miller, PhD, senior associate dean for research, Vivian Gill Distinguished Research Professor, and professor of anatomy and regenerative biology, and Alison Hall, PhD, associate dean for

research workforce development and professor of neurology, are building a pre-eminent research institution.

"The research enterprise has grown significantly over the last three years as a result of investment from the school and from the university," Miller explains.

With the 2015–18 strategic plan as a model, the school has hired more than 40 research faculty with varying degrees of experience and areas of interest. Most fall within three main fields: cancer; neuroscience, including autism; and infectious diseases, such as HIV/AIDS.

Hiring that many new researchers "is very unusual — that's an enormous institutional commitment," Hall says. "They are bringing new ideas to GW and new energies to our research groups. It's really exciting, and we're trying to do quite a lot to help them be successful here because they're what makes us strong."

As Miller adds, an influx of talent is critical to shaping the future of research; the new faculty members act as a catalyst for collaboration across disciplines and can lead current faculty researchers into fresh areas of inquiry. The ultimate goal, he says, is to "increase everybody's research portfolio" — a mission that has come within reach, thanks to the unprecedented increase in both the volume of grant applications and the number of grant awards. Between 2015 and 2017, for example, new proposals jumped from 210 to 334, and new awards rose from 53 to 95.

"Research funding at the School of Medicine and Health Sciences has gone up dramatically," Hall says. "The amount of

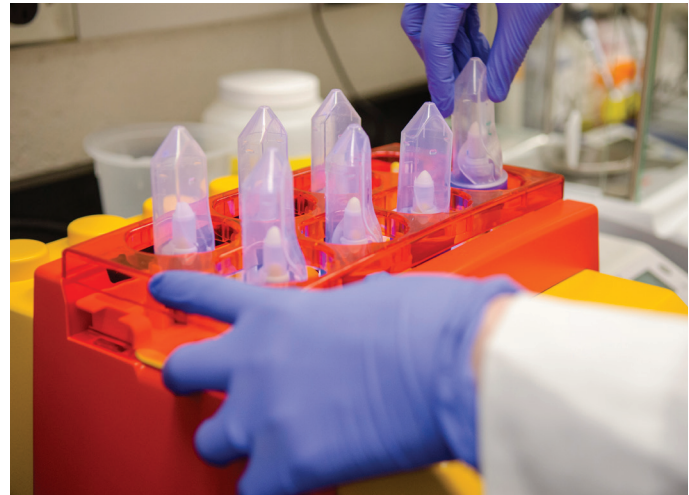
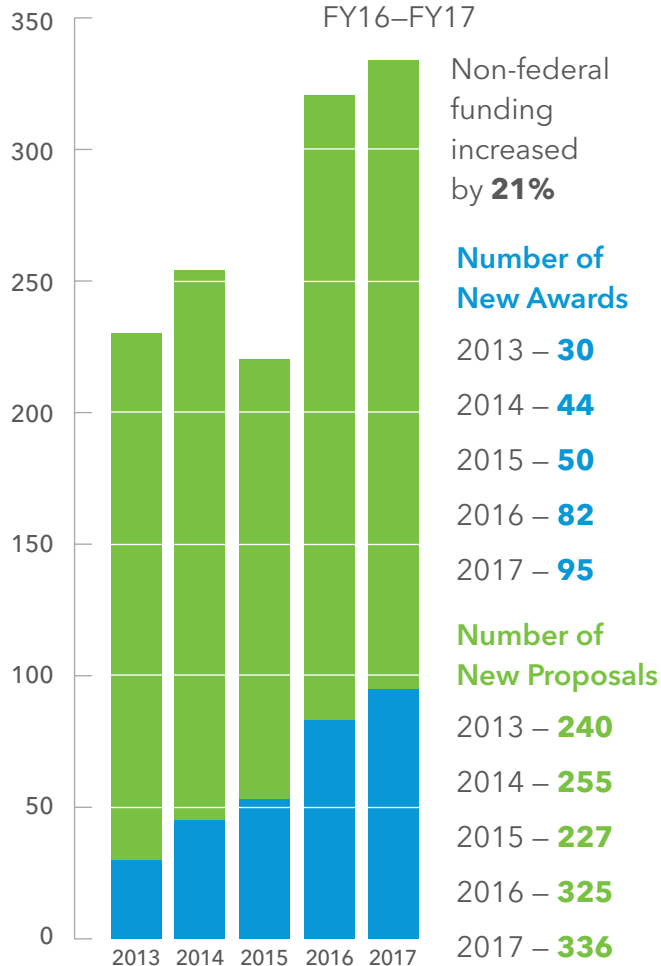
federal funding has gone up, and the amount of non-federal funding has also gone up. The federal funding helps to pay for researchers' salaries; the non-federal funding forms key elements in supporting our research programs."

Some researchers, she adds, bring their own financial support, while others start to apply for grants once they've settled in. "GW invests money in them to help them start up a laboratory, and the investigators need to take their ideas out and gain support for research to continue."

Although the increase in funding is impressive — total growth from 2016 to 2017 hovers around 35 percent — Miller cautions that the figure is less significant than the actual work. "I think what's more important than thinking just about dollars is to think about the impact and the effect that it's having on the school, which is to increase the reputational benefit of the school and of the university."

Key to that reputation building is the school's support in three areas critical to research: education (see sidebars on the GW-SPARC Program and the newly re-organized PhD programs within the Institute of Biomedical Sciences), infrastructure, and mentorship.

35% Overall increase in research expenditures, FY16–FY17



Within the last three years, the university has merged and grown its cancer programs to create the GW Cancer Center, which boasts more than a dozen lab spaces and state-of-the-art equipment, and has continued to invest in core facilities, such as the Research Pathology Core Laboratory, the Nanofabrication and Imaging Center, and the Flow Cytometry Core Facility; SMHS has planned future investment in bioinformatics and small animal imaging, among other areas.

Aside from providing the physical space and the necessary resources, SMHS offers guidance and career support.

"I would say that key to the success ... is mentoring," Hall says. "Graduate students and undergraduates need mentoring to figure out what to do next year, to think about how to begin a medical or research career. But I think we also need to recognize that junior faculty need mentoring [too]. It's key that the institution help people become successful; draw upon their smarts and their energy, and we really need to mentor people to be effective."

Nikki Posnack, PhD '09, for example, credits her research success to her mentors: Narine Sarvazyan, PhD, professor of pharmacology and physiology at SMHS; Norman Lee, PhD, professor of pharmacology and physiology at SMHS; and Matthew Kay, PE, DSc, professor of biomedical engineering and chair for research and graduate affairs in the GW School of Engineering and Applied Science.

"I was really well supported by my mentors, and that allowed me to develop my own research program," says Posnack, who also serves as assistant professor of pediatrics.

Posnack is based at the Children's National Heart Institute at SMHS' clinical partner Children's National Health System (Children's National), with which the school shares several links, including the Clinical and Translational Science Institute at Children's National, supported by a \$23 million Clinical and Translational Science Award (CTSA) from the National Institutes of Health.



LIGHTING THE SPARC

The philosophy behind the George Washington University (GW) School of Medicine and Health Sciences (SMHS) approach to research is simple: Diversity is the key to excellence.

"If you have the same people with the same backgrounds asking the same questions, you really don't make an effective research program," explains Alison Hall, PhD, associate dean for research workforce development and professor of neurology at SMHS.

Expanding opportunities for potential researchers and enhancing diversity in the biomedical research community is essential – which is why SMHS, in partnership with the GW Cancer Center, is launching the GW Summer Program Advancing Research on Cancer (GW-SPARC).

"GW-SPARC will not only expose participants to cutting-edge research and contemporary cancer research techniques, but will also help foster their understanding of health disparities and the impact of cancer in different communities," says Hall, who serves as co-director of the program. "Most importantly, this program will help prepare diverse students for research careers, leading to discoveries that will improve our future."

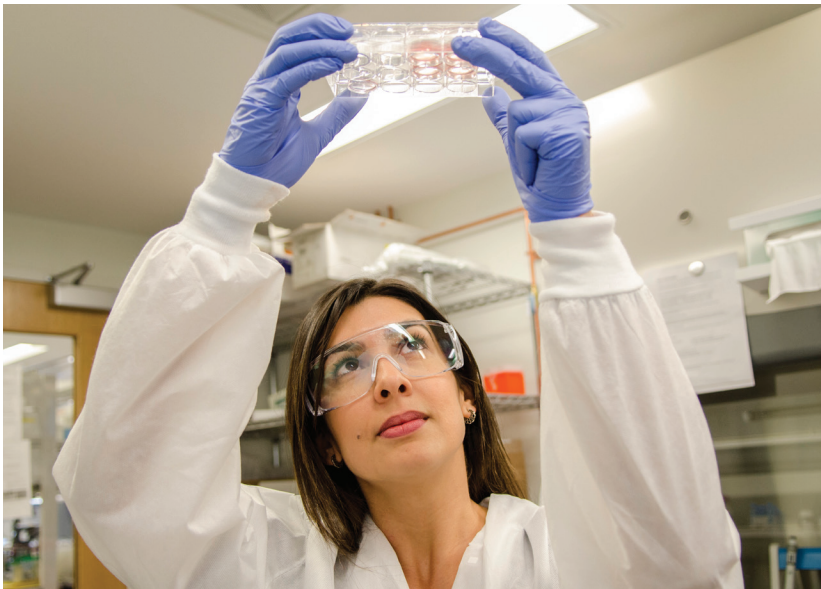
The program is open to undergraduates from groups underrepresented in biomedical science, such as those from certain racial and ethnic groups or with disabilities or specific financial disadvantages, and is designed to provide

participants with a hands-on approach to cancer research. Students will embark on closely mentored research in laboratories focused on three areas – cancer immunology and immunotherapy; cancer biology, namely targeted therapies and epigenetics; and cancer engineering and technology – and attend weekly workshops and seminars. GW-SPARC will also feature a book club focused on the impact of cancer in diverse communities. At the end of the summer, students will present their research in a scientific poster session.

"Our hope is that graduates from this summer program will go on to become active, motivated researchers, ready to solve today's most pressing problems for those who need it most," says co-director of the program Edward Seto, PhD, associate center director for basic sciences at the GW Cancer Center, King Fahd Professor of Cancer Biology, and professor of biochemistry and molecular medicine at SMHS.

GW-SPARC will welcome its first cohort this summer, and is already planning for the next summer's crop of students.

"Our goal is to support these students in their completion of a STEM bachelor's degree and support them in their goals for graduate work," Hall says. Achieving that, she adds, will boost the diversity among the pool of students pursuing biomedical research PhDs. "That's the intention of this program, and I hope graduates will join our PhD and MD programs. We hope to add programs like this at GW in the future in order to accomplish our goal of diversifying scientific research." ■



Prestigious high-dollar collaborative awards like the CTSA, are also on the rise, with SMHS proving a valuable partner for other research institutions. The school and the University of Georgia, for instance, were awarded a \$10 million bioinformatics grant to develop computational and informatics tools, and Children’s National and the GW Institute for Neuroscience received a multimillion-dollar program project grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development to support research in pediatric dysphagia, a feeding and swallowing disorder.

Children’s National is also particularly fertile ground for Posnack, who directs the cardiovascular physiology and pharmacology lab; her laboratory is studying chemicals that leach from plastic medical devices and their potential impact on the cardiovascular health of pediatric patients.

“Within the Children’s National Heart Institute, we are able to collect patient samples and work side by side with clinicians,” she says. “This allows us to better understand clinical concerns and also aids in the translation of our research findings to the pediatric population.”

Her research career, she adds, developed naturally, thanks to collaborations with local universities and the Food and Drug Administration, and her ability to find funding.

“I had a lot of flexibility to develop an independent research program that I was passionate about, and [GW was] very supportive of that,” she explains.

Although the research enterprise is still maturing, Miller and Hall say, the progress of the last three years is encouraging. When Miller first arrived at SMHS in 2014, he had a vision in mind, with one main goal: “that GW [would] become recognized as a world center ... as a place where the best science gets done.”

With the implementation of new strategies and the investments in people, infrastructure, and education, SMHS is well on its way — with boastworthy growth. ■

CREATIVITY, INNOVATION, AND DISCOVERY

As the research enterprise at the George Washington University School of Medicine and Health Sciences (SMHS) grows, so too does one of its core components: the PhD programs at the Institute of Biomedical Sciences (IBS).

The programs, explains Alison Hall, PhD, associate dean for research workforce development and professor of neurology at SMHS, are critical for attracting young talent to SMHS and providing them the support to pursue a career in research. To increase both the volume and the quality of applicants, and to align with research strengths, SMHS has reshaped what’s available.

Currently, students can earn a PhD in three main areas: microbiology and immunology; biochemistry and systems; and molecular medicine. Within molecular medicine are tracks in cancer biology, pharmacology and physiology, and neuroscience.

In assessing the curriculum, IBS graduate program directors identified common foundational courses, as well as courses for each area of study, designed to enhance students’ research potential.

“There’s a strong interest in interdisciplinary training nationwide, and we are absolutely encouraging students [to develop an interdisciplinary underpinning],” says Hall, adding that the program update is also enhancing “opportunities for very specific training in each of the degrees.”

In all the programs, PhD students take common, interdisciplinary core courses in the fundamentals of biomedical science, and career and professional development, as they rotate through different laboratories of interest.

“In the spring of the first year, there are PhD-specific courses,” Hall explains. “Some of them are very new. They’re required courses ... so that [students] really understand contemporary ideas in cancer biology or in genomics and precision medicine. We encourage students to tailor their courses for their interests, such as neuroscience and cancer, or pharmacology and genomics.”

Following course work and rotations, PhD students prepare a fellowship-style grant proposal outlining their original experimental design and analysis for advancement to candidacy. “This requires a lot of creativity,” Hall says. “It’s really [making them perform the tasks of] a functioning scientist.”

These students, she adds, are particularly important for research institutions such as SMHS. “PhD students are the workforce for research discovery,” she explains. They “have the time and the energy and the newness to take on innovative, creative, and difficult questions. The place that you find the open-eyed questioning is among the graduate students.” ■



TARGETING EXCELLENCE

New center puts faculty development resources in the bull's-eye

BY KATHERINE DVORAK

Nestled on the first floor of the Himmelfarb Health Sciences Library, the new Center for Faculty Excellence (CFE) at the George Washington University (GW) School of Medicine and Health Sciences (SMHS) gathers an array of the school's faculty development resources in one place.

"It's a home for our teaching faculty; it brings together much of the professional staff and support required for them to participate in and contribute to the education goals of SMHS," says Ellen Goldman, EdD '05, MBA, assistant dean for faculty and curriculum development in medical education at SMHS, and professor of human and organizational learning in the GW Graduate School of Education and Human Development.

The staff members working in CFE, says Goldman, have strong educational backgrounds and significant work experience in both classroom and online instructional design. They also are adept at developing and delivering leadership and other training programs, as well as designing and conducting research on teaching, learning, and leadership development.

"The Center for Faculty Excellence will build upon and expand current efforts at SMHS to advance the scholarship and practice of teaching. We're proud to have a center that will be dedicated to those efforts," says Jeffrey S. Akman, MD '81, RESD '85, vice president for health affairs, Walter A. Bloedorn Professor of Administrative Medicine, and dean of SMHS.

The CFE offers professional consultation and programs to enhance teaching and learning, educational leadership, education research, and career development. The center has three aims: to support faculty in delivering high-quality, innovative teaching and learning experiences; to develop areas of inquiry that build education theory and advance education practice; and to promote the career development of faculty members and students as education leaders.

Some of the resources offered through the center, including the Master Teacher Leadership Development Program, peer reviews of teaching, and an annual education research grant program, have been around for several years; others are more recent.

One new offering is the SMHS Academy of Education Scholars, which started in September 2017 and is helping 10 faculty members pursue scholarship in teaching and learning.



The Junior Faculty Career Exploration and Development Half-Day Program was offered for the first time in February and featured discussions on the future of academic health centers; the appointment, promotion, and tenure process and requirements; time management; mentoring do's and don'ts; and exemplar career development examples. Another addition is the Fundamentals of Leadership Program, which started in January and is a one-year cohort-based program that meets monthly to help faculty with major project responsibilities across SMHS improve their effectiveness as leaders.

Many of the previously offered one-hour workshops have been overhauled. They are now delivered in collaboration with the departments, and new offerings have been added to address topics including teaching on the fly, making feedback stick, and maximizing case-based learning, Goldman notes.

In addition, the center's website provides online modules to guide faculty through the design of a class session using active learning, as well as modules on research study design, methods, conduct, and publication. The center is also responsible for the online library guide on teamwork and team leadership.

Further, the center offers physical space where faculty visiting Ross Hall can work before they teach a class or attend a meeting.

The professional staff of the center are currently in the process of developing other programs and services. "We are committed to working with department chairs, division chiefs, program directors, course directors, and others to help advance the teaching, learning, and education research work that they're doing," Goldman says. "We're committed to building the educational leadership capability in the school and are fortunate to have so many faculty who care very deeply about the quality of education offered at SMHS. Putting the resources to assist them under one roof is an important step forward." ■

OBSERVATION:

Social Responsibility

Strong commitment to social responsibility is at the heart of the SMHS mission

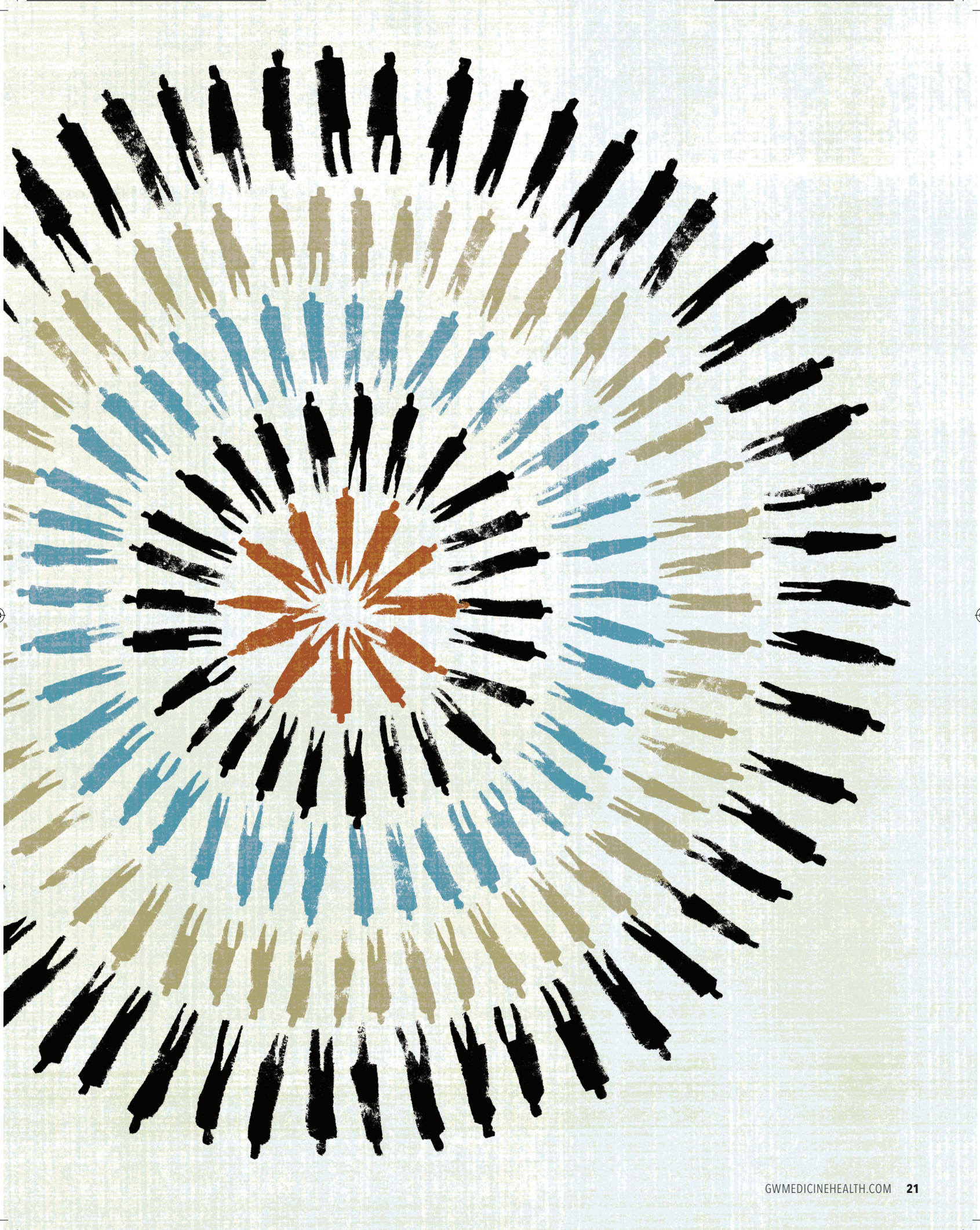
BY KATHERINE DVORAK

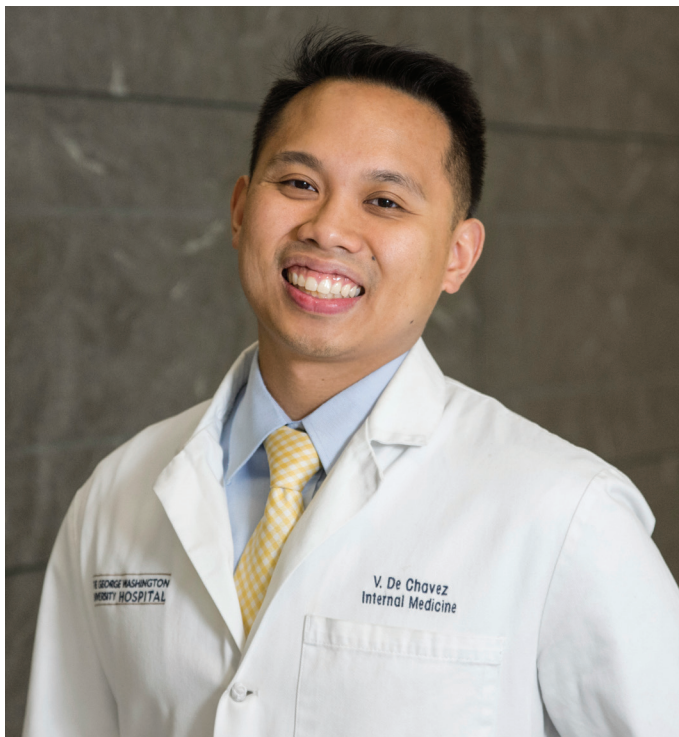
Cumberland, Maryland, is a picturesque city nestled in the lush ridge-and-valley country of the Appalachian Mountains. Small and isolated, it's a place that has seen more than its share of hardships; not long ago, it was named the poorest city in the state. But its residents are eager to help their neighbors, boast a can-do spirit, and live by the motto "we don't give up."

For Christina Sensabaugh, MD, a resident at the George Washington University (GW) School of Medicine and Health Sciences (SMHS), Cumberland is home. When she moves back this summer to start her career, she'll be returning to a community where everyone knows everyone else, where if her car breaks down on the way to work, she can knock on the nearest door to find help.

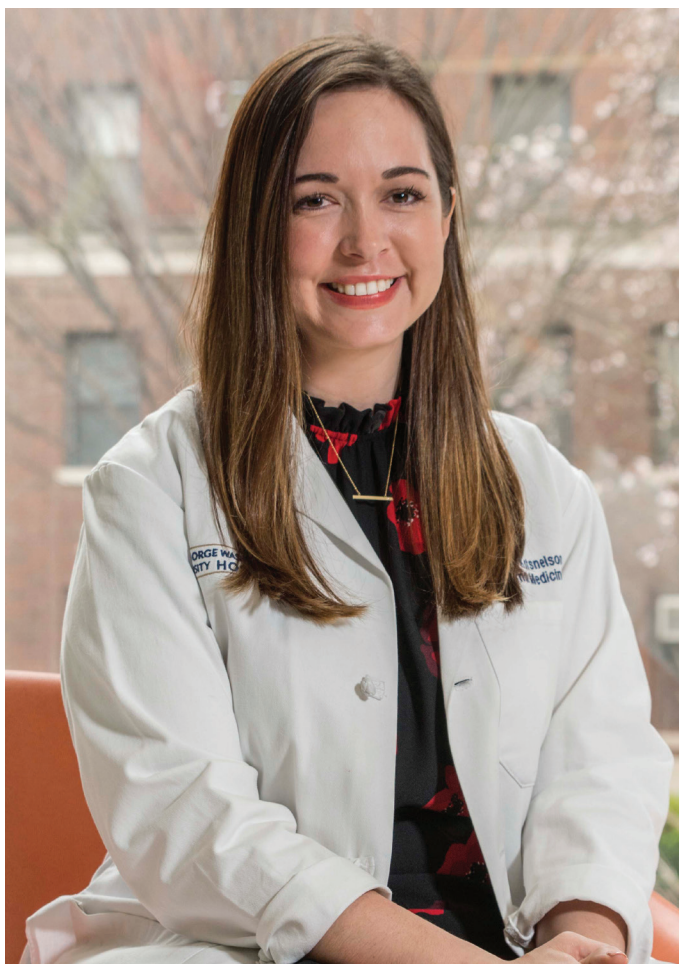
She could practice in vibrant and bustling Washington, D.C., or move to Pittsburgh, which she grew to love during her time in AmeriCorps. But Sensabaugh, her excitement bubbling up, says instead she could make a difference by working to help the people at home. She feels a responsibility to serve her community.







Vincent DeChavez, MD



Christina Sensabaugh, MD

“Physicians have a difficult task. We have a profession, a job, but we have something beyond that,” says Sensabaugh, who will be working at Cumberland-based Western Maryland Health System as a hospitalist. “We have influence, not just on our patients, but on our communities. I feel I have an obligation to be socially responsible; I have to be an advocate for my patients.

“I know Cumberland is going to be challenging, but I’m better prepared than I might have been if I did my residency training somewhere other than at GW,” she says with confidence. “It’s easy sometimes to lose sight of the desire to have a greater impact, but this is a place that helps you not lose that.”

Depending upon whom you talk to, social responsibility has different definitions, especially when it comes to the medical profession. But one thing is certain: A strong commitment to social responsibility is at the very heart of the SMHS mission, which states, “As a globally recognized academic medical center, GW embraces the challenge of eliminating health disparities and transforming health care to enrich and improve the lives of those we serve.”

While Sensabaugh makes the trip home to quiet Cumberland, Vincent DeChavez, MD, also a GW resident, will return to the skyscrapers and cacophony of the Big Apple as an infectious disease fellow at Mount Sinai Health System.

The health center is 20 blocks from his old high school in New York City, and not far from where he grew up, raised by hardworking parents who know the benefit of helping others: His mom works as a nurse at Bellevue Hospital, his dad as a dentist.

“I grew up in Queens and ... it was a very diverse place, and diversity was something I really cherished. Diversity in the language you speak, the music you listen to, where you’re from — that’s important to me and all ties into this,” he says of his call to social responsibility.

DeChavez, quiet and introspective, says he wants to help populations of people who are underserved and work to remove the barriers that prevent them from living healthy lives both physically and mentally.

“Since it’s the beginning of my career, I think it’s most important to be an observer right now,” he explains. “To see where there are shortcomings in the care of our patients, or where they’re having issues connecting to care, or if they’re having issues with health literacy.”

Volunteering at Whitman-Walker Health (Whitman Walker), a nonprofit community health center that specializes in HIV/AIDS and LGBT care, during residency training was eye-opening for DeChavez.

Whitman-Walker has long been a part of GW’s commitment to social responsibility; Lawrence “Bopper” Deyton, MD ’85, MSPH, senior associate dean of clinical public





Some of the deep divers at the School of Medicine and Health Sciences include those who immerse themselves in the GW Healing Clinic.

health and Murdock Head Professor of Medicine and Health Policy at SMHS, was a founder of the organization. Jeffrey S. Akman, MD '81, RESD '85, vice president for health affairs, Walter A. Bloedorn Professor of Administrative Medicine, and dean of SMHS, also volunteered there and served as president of the Whitman-Walker board in the 1990s.

DeChavez says when he saw patients at the clinic and heard their stories, he realized “sometimes the medicine is only a Band-Aid on a bigger problem.” It’s not always easy figuring out how to be a physician who can offer more than that, he adds, but it’s something he will strive to do.

Though their efforts and avenues are different, the zeal to go above and beyond is common throughout the SMHS community: in the faculty members who give back to the community while also instilling in their students the importance of being socially responsible medical professionals; in the researchers who spend long hours in the lab to find cures for rare diseases; and in program leaders who are developing international partnerships to bring quality health care to some of the poorest nations.

“Social responsibility for us in the healing professions is healing individuals, and healing families, and healing neighborhoods, and healing communities, and healing nations,” says Deyton.

Deyton says he first experienced the true meaning of social responsibility in the 1960s, a time of “great social upheaval, including the civil rights movement, women’s rights, voters’ rights, and gay rights.” Through those movements, he realized the great disparities that existed in access to quality health care and the discrimination many people faced in trying to find care.

Today, Deyton helps students connect with their sense of social responsibility. “We’re trying to weave this into how we’re teaching students to become clinicians and scientists,” he says. “We want them to understand social determinants of health and to take up the mantle of their own social responsibilities when they leave here, and how what they learn at GW can be used to effect positive social change.”

Each member of the SMHS community is on a journey when it comes to social responsibility, and there’s no right or wrong, notes David Popiel, MD, MPH, assistant professor of medicine at SMHS and clinical faculty adviser to the GW Healing Clinic. Not every individual, he says, will dive into social responsibility’s deepest waters.

“I think of a pool where you have people who sit by the edge and talk about the importance of social responsibility. Then you have those who wade into the shallow end; they’ll say ‘this is meaningful to me, I’ll dip into this.’ Then you



Whitman-Walker Health

Residency Program. UMPH is a two-year longitudinal program in which residents care for patients at a local community health center, participate in public health information seminars, and design a public health project on a topic of interest.

Members of the SMHS community also work to spread social responsibility across borders. By training international physicians and forging partnerships on a global scale, the GW Office of International Medicine Programs (IMP) brings social action to countries that need it most.

“We develop programs and try to meet needs in many countries. We bring in aspiring international physicians who otherwise would not have a chance to learn medicine. We educate them, train them, and prepare them to be leaders in their communities,” says Huda Ayas, EdD '06, MBA '98, MHSA '93, associate dean for international medicine and executive director of IMP.

For example, IMP has helped medical missions in Haiti for the past 17 years through an established affiliation with Project Medishare. Students and faculty help provide quality health care to people who don't otherwise have access to medical

have the deep divers; they want and need to be engaged at a [profound] level.”

GW is there to provide opportunities for individuals across that spectrum, he says.

The deep divers include those who immerse themselves in the GW Healing Clinic, a student-run organization that supports volunteer clinical sites throughout D.C. and Maryland. Others, like Sensabaugh and DeChavez, choose to participate in the Underserved Medicine & Public Health (UMPH) concentration, an add-on to the Internal Medicine



The SMHS student-run Healing Clinic is a free clinic founded in 2006.



Almost 20 percent of the U.S. population lives in rural communities like Cumberland, Maryland. According to the National Rural Health Association, rural populations are more likely to be poorer, sicker, older, uninsured, and medically underserved than urban counterparts.



professionals. “We don’t develop programs unless we meet with key stakeholders in the country to find out what their needs are and what’s missing,” Ayas says. As a result, “we’re creating impact in these communities; we’re changing lives.”

She adds that the definition of a socially responsible medical professional continues to evolve, and that means keeping an eye on the overall health care environment and on the communities SMHS serves.

SMHS is also weaving social responsibility into its curriculum, using GW’s unique location in the nation’s capital to show students the positive effect they can have not only in the local community, but also at a national and global level, says Deyton.

“We are within a mile or two of almost every U.S. decision-maker around health, be it a government entity, or a nonprofit, or a professional organization,” he says.

An addition to the MD curriculum has been the rigorous clinical public health summits, which began in the 2014–15 academic year. Summit topics include HIV/AIDS, childhood asthma, and obesity; starting last year, fourth-year students are able to choose their own clinical public health topic for a summit project (see *Health Care Beyond the Exam Room*, page 6).

SMHS also places importance on the role its students, faculty, and staff have in supporting the Washington, D.C., region.

A resident of the District of Columbia for many decades, Susan LeLacheur, DrPH ’08, MPH ’89, PA-C, BS ’80, associate professor of physician assistant studies at SMHS, has paved her own path for giving back to the community. Once a week, she volunteers at Whitman-Walker Health.

“For me, personally, I feel like in every patient encounter I ever had, I learn something and I owe something to the people from whom I’ve learned,” she says. “I think that’s particularly true in medical education ... that we owe a debt to the people who provide us with the experience that we require to excel in our professional lives.”

LeLacheur adds that the work that goes into being socially responsible must be done not out of obligation, but out of the desire to give back.

Even as DeChavez, Sensabaugh, their classmates, and SMHS faculty and leadership take up the mantle of social responsibility in their own work, they know it’s important to pass on what they’ve learned to the next generation. Sensabaugh says it best: “When I go home to Cumberland, part of what I want to do is get high school students involved in science and medicine. I think if you get people involved young, and increase that education and awareness, you’re passing on the importance of the medical profession — and of social responsibility — to younger generations.” ■



HEALTH CARE FROM THE INSIDE OUT

Addressing the health of the justice system's at-risk population to improve the public's health at large

BY CAROLINE TRENT-GURBUZ

In 1991, as Newton Kendig, MD, was on the cusp of completing an infectious disease fellowship at Johns Hopkins University, his next step was opaque — until a lawsuit led him down the path of correctional medicine and, eventually, criminal justice health.

“Maryland was being sued by HIV-positive inmates for better health care, and the HIV-negative inmates were demanding segregation based on HIV status,” recalls Kendig, now clinical professor of medicine at the George Washington University (GW) School of Medicine and Health Sciences (SMHS) and faculty member in GW’s Center for Healthcare Innovation and Policy Research.

Kendig was intrigued by the possibilities of working for the State; the prison system lacked adequate HIV/AIDS treatment protocols, and, as medical director, he could have an indelible influence on the care of an at-risk patient population.

“It was all by chance that I landed in correctional medicine,” Kendig says. “It’s not something most of us are introduced to in medical school. It’s not something that most of us have experience with because we’ve not been in jails and prisons.”

Kendig loved it, and he helped resolve the lawsuits. Now, after decades of experience — he retired in 2015 as assistant surgeon general of the U.S. Public Health Service and medical director of the Federal Bureau of Prisons (FBOP) — he’s bringing that passion for the field to academia with his Criminal Justice Health Initiative.

INCARCERATION, HEALTH, AND THE COMMUNITY

Kendig has one mantra guiding his goals: Correctional health is public health.

“Not everybody appreciates the fact that nearly all patients who are incarcerated return to their community,” he says. “All the things we can do in correctional health to both stabilize the patient during the incarceration and have a good re-entry plan for them to link to services in the community, that is only going to help public health in general — and it’s going to save the taxpayer money if [the patient is] not going in and out of jail all the time, which is expensive.”

It starts with intake, when inmates undergo comprehensive health screenings. They tend to present with chronic infectious diseases (HIV/AIDS, Hepatitis C, tuberculosis), chronic addiction, and mental illnesses, explains Kendig. For some, particularly those in longer-term facilities such as prison, incarceration is also the first time they’re diagnosed and put on consistent medication regimens.

“I would say the most common scenario is that patients, sometimes for maybe the first time in their lives, concentrate on their health,” Kendig says. “They have time on their hands, so a lot of inmates start caring about themselves

and exercising and not smoking; they're focusing on being healthier."

It makes for positive interactions, he adds, though there can be a minority of patients who are more challenging, such as those with personality disorders.

Jail, because it's designed for short-term stays, is less stabilizing than prison. "You're on all these medicines, and you land in jail, and maybe nobody knows what medicines you're on and you're there for three or four days and then you go back — it can be more disruptive," notes Kendig.

Balancing the two — providing the best possible health care to those currently incarcerated and ensuring that all patients have access to care upon release — is key to what Kendig terms criminal justice health.

"Criminal justice health goes beyond correctional health, which is the health care in jails and prisons; it's also justice-involved patients who are in home detention, who are on parole, who are on probation, who are in halfway houses," he explains.

There are 2 million people incarcerated and an additional 6 million in alternatives to incarceration, he adds. "Many people have a friend or family member who is justice-involved. If you don't, they're in your community. If they're out of control and their mental health isn't being stabilized, if their addiction isn't being addressed, if their infections aren't being addressed, that impacts everybody in the whole community."

CRIMINAL JUSTICE HEALTH INITIATIVE

To both improve the system and broaden the scope of change, Kendig is spearheading a new initiative at GW designed to help advance the university's clinical public health outreach efforts. SMHS, in particular, has incorporated clinical public health into its curriculum; the goal is to create clinicians who not only provide care but also tackle community health issues.

Although the initiative is at an early stage, Kendig has already implemented a graduate certificate program in correctional health administration (see sidebar) and provided free continuing medical education to clinicians in correctional medicine. He is also planning to collaborate with other university schools, such as the School of Nursing, GW Law, and the Milken Institute School of Public Health, to advance public policy.

"We really feel that the university can be a good place to convene stakeholders to engage on issues of importance to justice-involved patients," he says. "We hope to bring correctional leadership, academicians, advocacy groups, and even formerly justice-involved patients to the table on public policy issues."

Kendig also hopes to provide direct patient care experiences for students, with perhaps a nudge toward correctional medicine. The draw, he says, is twofold. First, health care professionals cannot escape justice-involved patients.

With 6,000 prisons and jails in the United States, correctional medicine has become a broad fraction of health care, and correctional health administration is arguably one of the most challenging jobs in correctional medicine.

"You're trying to provide value-based care to a very sick patient base, and you're doing that without compromising public safety," explains Newton Kendig, MD, clinical professor of medicine at the George Washington University (GW) School of Medicine and Health Sciences (SMHS) and faculty member in GW's Center for Healthcare Innovation and Policy Research.

Educational opportunities, however, have been limited — until the SMHS graduate certificate in correctional health administration.

The first of its kind, this program offers both an entrée into the field for aspiring health services administrators (HSAs) and training for current HSAs who want to advance. Students learn from experts on crafting health care services plans, improving clinical outcomes while mitigating risk, fostering relationships with stakeholders, and using specialized tools to ease the transition for incarcerated patients returning to their communities.

The online, one-year program started enrolling students in April 2018, with the first cohort to begin classes in the fall of 2018. Courses take eight weeks to complete; credit hours total 15. ■

"They may not ever want to work inside a jail or a prison, but whether they're working in an emergency room, an outpatient clinic, [or elsewhere], justice involvement transcends every demographic," Kendig explains. "It's every race, every gender, every age."

Second, justice-involved patients tend to have complicated co-morbidities, so "whether you're treating them in the community or in the jail or prison, it's a wonderful opportunity to learn clinical skills and engage with this patient population."

Kendig cites numerous student groups that found rotations at FBOP medical centers to be the most challenging, and therefore their favorite. And knowing the common popular cultural stereotypes — "Oz," "Orange Is the New Black," "Prison Break" — Kendig says corrections isn't as dangerous as Hollywood would suggest.

"You really have to demystify misperceptions, as corrections is a relatively safe environment for health care professionals," he explains. "Furthermore, providing GW medical students and residents more opportunities to care for justice-involved patients will not only enhance their clinical skills but also advance the public health of our communities." ■



“It’s important to be supportive of your students, and I frequently think about how Sally was with not only me, but also with the others in the lab,” says Brugmann. “If I am struggling or wondering how to mentor someone, there’s times I’ve called her up or sent her an email. She’s the standard that I try to emulate.”

Motivated by Mentorship

BY KATHERINE DVORAK

Samantha Brugmann, PhD '05, had one simple Christmas wish when she was 11 years old: a microscope. Back then, she had no way of knowing the gift would lead to a handshake with President Barack Obama as she accepted the government's highest honor for those in her field: the Presidential Early Career Awards for Scientists and Engineers.

On that day in 2016, Brugmann says, the awardees were told to take deep breaths and not to lock their knees because people sometimes pass out when President Obama walks into the room. Everyone chuckled, thinking it was a joke.

Then he came into view. "There was a collective gasp," Brugmann recalls with a laugh.

Receiving the award, she adds, was a great motivator. "Somebody's put their faith in you to say 'we hope that you take this and move your respective field of science forward,'" says Brugmann, associate professor in the Department of Surgery's Division of Plastic Surgery and Department of Pediatrics' Division of Developmental Biology within the Cincinnati Children's Hospital Medical Center.

Brugmann's lab focuses on craniofacial abnormalities and the mechanisms behind craniofacial development. "When you consider the different diseases that can impact children, there are some you can cover up ... but with a craniofacial anomaly, it's something you can't really hide. It's something people use to judge you very quickly," she says.

Brugmann focuses on a few specialties within the field, including the development of neural crest cells, a multipotent cell population that gives rise to a majority of the structures in the head, as well as the study of primary cilium.

Cilia, which are cellular organelles, extend off the surface of almost every cell in the body and help in the transduction of different signaling pathways, Brugmann notes. Diseases that are caused by a lack of primary cilia are called ciliopathies.

"There are quite a few ciliopathies that have pretty significant facial phenotypes," Brugmann explains, "so there is the ciliopathy avenue and the neural crest avenue, and we're looking at the marriage between them. We're trying to find out how neural crest cells are affected in ciliopathies."

She is also seeking to better understand ciliopathies and the molecular basis for them, and with that knowledge, possibly characterize some diseases that have not yet been classified as ciliopathies.

Brugmann's research interests were formed while she was a student in the genetics program at the George Washington University (GW) Institute for Biomedical Sciences. She worked in the lab of Sally Moody, PhD, chair of the Department of Anatomy and Regenerative Biology and professor of anatomy and regenerative biology at the GW School of Medicine and Health Sciences.

Brugmann says her relationship with Moody is one of the most important in her career. "She really led by example," says Brugmann. "She'd be in the lab doing experiments, she'd be processing the embryos herself. She's someone who's very passionate about science, and after having a lab for many years, [she is] somebody who still will get in there and do the work."

The two communicate regularly, and Brugmann turns to Moody when she needs professional guidance.

"It's important to be supportive of your students, and I frequently think about how Sally was with not only me, but also with the others in the lab," says Brugmann. "If I am struggling or wondering how to mentor someone, there are times I've called her up or sent her an email. She's the standard that I try to emulate." ■



Hearts and Minds

BY ASHLEY RIZZARDO

Talal Alzahrani, MD, MPH, was always interested in cardiology, particularly in cardiovascular disease. Not long after earning his medical degree from King Abdulaziz University in his native country, Saudi Arabia, the newly minted doctor completed his residency in internal medicine at the George Washington University (GW) School of Medicine and Health Sciences (SMHS), where he found himself an unbeatable opportunity: a cardiology fellowship.

The Cardiology Fellowship is a three-year advanced training program that follows the internal medicine residency. During fellowship, trainees have the opportunity to spend 12 months participating in clinical research. When offered a spot in the program, Alzahrani couldn't say no.

"I chose the cardiology fellowship at GW, simply because it is a great program," Alzahrani says. "It offers a lot of research and educational — both clinical and non-clinical — resources to its fellows."

With the luxury of time, Alzahrani has participated in several clinical and basic science studies, some of which have resulted in presentations at national conferences and in published articles. He's the lead author, for example, of the study "Statin Use and the Risk of Cardiovascular Implantable Electronic Device Infection: A Cohort Study in a Veteran Population," which looks at how statins may have antibacterial effects that lower the risk for cardiovascular implantable electronic device infection (CIEDI). The research team observed that among patients who received statins following cardiovascular implantable electronic device placement, there was a 66 percent reduction in CIEDI.

In November 2017, Alzahrani flew to Anaheim, California, to present his research at the American Heart Association's Scientific Sessions. Shortly afterward, the study was published in the journal *Pacing and Clinical Electrophysiology*.

Bolstering his studies, Alzahrani says, is his strategy of supplementing his education; he's completed a master's degree in public health with mentorship from William Borden, MD, associate professor of medicine at SMHS, and he's working on another master's degree in data science from the GW Columbian College of Arts and Sciences.

Richard Katz, MD, director of the Division of Cardiology and Bloedorn Chair in Cardiology and professor of medicine at SMHS, has been highly impressed by Alzahrani's research productivity. "Dr. Alzahrani has outstanding curiosity about advances in cardiology," he says. "His energy and commitment to clinical research have been outstanding. He has great potential for a future career in academic cardiology." ■



FINDING A SEAT AT THE TABLE

BY KATHERINE DVORAK



Tirsit Makonnen, a second-year MD student at the George Washington University (GW) School of Medicine and Health Sciences, understands the power of giving back. Even before becoming a medical student, she made an impact on communities in the United States and abroad through internships and volunteer work.

Then, in November 2017, Makonnen got the opportunity to help medical students in the mid-Atlantic region find their seat at the table as aspiring medical professionals.

As the GW chapter president for the Student National Medical Association (SNMA), Makonnen led planning and oversight of the Region 6 Medical Education Conference. Created in 1864, SNMA supports minority medical students and assists underserved communities.

Although Makonnen has now passed the baton of chapter president to a first-year medical student, she says it was an important experience. “SNMA provides minority students with the opportunity for professional growth, a medium to serve underserved populations, and the opportunity to promote our cultures in a positive light,” she says. “Helping host the conference was an honor and a privilege.”

Makonnen took four years off before entering medical school to make sure becoming a clinician was her path. During that time, she volunteered in Baltimore, Ghana, and Ethiopia.

“This desire to give back — I think it not only is something that will continue for me, but also will grow and branch out into different fields,” she says.

During her eight months in Ethiopia, through an internship offered by the Joint Distribution Committee and the Foundation of Orthopedics and Complex Spine, Makonnen worked with orthopedic surgeons to help children with bad backs. The experience made her realize medicine was the right path for her.

“I always wanted to be a doctor, but I wanted to be other things as well, and it was hard to make a decision,” says Makonnen, who was born in Ethiopia but moved to the United States when she was 4. “After my volunteer work, I realized this was what I wanted to do; it was a big turning point. Being in Ethiopia for an extended period of time and working with the children and really seeing the difference that I can make, I thought that was important.”

Makonnen also has volunteered with the American Heart Association in Baltimore, teaching elementary school students in after-school programs about healthy heart habits. “The majority of the kids were African American, and I thought it was important that they saw someone who looked like them come and educate them,” she says.

Now at GW, Makonnen says she is happy for the opportunity to study what she loves — and the comfort of understanding her own place at the table as a medical student.

“Medicine is the intersection of working with people, helping people, and using science and evidence-based data,” she explains. “If medicine lacked any of those things, I don’t think I’d be here. But I’ve never learned so much ... I can’t imagine not working in this field.” ■

FACULTY NEWS

Advancing Burn Relief in Africa

Through her nonprofit, Jennifer Wall, PA-C, assistant professor of physician assistant studies, has made a significant impact on patient care in Malawi, where residents are at high risk for burn injuries

BY CAROLINE TRENT-GURBUZ

In photographs, Malawian families huddle around makeshift fires, where nsima, a traditional cornmeal porridge, bubbles in large pots, and women, dressed in traditional wax-printed cloth garments known as chitenje, labor above. It's a routine scene – and one posing excessive risks for burns.

The porridge, explains Jennifer Wall, PA-C, assistant professor of physician assistant (PA) studies at the George Washington University School of Medicine and Health Sciences, can spill, scalding children within close proximity, and the chitenje are flammable. Burns are common, particularly among children younger than 6, and, given that access to care can be scarce and expensive, burns are often fatal.

That's where Wall's nonprofit, Africa Burn Relief Program, comes in.

"The reason I started this foundation is that when I was looking for an opportunity to be on a mission trip, I had a very difficult time being accepted as a PA," she recalls. Despite having specialized in burn care practice for six years, she says, "unless I was



Jennifer Wall, PA-C, assistant professor of physician assistant studies, in the clinic in Malawi. Above right, Wall with Africa Burn Relief volunteers, clinic staff, and patients. Below right, a tiny Malawian burn patient.

a physician or a nurse, there did not appear to be any opportunities for me."

Having always felt a pull toward Africa, Wall considered joining the Peace Corps. A surgeon at the hospital where she worked, however, cautioned that she would be treating other volunteers, not the Africans she had envisioned and not in her area of expertise.

"[My mentor] said, 'I'll give you the name and number of someone in rural Malawi who I know needs help with burns – that's what you're good at, that's what you should do,'" Wall explains.

The physician, an American missionary, invited Wall to come. So the PA, then just 30 years old, decided to "do something big." She took three

months off from work and held a fundraiser, where donations totaled \$8,000. She packed two crates of medical supplies and left the East Coast for a remote village that would become the basis for Africa Burn Relief, an official 501(c)(3) nonprofit.

"I don't think people can really understand what's happening [to burn victims in Malawi] until they see pictures of where [rural Malawians] live and the conditions they are exposed to. It's happening because they're simply poor. These families do not have electricity ... they're living in mud huts and dependent on fire for heating and cooking," Wall says. In the 10-odd years she's been volunteering in Malawi, she adds, the only development she's seen has been a paved road to the hospital.



The country of roughly 14 million people is largely agricultural, with more than 90 percent of Malawians working as subsistence farmers. Wood is critical for everyday life, and daily fires become the catalyst for injuries. Improving the understanding of how to prevent and treat burns, especially with proper equipment and supplies, could decrease the burden of the injuries, Wall says.

“My foundation aims to provide the quality resources that patients and clinicians need and to transfer medical skills and knowledge to our counterparts ... known as clinical officers in Malawi, which are very similar to the American physician assistant,” she explains.

Over the last decade, Wall has encountered a number of challenges, including establishing trust in her nonprofit, building its reputation, and ensuring



sustainability. She’s launched programs in burn prevention, and she became a certified clinical officer in Malawi; she remains in close contact with local clinical officers through WhatsApp, monitoring and providing assistance in real time as much as possible.

Clinically, she’s worked to establish protocols for treating second- and third-degree burns, while providing donated equipment and training. She also learned early on that her nonprofit would need to cover the cost of patient care; 72 percent of Malawians live on less than \$1 per day, and many would slip away during the night before completing treatment because they were worried about the bill.

Difficult cases, she adds, have been especially hard to tackle. There’s been a lack of resources, including specialized services, such as plastic surgeons who can operate on debilitating scars. Severe scars caused by burn injuries, or “contractures,” are particularly devastating for children; many of them won’t attend school with their disabilities.

Most patients who would survive in the United States succumb to their injuries in Malawi, but those statistics are improving, thanks to the work of Africa Burn Relief.

“The overall survivability (from 2006 to 2010) rose to 96 percent,” Wall says. “The U.S. is about 97 percent, so we have been able to basically increase survival rates [to match those] of the U.S. in this small, rural African hospital.” ■



FACULTY NEWS



GW, UGA Receive \$10 Million U01 Grant

Researchers at the George Washington University (GW) and the University of Georgia (UGA) will soon be able to use big data to answer questions about glycoscience.

The National Institutes of Health has jointly awarded a \$10 million U01 grant to GW and UGA to build a glycoscience informatic portal, called GlyGen, necessary for glycoscience to advance. GlyGen will also integrate glycan data with gene and protein data to allow for more effective analysis.

"Post-translational modifications, along with genomics, play an important role in health and disease," said Raja Mazumder, PhD, co-principal

investigator and associate professor of biochemistry and molecular medicine at the GW School of Medicine and Health Sciences. "Using just genomics research for discovery limits scientific advancement ... we may not be able to find mutations to explain the prevalence or rate of incidence of a particular disease. For that, we need to understand glycosylation, and we need the resources and tools to support this discipline."

Mazumder, with his team and the UGA team, is working closely with researchers from the United States, Asia, Europe, and Australia to build GlyGen. ■

Scaling the Nervous System



Sally Moody, PhD, chair of the Department of Anatomy and Regenerative Biology and professor of anatomy and regenerative biology at the George Washington University School of Medicine and Health Sciences, took a six-month sabbatical starting in January 2018 to finish research for a study on the gene network that regulates neural plate size and regional specification.

Moody is working in Israel in the lab of co-principal investigator Abraham Fainsod, PhD, professor in the Department of Developmental Biology and Cancer Research at the Hebrew University of Jerusalem.

"We are trying to understand how the nervous systems of embryos ... scale to the size of the embryos," Moody said of her work. "So the nervous system of a bigger embryo is going to be bigger than one of a smaller embryo. ... But there has to be a mechanism to regulate exactly how big the different organs are."

The work combines Fainsod's expertise in cell signaling pathways that regulate the induction of the nervous system with Moody's knowledge of the transcription factors that regulate the beginning steps of neural development.

In January, Moody also was appointed to serve as chair of the Department of Anatomy and Regenerative Biology. ■

Maura Polansky Named Chair of Physician Assistant Studies

Maura Polansky, PA-C, has been named chair and associate professor in the Department of Physician Assistant (PA) Studies at the George Washington University (GW) School of Medicine and Health Sciences.

Polansky joined GW from the University of Texas MD Anderson Cancer Center in Houston, where she served as program director for curriculum development in the Department of Clinical Education.

She served in several clinical and administrative leadership roles during her career at the MD Anderson Cancer Center. During her tenure, she founded the PA Oncology Fellowship program and directed PA education for more than a decade.

Polansky takes the helm of the nationally recognized GW PA program, currently ranked third out of 218 nationally accredited programs by U.S. News and World Report. ■



Teach Tapped as Associate Dean

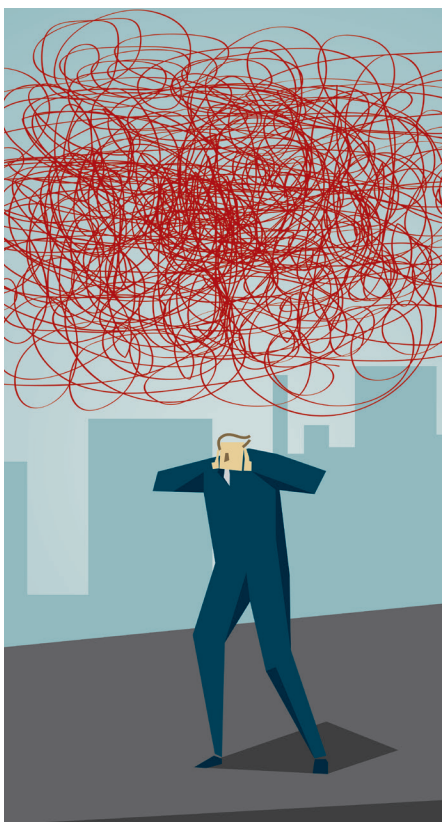
Stephen J. Teach, MD, MPH, professor and chair of the Department of Pediatrics, and professor of emergency

medicine at the George Washington University (GW) School of Medicine and Health Sciences (SMHS), was selected to

serve as the associate dean for pediatric academic affairs for SMHS and GW's clinical partner Children's National Health System (Children's National).

While continuing in his current role as chair of pediatrics, Teach supports and enhances education and training relationships between SMHS and Children's National. He also helps guide the academic advancement of all faculty members sited at Children's National and its corporate affiliates, provides primary oversight for all SMHS faculty and faculty affairs activities, and offers overall coordination of child pediatric education efforts in consultation with the senior associate dean for MD programs.

Teach has been a member of the SMHS faculty since 1997. He also serves as a professor of prevention and community health in the Milken Institute School of Public Health at GW. ■



High Anxiety and Heart Disease

Paul Marvar, PhD, assistant professor of pharmacology and physiology at the George Washington University School of Medicine and Health Sciences, has received a more than \$1.5 million award from the National Institutes of Health to study the psychological components of anxiety disorders, such as post-traumatic stress disorder (PTSD), in assessing a possible connection between high stress and cardiovascular disease.

"Clinical evidence over the last 20 years has shown a link between individuals with post-traumatic stress and their incidence of cardiovascular disease, including coronary artery disease, atherosclerosis, and high blood pressure," Marvar said. "Our research will look specifically at the brain renin-angiotensin system and its role in this connection."

The brain renin-angiotensin system is involved in the regulation of blood pressure in part through neural control mechanisms that impact the kidneys and blood vessel function. Marvar believes the angiotensin peptide and its receptors may also be a mediator in fear memory.

Through the project, titled "Brain Angiotensin II as a Mediator of Fear Memory and Cardiovascular Dysfunction," Marvar and research collaborator Peter Nemes, PhD, associate professor of chemistry and biochemistry at the University of Maryland at College Park, will use a highly sensitive form of mass spectrometry to look at how the peptides synthesize and to identify the sites of action. ■



Leadership and Work-Life Balance

Katherine Chretien, MD, assistant dean for student affairs and associate professor of medicine at the George Washington University (GW) School of Medicine and Health Sciences, recently became president-elect of the Clerkship Directors in Internal Medicine (CDIM). Her term begins July 1, 2018, and she will serve as president the following year.

"It's an honor to be elected by my colleagues in CDIM," Chretien said. "This is a professional dream come true for me."

CDIM has been Chretien's professional home for more than 12 years. She currently serves on the leadership council and has held several leadership roles, including as vice chair and chair of the research committee and grant review chair for the small grants program.

Chretien also recently published a book detailing her experience as a physician-mother. Her book, "Mothers in Medicine," focuses on career, choice of specialty, practice issues, and work-life balance.

Chretien said her book started as a blog in 2008 to "share the often messy, imperfect stories of motherhood in medicine, for and by physician-mothers."

The chapters of the book, which was edited by Chretien, were written by more than a dozen women in medicine who give advice on all stages of training and practice, and during all stages of life. It includes stories about infertility, negotiating workload, divorce, having children during medical training, and more.

"I hope readers will find advice, guiding principles, and truth telling to support them and lift them up during their journey as a current or future mother in medicine," Chretien said. ■

Simons Says

With the help of a grant from the Simons Foundation, Kevin Pelphrey, PhD, director of George Washington University's Autism and Neurodevelopmental Disorders Institute, Carbonell Family Professor in Autism and Neurodevelopmental Disorders, and professor of pharmacology and physiology, is testing the effects of a neuropeptide on children with autism.

The grant will fund a double-blind treatment study giving patients either oxytocin or a placebo, followed by pivotal response training, an evidence-based behavioral intervention. The brain activity of each child will be

recorded via functional magnetic resonance imaging before the study begins to determine whether the use of oxytocin helps improve the impact of behavioral therapy.

"Our prediction is that for kids who have certain low levels of social brain activity ... when they are given oxytocin, they'll benefit more from the behavioral therapy," Pelphrey said.

It's an unusual approach, he explained, because often the context in which the drug is given does not carry much weight. However, in this study, that context – the behavioral therapy – is key. ■





From left, Eduardo M. Sotomayor, MD, director of the GW Cancer Center; Huda M. Ayas, EdD '06, MBA '98, MHSA '93, associate dean for international medicine, executive director of the Office of International Medicine Programs; and Mariano Provencio, MD, PhD, scientific director of the Health Research Institute, head of oncology at the Hospital Universitario Puerta de Hierro, and professor of internal medicine at Universidad Autonoma de Madrid, meet during the Madrid summit.

Advancing Global Research Partnerships

Drawing on the success of two previously held international scientific summits, the George Washington University (GW) Office of International Medicine Programs (IMP) and the GW School of Medicine and Health Sciences (SMHS) organized a third summit in December 2017, this time convening GW researchers with colleagues in Madrid to focus on increasing research collaborations between the United States and Spain and developing the global physician-scientist workforce.

The summit was developed by the GW Cancer Center, SMHS researchers, and IMP, alongside Spanish co-sponsors Puerta de Hierro Hospital and Research Institute and the Universidad Autonoma de Madrid.

Eduardo M. Sotomayor, MD, director of the GW Cancer Center, director of the Division of Hematology/Oncology at the GW Medical Faculty Associates, and professor of medicine at SMHS, said one goal of the summit was to find common areas of biomedical interest between the institutions that could lead to strong collaborations. At the end of the summit, areas that emerged for partnership consideration included liquid biopsies in lung cancer and other solid malignancies, biology and immunotherapy of lymphomas, and skin malignancies. ■

X Marks the Spot on Pancreatic Cancer

Alexandros Tzatsos, MD, PhD, assistant professor of anatomy and regenerative biology at the George Washington University (GW) School of Medicine and Health Sciences and researcher at the GW Cancer Center, has uncovered a connection between a specific gene, KDM6A, and the most aggressive form of pancreatic cancer.

Tzatsos' study, published in *Cancer Cell*, found that a loss of KDM6A, an X chromosome-encoded histone demethylase, induces a histologically distinct subtype of pancreatic cancer known as "squamous-like." The gene, Tzatsos and his team found, also is frequently mutated or deleted in squamous-like pancreatic cancer and acts as a tumor suppressor. He also determined that bromodomain and extra-terminal (BET) inhibitors, a class of small molecules now in clinical trials for treating several malignancies, could be a potential treatment by restoring cell identity and sensitizing tumors to current therapies.

Pancreatic cancer accounts for 3 percent of cancers in the United States, and 7 percent of all cancer deaths. The squamous-like subtype of this cancer offers the worst prognosis and accounts for 20-30 percent of pancreatic cancer cases. ■



Understanding Fatigue in Juvenile Dermatomyositis

Joshua Woolstenhulme, DPT, PhD, assistant professor of health, human function, and rehabilitation sciences at the George Washington University School of Medicine and Health Sciences, recently received a \$130,000 grant from the Cure JM Foundation.

The grant will aid in Woolstenhulme's research to better understand the etiology of fatigue and fatigability in juvenile dermatomyositis (JDM) patients using cardiorespiratory measures. His study will measure oxidative stress and mitochondrial function as possible causes of fatigue.

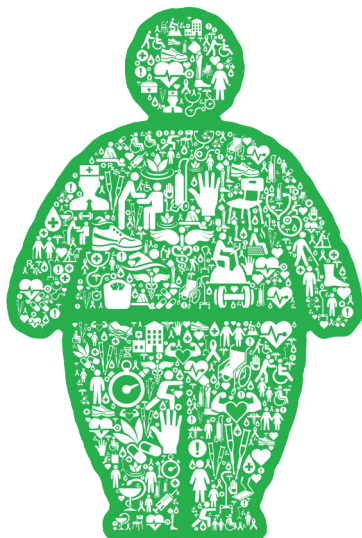
He said he hopes his research will shed light on why JDM patients continue to feel significant fatigue, a persistent problem, despite disease control. ■

The Role of the Brain in Obesity-Induced Hypertension

The National Institutes of Health recently awarded more than \$2.4 million to a research team led by Colin Young, PhD, assistant professor of pharmacology and physiology at the George Washington University (GW) School of Medicine and Health Sciences (SMHS), to study how cell stress in the brain could impact the risk of obesity-induced hypertension.

Through the study, funded for five years, Young and his team seek to understand what happens in the brain of patients diagnosed with obesity that might lead to changes in stress-related and inflammation-related processes occurring within the cells, which in turn may lead to increased blood pressure. They hypothesize that when an individual becomes obese, it creates cell stress within the brain that can lead to low-grade brain inflammation.

Young is working with co-investigator Anastas Popratiloff, MD, PhD, adjunct professor of anatomy and regenerative biology at SMHS, who also serves as director of the GW Nanofabrication and Imaging Center. ■



Emphasizing Leadership

As the George Washington University (GW) School of Medicine and Health Sciences (SMHS) reaffirms the importance of diversity, inclusion, and clinical partnerships, Jeffrey S. Akman, MD '81, RESD '85, vice president for health affairs, Walter A. Bloedorn Professor of Administrative Medicine, and SMHS dean, is working to align the school's strategies with GW President Thomas J. LeBlanc's vision for the university.

"In this process," Akman said, "the roles of several leaders have expanded to guide our school as we aspire to pre-eminence."

Yolanda Haywood, MD, RESD '87, BA '81; Raymond Lucas, MD; and Walter Harris, MBA, PMP, received new titles for 2018 to reflect the expansion of their roles and the emphasis the school and the university place on their respective functions.

Haywood was tapped to join SMHS' senior leadership team and serves as the senior associate dean for diversity and inclusion.

Haywood's office has supported efforts to attract and retain diverse and talented students, faculty, and staff. Recently, SMHS scored above the 90th percentile among peer institutions for recruitment and retention of a high number of black or African American students and female faculty members, according to the Mission Dashboard tracked by the Association of American Medical Colleges.

Additionally, Haywood maintains her role as associate dean for student affairs and associate professor of emergency medicine.

Lucas was recently selected to serve as the senior associate dean for faculty and health affairs. Lucas, who has served as the associate dean for faculty affairs and professional development since 2013, is an adviser



to faculty and leaders across the clinical enterprise.

Since that appointment, his portfolio has continued to grow with an additional focus on wellness across the medical enterprise, the creation of a research workforce development function, and the development of the SMHS Center for Faculty Excellence.

Harris, who joined SMHS in August 2016 as the senior associate dean for administration and operations, now holds the title of associate vice president for administration and operations.

The position change more accurately reflects his role as the SMHS chief operating officer. Harris came to SMHS from the Food and Drug Administration (FDA), where he served as the deputy commissioner for operations and chief operating officer, providing strategic and innovative operational services to more than 16,000 FDA staff members, overseeing a budget in excess of \$4 billion along with a \$450 million IT portfolio.

At SMHS, Harris is responsible for operations and administration, including financial planning and accounting, strategic planning, human resources, information technology, facilities, and safety and security. ■

CLASS NOTES

1970s

Dennis Dimitri, MD '79, vice chair of the Department of Family Medicine Clinical Services at the University of Massachusetts Medical School, was recently promoted in his clinical role to professor of family medicine.

1980s

Paul M. Colombani, MD, RESD '81, chair of pediatric surgery at Johns Hopkins All Children's Hospital, professor of surgery, pediatrics, and oncology at the Johns Hopkins University School of Medicine, and the Robert Garrett Professor Emeritus of Pediatric Surgery, was named "Best in Medicine" by the American Health Council.

1990s

Walter Biffi, MD '90, was appointed trauma medical director at Scripps Memorial Hospital La Jolla in January 2018.

Michael Dacey, MD '90, has been tapped to serve as executive vice president of Riverside Health System, based in Newport News, Virginia. He will serve in a dual capacity as system chief operating officer and chief clinical officer of the seven-hospital group, leading more than 600 physicians and 10,000 employees.

Robin Hemphill, MD '91, chief quality and safety officer at Virginia Commonwealth University (VCU) Health, has been appointed to serve

as associate dean of safety and quality and the Dr. Gene N. Peterson Professor of Quality, Safety, and Service at the VCU School of Medicine. She will also serve as clinical professor of emergency medicine.

Thomas Yackel, MD/MPH '96, RESD '96, was appointed president of Virginia Commonwealth University (VCU) Physicians, the faculty practice plan of VCU Health. He will also serve as senior associate dean for clinical affairs at VCU.

Brett Grebing, MD '97, was elected to serve as president of the Madison County Medical Society. Grebing is an orthopedic surgeon with the Centers for Advanced Orthopedics. He previously served as the president of the society in 2013.

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go.gwu.edu/smhsreunionweekend
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CLASS NOTES

2000s

Scott A. Falk, MD '00, BA '96, was recently appointed to the Physician Advisory Council of Lumere, a health systems data analytics company. Falk serves as director of performance improvement, quality, and safety at Penn Medicine and as associate professor of clinical anesthesiology and critical care at the University of Pennsylvania.

LaPrincess Brewer, MD '09, MPH, assistant professor of medicine in the Department of Cardiovascular Medicine at the Mayo Clinic College of Medicine and Science, received the 2017 Community Service/Volunteerism Award from the Minnesota American College of Physicians.

2010s

Elizabeth Theriault, MD '12, recently joined the pediatric service at the Highland, California, offices of Dignity Health Medical Group-Inland Empire.

Jill Simon, MD '13, recently joined Frye Regional Medical Center in Hickory, North Carolina. Simon, an OB/GYN, will perform a range of advanced women's health services including prenatal and postnatal care, annual examinations, and minimally invasive surgery.



Fred M. Gordin, Physician and Pioneer in HIV and Tuberculosis Research, Dies at 66

Infectious diseases physician, talented educator, and researcher Fred M. Gordin, MD, passed away on March 18, 2018, at age 66 after a four-year battle with lung cancer. Gordin was a leader in groundbreaking research that improved the care of people living with HIV infection and those with tuberculosis both in the United States and around the world. Gordin also had an indelible impact on his patients, his colleagues, community advocates, students, and the wider infectious diseases community.

In 1984, Gordin began a long and successful career at the Veterans Affairs (VA) Medical Center, where, in 1987, he became chief of the Infectious Diseases Section. Over the next three decades, Gordin became a leader in the fight against HIV and tuberculosis. He helped establish the first VA Cooperative Studies trial

of HIV treatment and helped create the Community Programs for Clinical Research on AIDS (CPCRA), a 17-year, multimillion-dollar, federally funded clinical trials network. CPCRA was designed to promote and conduct HIV research within local communities, focusing on the treatment of HIV disease and on the prevention and treatment of its complications.

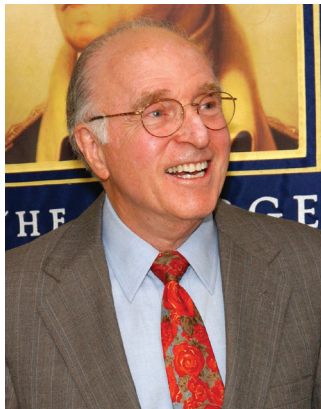
Gordin served as professor of medicine at the George Washington University (GW) School of Medicine and Health Sciences. He trained and mentored hundreds of medical students, residents, and infectious disease fellows. He was a senior scientist in the Clinical and Population Sciences Core of the District of Columbia Center for AIDS Research at GW.

He is survived by his beloved wife, Anne Willoughby, MD; his son, Jonathan, MD, a cardiologist at the University of California, Los Angeles; and his daughter, Dana, a graduate student at the University of Michigan.

IN MEMORIAM

- Mark R. Anderegg, MD, RESD '96
- Janet Wray Balson Andrews, BS '81
- H. Barton Apfelbaum, MD '62, RESD '69
- Robert A. Barnett, MD '52, BA '49
- Attila S. Cigtay, MD '63
- Brenna K. Clougherty, MD '08
- Leonard J. Corwin, MD '52
- Richard Bruce Crabb, MD '59
- Ronald S. Deitch, MD '58
- Charles David Ebert III, MD '64
- H. Rex Gardner, MD '64
- Mary Elizabeth Grass, ASHS '06, CERT '03
- Michael R. Greenberg, MD '69
- Charles N. Griffin Jr., MD '59, AA '54
- Haikaz M. Grigorian, MD '59
- Michael G. Hoffman, MD '62

- Harold N. Kagan, MD '43, BA '42
- AnnMarie Hanako Linnett, MS '02
- John P. Nasou, MD '52, RESD '58
- Richard E. Ostler, MD '62
- Lawrence V. Phillips, MD '52, BS '49
- Captain Louis Umile Pulicicchio III, MD '58 (USN, Ret.)
- Carlos Alberto Raposo, MD, RESD '76
- Raymond E. Rapp, MD '52, BS '48
- Mohammad Shafiei, MD, RESD '77
- Irene G. Tamagna, MD
- Elijah W. Titus Jr., MD '52
- Francis X. Urbanski, MD '61
- Hau N. Vu, MD '61
- Joseph C. Woo Jr., MD '48



Clinician and Educator Allan B. Weingold, MD, Dies at 87

Internationally recognized academic obstetrician-gynecologist and Professor Emeritus at the George Washington University (GW) School of Medicine and Health Sciences (SMHS) Allan B. Weingold, MD, passed away Jan. 27, 2018, at age 87.

Among his roles at GW, Weingold served as lead

administrator for the five GW clinical entities that made up the GW Medical Center at the time – SMHS, the GW Hospital, the GW Medical Faculty Associates, the GW School of Public Health, and the GW Health Plan. He played a central role in the negotiations with Universal Health Services that led to the building of the current GW Hospital.

Weingold, however, will forever be remembered for his influence in the classroom and in the clinic. He joined the faculty of SMHS in 1973 as chair and professor of the Department of Obstetrics and Gynecology. Over the course of nearly two decades, Weingold educated thousands of medical students and hundreds of residents and fellows, and he guided the department to national prominence.

In the clinic, Weingold set the standard for skillful and compassionate care. "My late husband and I named our son Jeremy Allan Tourish to honor Dr. Weingold because we believed that he – a former 30-week preemie – was literally a gift from Dr. Weingold," recalled Deborah L. Dokken, MPA, a staff member with the Institute for Patient- and Family-Centered Care in Bethesda, Maryland. Dokken, as a high-risk OB patient, turned to Weingold.

"Today there is a growing emphasis in health care on partnering with patients and families to achieve better health and care," Dokken added. "Twenty-eight years ago, this 'movement' did not exist, but Allan Weingold practiced this way intuitively. I truly will never forget him – and what he did for our family."

Weingold is survived by his wife, Marjorie Weingold, and his four children and their families: Roberta W. Greenberg, MA '80, BA '78, and her spouse, Jay B. Greenberg, MD '75, BA '71; Beth W. Plavner, MA '79, and her spouse, Victor M. Plavner, MD '81; Matthew A. Weingold, MD '89, RESD '90, and his spouse, Jennifer Graham; and Daniel E. Weingold, MD '96, and his spouse, Barbara Weingold. He is also survived by 12 grandchildren and one great-grandchild.

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The GW SMHS Council of Advisors offers the dean of the School of Medicine and Health Sciences recommendations on strategic priorities and important issues for the school, and provides generous support and advocacy.

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Advancing Burn Relief in Africa

Through her nonprofit, Jennifer Wall, PA-C, assistant professor of physician assistant studies, has made a significant impact on patient care in Malawi, where residents are at high risk for burn injuries.

Burns are common, particularly among children less than 6 years old. Given that access to care can be scarce and expensive, injuries of this type can be more fatal.

That's where Wall's nonprofit, Africa Burn Relief Program, comes in. [Read more on page 32.](#)