BROWN MEDICINE

Volume 23 | Number 1 | Winter 2017

IRON MAN

Doctors and lawyers join forces to fight for better prison health care.

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LETTER FROM THE DEAN

The Right Stuff

In this issue of *Brown Medicine*, you'll read about new opportunities made possible through a gift from our partner, The Warren Alpert Foundation. I'm excited to tell you about the many ways this will benefit the Warren Alpert Medical School.

The foundation has been a fantastic partner and supporter of biomedical research and teaching here at Brown. One of the many reasons for that is that the foundation enhances the capabilities and resources of the whole school, not just efforts involving one disease or another.

The new gift will support the MD/PhD training program. While our peer schools also have MD/PhD programs, few of them have the culture of collaboration and the accessible biomedical community that Brown can offer. Research and education at Brown is characterized by following one's curiosity wherever it may lead, even if it crosses traditional academic boundaries. New collaborations among faculty and students form all the time here in response to important research questions. Across our hospitals and academic departments, it's never difficult to meet the right people. Neuroscientists work with engineers and biologists join forces with computer scientists. Infectious disease physicians collaborate with chemists and radiologists team up with biostatisticians. In the Brown Institute for Translational Science (BITS), we're encouraging an integrated team-science approach to address the whole continuum between basic research capabilities and population health needs.

That's why I'm so pleased that the gift will also support the first endowed professorship in BITS. It will allow us to recruit a leading scientist with an accomplished research program investigating the pathogenesis of important diseases. He or she will be someone working to develop new insights that will lead to new therapies for important disorders.

Sadly, in early January, we lost our great friend Herb Kaplan, president of the foundation. You'll read about Herb's life and accomplishments on page 14 of this issue. In my time as dean, I got to know Herb very well, and I appreciated his counsel. I will miss my dear friend, but his legacy and that of his uncle Warren Alpert will live on at the Warren Alpert Medical School.

Sincerely,

Jack A Elias MD

Jack A. Elias, MD
Dean of Medicine and Biological Sciences

SCOTT KINGSLEY

"The same way we worked to improve standardization in medicine, we definitely need something like that in humanitarian work."

—Adam Levine, page 32

FEATURES

DEPARTMENTS

COVER

Bradley Brockmann photographed for *Brown Medicine* by Jared Leeds at the maximum security prison in Cranston, RI, on December 15, 2016.

BLAIR THORNLEY; DAVID DELPOIO (2)

LETTER FROM THE EDITOR

A Year of Loss

Many metaphors have been used to describe 2016. Train wreck, nightmare, etc. My favorite? Dumpster fire.

Contributing to that perception was the parade of celebrities who died. Statistical analyses revealed that the number was not actually higher, but the notoriety of each high-profile individual made it feel like more people were dying. But it was just their time, just as it was for millions of non-celebrities who passed on unknown to the general public but deeply mourned by friends and families.

Here at Brown we were not unscathed by death's touch, losing some high-profile figures of our own. One of them was Mike McKeown, whom I first met early in my tenure as a staff writer for this magazine. I had been assigned a story about his research, which involved studying the sexual behaviors of *Drosophila melanogaster*. It was my first interview with a researcher for a magazine article. It was certainly my first time hearing about the mating rituals of fruit flies.

I arrived at J. Walter Wilson for our meeting already flustered. I'd stubbed my toe that morning and couldn't wear shoes. It was probably broken, but that was something I'd have to deal with after my Very Important Interview. I stopped at the Brown Bookstore and bought a pair of shower shoes, hoping Dr. McKeown wouldn't notice my footwear. No luck. As I stood in his doorway, he looked up from his desk and said, "Flip flops?"

In animated detail, Dr. McKeown told me about his flies, how altering their genetic material results in females exhibiting male behavior and males exhibiting female behaviors. He walked me through the lab, showing me the tiny flies hopping around in test tubes. The sweet mash they fed the flies smelled terrible, and I thought that you'd really have to love this work to be in that fetid room all day.

When I got back to my office to write up the story, I realized I'd made a terrible rookie mistake. The batteries in my tape recorder had died midway through the interview and I hadn't noticed. Paying rapt attention to Dr. McKeown, I hadn't taken many notes. I panicked.

I wrote the story to the best of my recollection and sent it to Dr. McKeown, confessing my error and apologizing profusely. Would he mind terribly talking with me again to fill in the blanks? I received his email response and read it through half-closed eyes, braced for a screed about wasting his time.

But instead, he said, "It's OK." He'd read the draft and corrected the errors. He was kind and understanding, like a good teacher would be.

I was sad to learn Dr. McKeown died just before Christmas. For me it was a coda on a disastrous year. Maybe he wasn't as well known as Prince or Carrie Fisher, but he left an impression on his corner of the universe nonetheless.

Kris Cambra

BROWN MEDICINE

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INBOX

As Seen on Social Media

We asked followers on Facebook and Twitter what they thought about a proposed change in duty-hour regulations that would scrap the 16-hour limit and allow interns to care for patients for as many as 28 hours. Their opinions were mixed. Join the conversation on Twitter (@BrownMedicine) and Facebook (facebook.com/BrownMedicine).

"16-hour shifts are exhausting for interns—coming in the dark, leaving in the dark, and repeating the cycle day after day. Allowing interns to work alongside their residents for a full shift instead of dropping everything... is a far better way to promote patient care continuity, safe handoffs, and rapport between interns and their residents."

—RAHUL BANERJEE '10 MD'14 ON FACEBOOK

"No!!! Doing anything in a sleep-deprived state is unsafe. The patient's life is in their hands. Surely there is a more creative and thoughtful solution!"

—ELIZABETH YU PMD'18 ON FACEBOOK

"Too tired: risk to self. Too many handoffs: risk to patients. Risks to learning unknown. An unfinished story..."

—@CHRIS_MERRITT ON TWITTER

ERIK GOULD

GOOD NEWS

Phoebe Hall received an Honorable Mention in the Robert G. Fenley Writing Awards General Staff Writing category of the Association of American Medical Colleges' Awards for Excellence program for her feature article "Stirring the Pot" (*Brown Medicine*, Fall 2015).

You're Invited

MARCH 17 › MATCH DAY
Warren Alpert Medical School

MARCH 31 › BROWN MEDICAL ALUMNI ASSOCIATION AND BROWN CLUB EVENT
Featuring Abrar Qureshi, MD, MPH
Washington, DC

MAY 17 › BROWN MEDICAL COMMUNITY RECEPTION
Society for Academic Emergency Medicine Conference
Hyatt Regency, *Orlando, FL*

MAY 26-28 › COMMENCEMENT-REUNION WEEKEND 2017
Brown University

For more info, *visit brown.edu/go/mdevents.*

TELL US HOW YOU FEEL

Please send letters, which may be edited for length and clarity, to:

- *Brown Medicine*
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TRAINING

AI: Disaster planners like Selim Suner use medical simulations to prepare doctors for real emergencies.

Expect the Worst

Conference brings disaster planners to Brown.

On June 23, 2014, a patient walked into the emergency room of Phebe Hospital in Bong County, Liberia, suffering from vomiting, nausea, and diarrhea.

Within a week, the patient and six of the nurses who cared for the patient were dead.

This was the first case of Ebola in Bong County, though the epidemic had begun in nearby Guinea several months before. The outbreak eventually killed nearly 30,000 people, including almost 10 percent of the health care workforce in West Africa.

But the virus did not spread throughout Nigeria, thanks to Ameyo Stella Adadevoh, MD. When a patient with Ebola symptoms arrived at First Consultant Hospital in Lagos, Adadevoh recognized the symptoms and immediately quarantined the patient.

Adadevoh contracted Ebola from the patient and died, but she prevented the virus from spreading.

Adam C. Levine, MD, associate professor of emergency medicine, presented this "tale of two countries" at the third annual New England Society of Disaster Medicine conference at the Warren Alpert Medical School in December.

"The foremost line of defense against an epidemic is having a well-trained health force able to recognize these diseases," Levine says.

The New England Society of Disaster Medicine is a collaboration among the disaster medicine programs at Brown, Harvard, Beth Israel Deaconess Medical Center, and the University of Massachusetts Medical School. It expanded in 2016 to include Massachusetts General Hospital.

Selim Suner'86 ScM'87 MD'92 RES'96, a professor of emergency medicine, surgery, and engineering, cofounded the society about three years ago.

"Disaster medicine has been around for 20 or 30 years, but bringing disaster medicine into the academic fold is something new," he says.

Doctors at the conference discussed how to prepare for all types of disasters: infectious disease outbreaks, mass casualty events, natural disasters, and even power outages. "You prepare your [hospital] system for anything that can happen," Suner says. "It's all-hazards preparedness."

At Brown, residents and fellows in the emergency medicine program participate in trauma simulations at the Lifespan Medical Simulation Center every month and disaster simulations two to three times a year.

"You want [physicians] to fail in a controlled environment because that's the best way to learn," Suner says.

Paul Biddinger, MD, is the director of the Center for Disaster Medicine at MGH and an assistant professor of emergency medicine at Harvard Medical School and the Harvard T.H. Chan School of Public Health. He's also the chief of the hospital's division of emergency preparedness.

Biddinger runs Ebola outbreak simulations at MGH and other disaster simulations at Harvard's Center for Medical Simulation. The point of disaster medicine is "not to think about what a disas-

FRANK MULLIN

ter should look like, but to learn what they really look like," he says.

Because of the simulations, doctors at MGH were prepared to respond to the Boston Marathon bombing in 2013, Biddinger adds.

Nevertheless, emergency preparedness funding is not always available.

John Foggle, MD, MBA, a clinical associate professor of emergency medicine at the Warren Alpert Medical School, designs the curriculum at the Lifespan Medical Simulation Center. He says "disaster amnesia" is a big problem.

"The minute nothing is happening, the money dries up," Foggle says.

Suner's goal is to make federal emergency preparedness funding available "at an even keel throughout time."

"Preparedness doesn't happen in a vacuum," he says. "You have to continually exercise your plans." ***—Amy Anthony***

"Preparedness doesn't happen in a vacuum. You have to continually exercise your plans."

DOOMSDAY PREPPERS: John Foggle speaks to conference participants.

FRANK MULLIN; COURTESY MIT PRESS

BOOKSHELF

Vision: How It Works and What Can Go Wrong

By John E. Dowling, PhD, and **Joseph L. Dowling Jr.**, MD '47 GP'19 | *The MIT Press, 2016, $32*

"Visually impaired individuals say they would trade away many of their remaining years to regain good vision." —from **Vision**

Vision is the dominant sense of the five we humans rely on to perceive the world; it's no surprise that blindness is the disability people fear most. And in a structure as complex as the human eye, there's a lot that can go wrong. Joseph Dowling, a practicing ophthalmologist and clinical associate professor emeritus of surgery (ophthalmology) at Brown, and his brother John, a professor of ophthalmology (neuroscience) at Harvard, offer here a comprehensive, highly readable account of eye anatomy, function, dysfunction, and disease from their respective positions as clinician and researcher. Never stinting on the science, they keep the narrative humming with the history of eye research, a Milton sonnet, anecdotes from the late neurologist Oliver Sacks, MD, and even some optical illusions to demonstrate visual perception, like the famous vase-face picture. They close on a hopeful note, ticking off the many advances in research and patient care. While acknowledging the challenges ahead, they write, "thousands of dedicated scientists worldwide are attacking these problems, and we have no doubt that amazing developments will soon appear for the cure of various causes of blindness and to the benefit of mankind."

—Phoebe Hall

Spread the word: *If you'd like your book featured in* Brown Medicine, *have your publisher send us a copy at Box G-R220, Providence, RI 02912.*

ASK The Expert

Deadly Poverty

Why is infant mortality so high in the US?

About twice as many babies die before their first birthday in the United States as in many comparably developed countries: 6.1 infant deaths per 1,000 live births, versus 2 or 3 in most of Europe, Japan, New Zealand, and Australia. That disparity caught the attention of Emily Oster, PhD, a professor of economics at Brown who studies health and development economics. When she and two co-authors delved into the data, in a paper published in the *American Economic Journal: Economic Policy* last May, they found some encouraging news—and potential solutions. Oster explains.

In the first month of life, US survival rates are actually higher than some of the comparable countries we looked at. There's been a lot of focus here on infant survival in this very early period, and we spend a lot of money on better neonatal intensive care units, and those do seem to pay off.

Where the US does really badly is in postneonatal mortality—between the first month and 12 months of life. During that period death rates are much higher, and they're higher in lower socioeconomic status groups in the US, relative to poor populations in the other countries.

These results suggest we're sending some people home with their babies who could use more help. We shouldn't assume that once the baby's left the hospital, there's nothing left for policy to do. There are a lot of social services that people don't take advantage of: for example, the Rhode Island Department of Health offers home visiting programs that send professionals to new parents' houses to help with all aspects of raising a baby. If doctors knew about that, they could encourage their patients to take advantage of it. ***—edited by P.H.***

ANATOMY OF A CLERKSHIP DIRECTOR

Spice of Life

Sybil Cineas, MD, isn't bored. She speaks five languages. She travels abroad so much, she says, "I have to get the extended [passport] because I always run out of pages." She even chose her specialty, combined internal medicine-pediatrics, with variety in mind. "One of the things I really liked about the med-peds training [at Harvard] is that I would have the option to do just about anything," she says. At Brown, her many responsibilities—serving as associate director of the Medicine-Pediatrics Residency Program and assistant director for the Longitudinal Integrated Clerkship (LIC) in the Warren Alpert Medical School's Primary Care-Population Medicine Program; teaching and mentoring med students and residents; and treating patients of all ages in the Medicine Pediatrics Primary Care Clinic—make her days interesting, not hectic. Cineas likes to mix things up for her students, too. The LIC helps them understand that medicine is more than diagnosis and treatment: "They really get to care for patients in a longitudinal fashion and … experience the health system much more so than in traditional settings." Students see another side of the system when they participate in the monthly med-peds refugee clinic. "There are patients who have a very high need, and it's such a struggle to navigate the system," Cineas says. "Some of them might have never been to a doctor or understand what a refill means." As weighty as her work can be, Cineas strives to leave it behind at the end of the day. "When I come home, I want to feel like, ah, this is home," the Providence resident says. "This where I relax, not where I finish my EMR notes." ***—P.H.***

IN HER COURT

Cineas takes group tennis lessons at Roger Williams Park. "It's so fun. And it's really close to work," she says—plus it forces her to leave the office on time.

ADAM MASTOON (8)

HOMECOMING

The daughter of a diplomat, Cineas lived in six countries in her first 12 years. At Georgetown she skipped studying abroad because "I just didn't think that I needed the experience."

PIERCING DILEMMA

Cineas culled her earring collection after seeing how long she could go without wearing repeats. "I think I went six months," she says. These are the ones she kept, although, she admits, "I tend to wear the same five pairs."

BORN GLOBETROTTER

This family photo was taken in Buenos Aires when Cineas, front, was about 8, during her father's two-year term at the Haitian Embassy there.

HAVE MD, WILL TRAVEL

Cineas got this painting in Armenia, where she and other Providence health care providers traveled several times through a partnership with Gegharkunik Province.

ON THE ROAD AGAIN

Every year Cineas and her pediatrician cousin take a 10-day trip abroad. "While we're on vacation, we're like, where are we going next?" she says.

OUT OF THE BOX

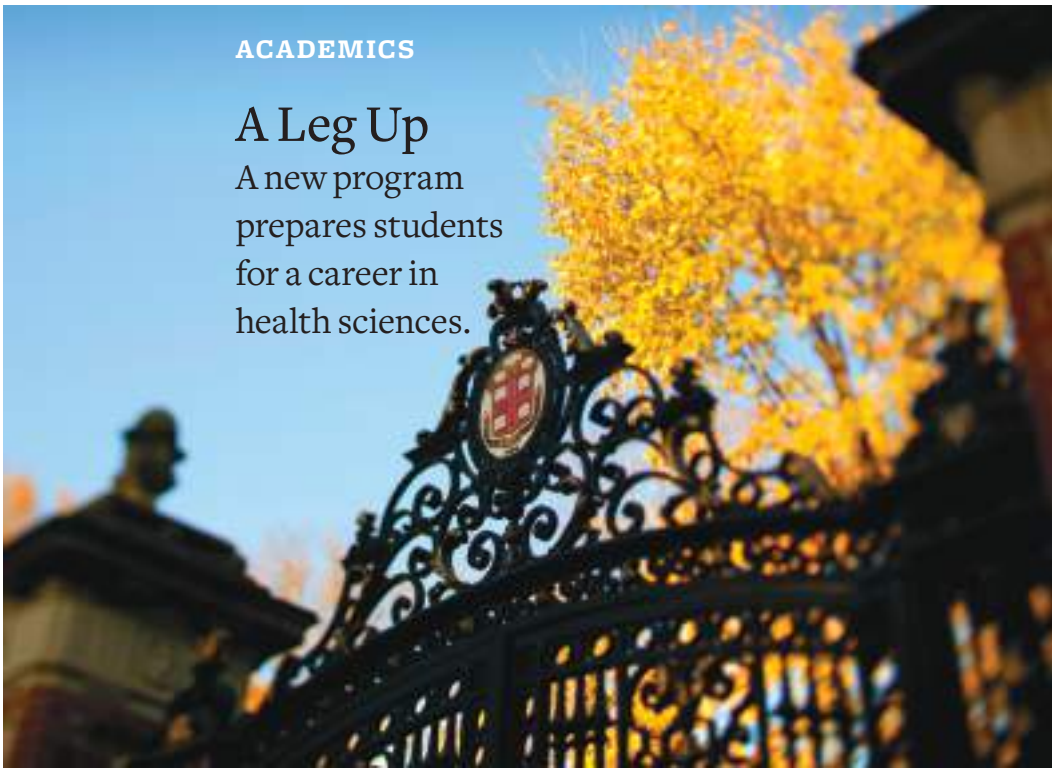
Cineas got this in Haiti, her native country; she became an American citizen during her residency at Harvard.

MAGIC CARPET RIDE

On a recent vacation in Morocco, Cineas bargained for this Berber rug in a village at the foot of the Atlas Mountains.

IT'S ALL IN THE WRIST

"Right now it's like decoration," Cineas says of her Fitbit. "Ideally I get to 10,000 [steps per day], but the job makes it difficult. It's so sedentary."



ACADEMICS

A Leg Up

A new program prepares students for a career in health sciences.

Let's face it: getting accepted to medical school is no easy task. Nationwide, just 43 percent of applicants are accepted to a US medical school. A new program at the Warren Alpert Medical School could help boost the odds for academically promising students interested in medicine or other health careers.

The Gateways to Medicine, Health Care, and Research Program was approved last October by the Brown Corporation. Students can choose between a one-year Master of Science in Medical Sciences degree, or a one-year Certificate in Medical Science. Both offer a rigorous multifaceted curriculum, with admission based on MCAT scores, grade point average, completed premedical coursework, extracurricular activities, and an invited interview.

"It's essentially like completing most of the first year of medical school," says Allan R. Tunkel, MD, PhD, associate dean for medical education. Unlike postbaccalaureate programs, coursework is at the medical school level rather than the undergraduate level. "For those students who choose to go on to apply to medical school, this program provides an excellent opportunity to demonstrate to admissions committees that they are capable of undertaking the same rigorous science courses required of the Warren Alpert medical students," Tunkel says. "We also see this program as an opportunity to attract students from historically underrepresented groups and who are interested in becoming physicians."

The master's degree requires eight-and-a-half courses, while the certificate requires six. Master's degree students also must complete a capstone project, which is based on their hands-on experience at a community health care site.

Several such programs exist at other medical schools, but Gowri Anandarajah, MD, director of Gateways and professor of family medicine and of medical science (clinical), says a defining element of the Warren Alpert Medical School program is its small class size.

"We're limiting it to 30 students. Therefore we can be selective in admitting students who we believe really demonstrate a strong aptitude for a career in medicine, both intellectually and interpersonally," she says. "Once in the program, students will have personalized attention, including close mentoring and advising. I'm looking forward to getting to know them well."

Another unique feature is a series of courses designed specifically for Gateways master's students. "We want students to understand and participate in the 'real world' of health care, through longitudinal learning at a community health care site and completion of a project of benefit to the patients at that site," Anandarajah says. "Learning an interdisciplinary, collaborative approach to health care is essential for their future careers."

> "Once in the program, students will have personalized attention, including close mentoring and advising."

Applications are being accepted for the first class through May 15. The program begins in July.

—Kris Cambra

Learn more at *brown.edu/go/gateways.*

MIKE COHEA

CAMPUS

Dream Team

BROWN'S STUDENT-ATHLETE Advisory Committee has teamed up with the Brown University Oncology Research Group to raise awareness and funds for cancer research. But the student-athletes wanted to do more, so BrUOG facilitated visits with patients at Hasbro Children's Hospital. "It was fun to go into patients' rooms with a bear, have a light conversation, joke around a bit, and give the kids a break from hospital business," says Sarah Lucenti '17, president of SAAC and a member of the women's volleyball team. In January, the men's hockey team made a similar visit to Hasbro patients and a third team will go this spring. Formed in 1994, BrUOG helps the Warren Alpert Medical School faculty organize grassroots clinical trials for novel cancer therapies at member Rhode Island and Massachusetts hospitals. The partnership with SAAC, which has a community service mission, helps raise funds to support BrUOG studies and increase visibility in the community. —*Elizabeth Droge-Young, PhD*

BILL MURPHY/LIFESPAN

GOOD SPORTS: Members of the women's volleyball team visit a patient at Hasbro Children's Hospital last summer.

THE MATCH

Residency Placement Fever

Data suggest that the number of student applications for residency programs has become problematic.

For someone with a greater than 50 percent chance of landing their top job choice and a greater than 90 percent chance of getting a job in their field, is it overkill if they apply for more than 40 jobs?

That's exactly what US students receiving MD degrees are doing every year. The highly successful process of matching medical graduates to residencies has nevertheless become so frenzied that the authors of a recent article in *Academic Medicine* question the rationality of the system. It's driving up costs for students and severely disrupting the fourth year of medical school, they say.

"There's been this inexorable intensification of the residency selection process such that it's basically taken over the fourth year of medical school," says Phil Gruppuso, MD, professor of pediatrics and of medical science at the Warren Alpert Medical School. "It so dominates student time and energy during the fourth year that it's become very difficult to do any curriculum planning."

The statistics he uncovered with co-author Eli Y. Adashi, MD, professor of medical science, show that by 2005, students across the country were applying on average to 30.3 programs. In 2015 the number reached 45.7. For specialties deemed highly competitive, the numbers go even higher: the average student hoping to be an orthopedic surgeon, for

example, applied to 73 of the 163 potential programs.

Students seem to believe they have to submit so many applications to ensure placement in a top program, and while it's true that the number of offers per applicant has fallen over time—from 0.96 in 1976 to 0.78 in 2015—Gruppuso and Adashi found that the decrease doesn't affect graduates of US allopathic medical schools. It's emerged as other kinds of medical students—most notably graduates of osteopathic (DO degrees) or foreign schools—have increasingly joined the process.

In fact, among MD graduates in the US, the number of offers per applicant has increased, to 1.51 in 2015 from 1.37 in 1976. Moreover, between 92 and 95 percent of those graduates have successfully matched every year since 1982, and since 1997 the chance of students matching to their top choice has remained between 50 and 60 percent.

"At the end of the day, if you are a US medical school graduate, you are virtually assured of getting a job," Gruppuso says.

DATA, SOLUTIONS NEEDED

After students file their applications electronically, programs invite their preferred students for interviews. Here Gruppuso and Adashi could find no national data, but a survey of fourth-year Warren Alpert medical students suggests that the number of interviews has scaled up with the number of applications. That means they're on the road for substantial chunks of time throughout their fourth year, making it difficult for them to participate in the curriculum.

Meanwhile, the financial burden of traveling to many interviews around the country may significantly disadvantage students of low socioeconomic status, though that also has never been formally studied. Furthermore, as overwhelmed graduate medical education (GME) programs sort through huge volumes of applications, they may rely more on test scores and less on more qualitative indicators of candidate suitability.

"Should this occur, it could have a detrimental effect on the ability of GME programs to achieve diversity by reducing the selection of students from disadvantaged educational backgrounds who may be at risk for underperformance on standardized examinations," Gruppuso and Adashi wrote.

More than anything, the authors call for more data so that medical educators can prove or disprove the "more is better" hypothesis that students appear to have accepted as normal. It may be that dozens of applications are truly necessary—or students may be routinely going far past the point of diminishing returns.

Gruppuso and Adashi also propose a few steps that medical education organizations could take to treat what they call "Residency Placement Fever," including coordinating interview timing so that educators can plan a meaningful curriculum for the fourth year; reducing or capping the number of interviews students can accept; and interviewing applicants online before inviting them to meet in person, to reduce time and travel costs.

"There ought to be some thought given to this and some data collected," Gruppuso says. "There are no easy solutions." ***—David Orenstein***

OVER HEARD

"At the moment I feel like I'm in some alternate universe, where reality has taken a long vacation. But everything seems to be real, so I guess I will have to assume that it is and proceed accordingly."

—J. MICHAEL KOSTERLITZ, *PhD, Harrison E. Farnsworth Professor of Physics, on winning the 2016 Nobel Prize in Physics*

DAVID DELPOIO

5 Things You Should Know

1 EATING BETTER, SORT OF An analysis of diet quality among more than 38,000 US children shows that their nutrition has been getting steadily better in recent years, but what they eat is still far from ideal and disparities persist by income, race, and receipt of government food assistance. The bottom-line measure in the *American Journal of Clinical Nutrition* study, whose authors include Xiao Gu, an epidemiology student at Brown, is the 100-point Healthy Eating Index (HEI-2010) score. Over the study period the average HEI-2010 rose as kids ate more healthy foods and were more likely to avoid sugary drinks. Researchers found that as household wealth increased, so did the degree of gains.

2 WE RECOMMEND THE MERLOT A study published in *Cancer Epidemiology, Biomarkers & Prevention* found that alcohol intake was associated with higher rates of invasive melanoma among white men and women. White wine carried the most significant association, and the increased risk was greater for parts of the body that receive less sun exposure, such as the waist or back. Each drink per day of white wine was associated with a 13 percent increased risk of melanoma. Other forms of alcohol—beer, red wine, and liquor—had no significant association with melanoma risk. The reason for the association is unknown. Study author Eunyoung Cho, ScD, associate professor of dermatology and of epidemiology, theorizes that while red and white wine may have similar amounts of pre-existing acetaldehyde, the antioxidants in red wine may offset the risks.

3 PAIN POINTS A new study in the journal *Pain* that compared the two most common pain-relief drug categories—NSAIDs such as ibuprofen and opioids such as oxycodone—found that the risk of reporting persistent pain six weeks after a car crash was not statistically different among patients prescribed either medication at the ED. What did differ significantly was the likelihood that people initially prescribed opioids, which can be addictive, would still be using them by that time. The lead author, Francesca Beaudoin, MD, assistant professor of emergency medicine, says they saw signs that different patients responded differently to pain management. Researchers will next try to identify what characteristics best predict which therapy is best for which patients. Such a system could help doctors manage patients' pain while only prescribing opioids for people who really need them.

4 THE THIRD SCIENCE Jeffrey Borkan, MD, PhD, chair of family medicine, is co-editor and a chapter author of a new textbook, *Health Systems Science* (Elsevier, 2016), with experts from the American Medical Association and faculty from 11 of the 32 member schools in its Accelerating Change in Medical Education Consortium. The book presents a formalized strategy to teach medical students about health systems, an emerging "third science," in addition to the basic sciences and clinical medicine that physicians must learn. Paul George, MHPE '01 MD'05 RES'08, and Elizabeth Tobin-Tyler, JD, MA, also of family medicine, are chapter contributors.

5 BATTLING DEADLY FUNGI The lab of Jonathan Reichner, PhD, professor of surgery (research), has puzzled out how the immune system responds to fungal infections, in hopes that knowledge can help develop new therapies. They observed that integrins on the surface of neutrophils signal the cells to attack fungus as it spreads its hyphae into infected tissue. They then manipulated the integrins to change the behavior of the neutrophils, paving the way for studies that attempt to improve the body's defenses. "We are looking for ways to mobilize and activate our neutrophils to eliminate fungal infections, especially hyphal forms of fungal infections," says Courtney Johnson PhD'15 MD'17, who led the study with the late Xian O'Brien PhD'10, instructor in surgery (research). The authors of the paper, which was published in the *Journal of Immunology*, stress that they don't yet know whether the response helps or does more damage, so more research will follow; the new ability to manipulate the response means the team can test ways to either augment or restrain it.

COOL TOOL

The Rest of Your Life

A new app combines personal sleep analytics with research.

There are plenty of cellphone apps on the market designed to help people monitor their sleep patterns. The apps generally record data on when people go to bed and when they wake, and many use the device's microphone and accelerometer to take note of noises in the night and monitor how much people toss and turn.

A group of Brown University computer scientists and clinical psychologists has come up with an approach that takes sleep monitoring one step further. Dubbed SleepCoacher, it uses sleep analytics to generate personalized recommendations informed by the scientific literature on sleep. SleepCoacher then guides users through a self-experimentation framework to help them find the recommendations that best work for them.

"The idea is to not only present people with information about their sleep, but to give them some control over it by giving recommendations along with a step-by-step plan for improving their sleep," says Nediyana Daskalova ScM'16 PhD'20, a computer scientist who is leading the development of SleepCoacher.

> "We have an approach that could work in the long term to continuously improve sleep over months or even years."

ISTOCK PHOTO

Daskalova and her team developed SleepCoacher under the direction of Jeff Huang, PhD, an assistant professor of computer science and leader of Brown's Human-Computer Interaction Group.

"Our work is the first of its kind to guide people to figure out whether the data is causal, instead of just correlation. That's particularly exciting for me," Huang says. "We have an approach that could work in the long term to continuously improve sleep over months or even years. And because we are aiming for a lifetime of improvement, this could be personalized for whether you are a night owl or morning person, a light or heavy sleeper, or even someone who needs more than the usual eight hours of sleep."

The SleepCoacher self-experiment process is designed to account for that variation and help people develop a tailored plan for better sleep. An important component of the approach, Daskalova says, was engaging the Warren Alpert Medical School faculty who work in the area of sleep, including Nicole Nugent, PhD, associate professor of psychiatry and human behavior (research) and of pediatrics (research); Julie Boergers, PhD, associate professor of psychiatry and human behavior (clinical) and of pediatrics (clinical); and John McGeary, PhD, assistant professor of psychiatry and human behavior.

Nugent stresses that approaches like SleepCoacher are not a replacement for clinical intervention for people who have serious psychiatric conditions that interfere with sleep, like post-traumatic stress disorder or severe anxiety disorders.

"This approach is really aimed at people whose sleep is a little off and who would like some help," she says.

—Kevin Stacey

RESIDENT EXPERT

BY MINOO D'CRUZ '11 MD'16 RES'19

BLAIR THORNLEY

Married to Work

For better or worse, boundaries blur when both spouses have MDs.

My grandmother in India is perpetually worried about me. Born in a generation when women seldom worked, especially after marriage, every Sunday phone call with her usually ends with a slew of concerns about how I am balancing running a household, staying healthy, and planning for a family while working a full-time job as a first-year resident. All of this coupled with being married to a first-year neonatology fellow. She's right, it is hard. But life with a physician partner is a unique experience.

Female physicians in dual-physician relationships are not uncommon. Women constituted 47.6 percent of all US medical school graduates in 2014-2015, according to the Association of American Medical Colleges. And nearly 40 percent of physicians are likely to have a spouse who is a physician or health care professional, according to a 2014 report released by AMA Insurance. It seems that the plethora of "Life of a Doctor's Wife" (and husband/partner) online forums and Facebook pages may need to rethink their catchy but outdated titles to keep pace with the shifting demographics of physician relationships.

Beyond the appeal of a good old office romance, sometimes mired in spicy affairs or even tragic death as in the world of Meredith Grey, there are discernible benefits to having a partner to relate to on a personal and professional level. My husband and I are constantly thankful for how little explaining we have to do about our erratic work schedules. When setting up our bedroom after moving in together we thought as much about the furniture as the light-blocking shades we needed to install. Melatonin and sleep masks are always within reach on both sides of the bed. Conversations over the kitchen island flow freely from descriptions of body fluids to upcoming local wine tastings and then to myriad acronyms about the "G1 with PEC who needed Mag stat" or "the 28 weeker with NEC on TPN." The innocent bystander would be confused or, worse yet, appalled.

Processing challenging work situations or patients with a partner who experiences similar situations can be extremely therapeutic. Not to mention the free "curbside consults" they come with. On cross-cover during my adult medicine rotation, I was taking care of a frail 84-year-old woman with metastatic lesions to her spine. She had insisted on radiation treatment; however, she was now refusing the pretreatment MRI that she had agreed to earlier in the day. I paged the oncologist on call for advice on alternatives; he was on his way to dinner and unsure, but happened to be sitting next to his radiologist wife who could answer my question.

The blurring of work-life boundaries does come with its challenges. When two individuals are used to being decision makers at work, compromise can be a particularly hard pill to swallow at home. Sharing domestic responsibilities equally for us is sometimes as simple as willing yourself to fold the laundry at the end of an exhausting day if your partner put it in the dryer in the morning.

Before hanging up the other day, my grandmother struck a deal with me. She generously volunteered to come visit us and help out at home. In return, she asked only for a great-grandchild to dote on. I politely declined. For now, Grandma, we're just trying to keep the plants alive.

Minoo D'Cruz *is a family medicine resident at Brown. She grew up in Oman, and was a human biology concentrator. She is interested in global maternal and child health and plans to practice full-spectrum family medicine, including obstetrics.*

BY KRIS CAMBRA

A Man to Remember

Herb Kaplan guided The Warren Alpert Foundation's transformative gifts to the Medical School.

On January 2, Brown lost one of its stalwart supporters when business leader and philanthropist Herbert M. Kaplan, MBA LHD'11 died at his home in Providence. He was 81.

As president of The Warren Alpert Foundation, Kaplan was instrumental in the naming gift the foundation made to Brown in 2007 and an additional gift of $27 million made late last year.

In business, Kaplan worked alongside his uncle Warren Alpert, who founded Warren Equities, a petroleum and convenience store business. Together, they grew the business, including its signature brand, XtraMart—which had achieved annual sales of more than $1 billion by the time of Alpert's death in 2007. Kaplan served as president and CEO from 1993 to 2006. From 2007 to 2012 he was chairman and CEO, and from 2012 until the company's sale in 2015, to Global Partners LP, he remained chairman.

Kaplan's daughter, Bevin Kaplan Reifer, remembers him as a man with tireless dedication to both his work and his loved ones. "He wouldn't miss work for a vacation, but he would miss work to help me study for every history exam," she says.

Reifer, the director and vice president of The Warren Alpert Foundation, says her father showed unusual kindness to his employees. "He was brilliant in business, but always humble," she says. "People on the outside often remarked that they had never seen the same degree of loyalty from one's employees, that it was almost unheard of. Once people came, they stayed. It was family."

Kaplan was equally devoted to advancing the family's philanthropic passion: medical research. The Warren Alpert Foundation annually awards a $500,000 prize for outstanding research that has honored some of the most influential and important figures in biomedical science. Kaplan was a founding member of the Noble Deeds Society of the Mount Sinai Hospital in New York City and served as an honorary trustee of the Brookings Institute.

At Brown, Kaplan served on the Medical School Committee of the Corporation. The foundation's naming gift to Brown's medical school was instrumental in the school opening its new building in 2011. At a dedication ceremony in October of that year, Providence Mayor Angel Taveras declared October 21 "Herbert Kaplan Day" and gave him a key to the city. Brown also awarded Kaplan an honorary doctoral degree in 2011, for his dedicated work to improve health care and academic medicine.

A PARTING GIFT

In its 10th year of partnership with the Medical School, The Warren Alpert Foundation announced in November 2016 that it would give an additional $27 million to support two top-priority projects at the Warren Alpert Medical School.

Of the new gift, $22 million endowed the Warren Alpert Physician-Scientist MD/PhD and Advanced Training Program, which will enable more students to pursue the joint degree—which takes on average eight years to complete—with the crucial help of tuition assistance and research stipends.

"This gift from The Warren Alpert Foundation will allow us to grow Brown's MD/PhD program in a way that has never been possible before," Jack A. Elias, MD, dean of medicine and biological sciences, says. "MD/PhD physician researchers see patients in the clinic, understand the challenges of the diseases they study, and transfer those in-

JOHN MACIEL

> "He wouldn't miss work for a vacation, but he would miss work to help me study for every history exam."

sights to work in their labs. These scholars are a critical ingredient for any school to truly excel in translational research."

The other $5 million of the new gift will create the Warren Alpert Professorship, the first endowed professorship in the Brown Institute for Translational Science (BITS). The centerpiece of the Medical School's strategic plan, BITS fosters integrated teams of researchers to make breakthroughs on specific diseases and other pressing medical challenges. They work to turn basic science findings into treatments for patients.

"Translating scientific discoveries into clinical solutions has been consistent with the ethos of our foundation from its inception," Reifer says. "This relationship with Brown has evolved beyond our greatest expectations."

LASTING LEGACY

During the past three-and-a-half years, Elias says he got to know Kaplan on a deeply personal level. "We would often meet on Saturday and Sunday mornings at our favorite greasy spoon diners throughout Providence and discuss everything from life to current events," he says. "Herb was a wonderful man who was brilliant, loyal, and compassionate while being incredibly humble."

Brown President Christina Paxson says that Kaplan's passion for improving the quality of health care was boundless. "Generations of students, clinicians, and patients will benefit from the vision and generosity with which Herb Kaplan led The Warren Alpert Foundation," she says. "Herb was the driving force behind the foundation's investments in the Warren Alpert Medical School. His influence was integral in positioning the Medical School to have a transformative impact on medical education and research. His loss is deeply felt at Brown."

Born March 24, 1935, and raised in Newton, MA, Kaplan was a longtime resident of Manhattan before making his final home in Providence. After graduating from Vermont Academy, Kaplan earned his bachelor's degree at Hobart College and his MBA from Babson College. In addition to his daughter, he is survived by his wife, Alida (McFadden) Kaplan; his son-in-law, Daniel Reifer; and a grandson, William.

Kaplan's commitment to improving health and fostering research in basic sciences, disease pathogenesis, and therapeutic development will live on in the foundation's support of the Warren Alpert Medical School.

"[Herb] had a tireless dedication to leaving the world in a better state," Elias says, "and he clearly did that."

Gifts in Kaplan's honor can be made to the Herb M. Kaplan Memorial Term Medical Scholarship, Brown University, Box 1889, Providence RI 02912.

Additional reporting by ***David Orenstein*** *and* ***Noel Rubinton*** *'77.*

OPINION

Race in Medical Education

The curriculum must challenge assumptions and unconscious bias.

In fall 2014, Professor of Medical Science and Africana Studies Lundy Braun, PhD, offered an elective on race, health, and structural inequality to medical students. We examined the faulty biological basis of race—the fact that genetic differences are far higher within than between racial groups—and how the biomedical framing of race contributes to physician bias, which in turn perpetuates racialized health disparities.

This exploration stood in stark contrast to what we were learning in our preclinical lectures. For example, we were taught that African-American patients have a significantly higher risk of developing childhood asthma, with several lecturers naming genetic factors as *the* cause of this disparity. Social factors that disproportionately affect African-American communities, including disparities in health care access or housing inequality, were rarely mentioned—even though these factors contribute more substantially to the higher prevalence and poorer health outcomes of African-American children with asthma.

Frustrated by this disconnect, students wrote a letter to the Medical School administration questioning the reliance on race as a biological construct. The letter urged a rethinking of preclinical education, specifically an integration between social and scientific portrayals of race. In the national context of fall 2014, with Ferguson in flames and the growing Black Lives Matter movement, the importance of translating what we were learning into action felt urgent. While the tradition of student activism at the Warren Alpert Medical School around health disparities is strong and precedes these efforts by decades, what was missing was an institutional commitment.

To further investigate our observations on the use of race in medical education, we sampled basic science lecture slides from the required preclinical curriculum and found that race was almost always presented as a biologically salient factor (96 percent), while only 4 percent of slides contextualized race by examining social differences. Furthermore, an informal survey of all Warren Alpert medical students demonstrated overwhelming peer support for reform of the current approach to race in medicine. After we presented our findings, the administration established a task force chaired by Associate Dean for Medical Education Allan R. Tunkel, MD, PhD; we began an ongoing collaboration with the faculty of the Office of Medical Education; and we continued organizing with other students (now formalized under the name Against Racism in Medicine). We also published our findings in *Academic Medicine*, joining the conversation around medical racism at institutions across the country.

The collaboration among faculty, administrators, and students in the Race in Medicine Task Force has begun to produce concrete and longitudinal curricular changes that are impacting the preclinical and clinical years. For example, a first-year lecture on radiation science introduced the idea that people with darker skin have evolved a pattern of melanin pigment distinct from those with lighter skin and that this difference was produced by differences in environments and geographies,

BY ANGELA ZHANG MD'20, DENISE MARTE MD'19, BRYAN LEYVA MD'18,
JENNIFER TSAI '14 MD'18, AND NELL BALDWIN MD'17

not inherent genetic differences. These changes in content are not driven by an administrative mandate, but instead by ongoing conversations between the faculty lecturer, the Office of Medical Education, outside experts, and students.

The preclinical curriculum is further reinforced through systems-specific lectures and small group sessions in the Doctoring course. One especially effective session, "Race Correction of Pulmonary Function Tests: Why History Matters," was led by Professor Braun during the pulmonary block. The lecture equipped students with background on spirometry and clinical lung function tests, illuminating the historical basis for race corrections, including its role in justifying the enslavement of blacks in the antebellum South. It provided rich material for discussion and continued dialogue even outside the lecture hall.

> Social factors that disproportionately affect African-American communities were rarely mentioned.

These advances come at an opportune time as medical institutions across the country rethink and reformulate how they teach about race in medical education. The Race in Medicine Task Force's vision aligns neatly with national goals to incorporate health equity and advocacy training into physician training. It also coincides with Brown's renewed commitment to diversity and inclusion, as articulated in *Pathways to Diversity and Inclusion: An Action Plan for Brown University*, and the Warren Alpert Medical School's long-standing position as the nation's trailblazer in education innovation. Educational reform around race and inequity fundamentally improves the quality of medical education for all students, and has the added potential to promote physician leaders with the skills to meaningfully reduce health disparities.

JUST THE BEGINNING

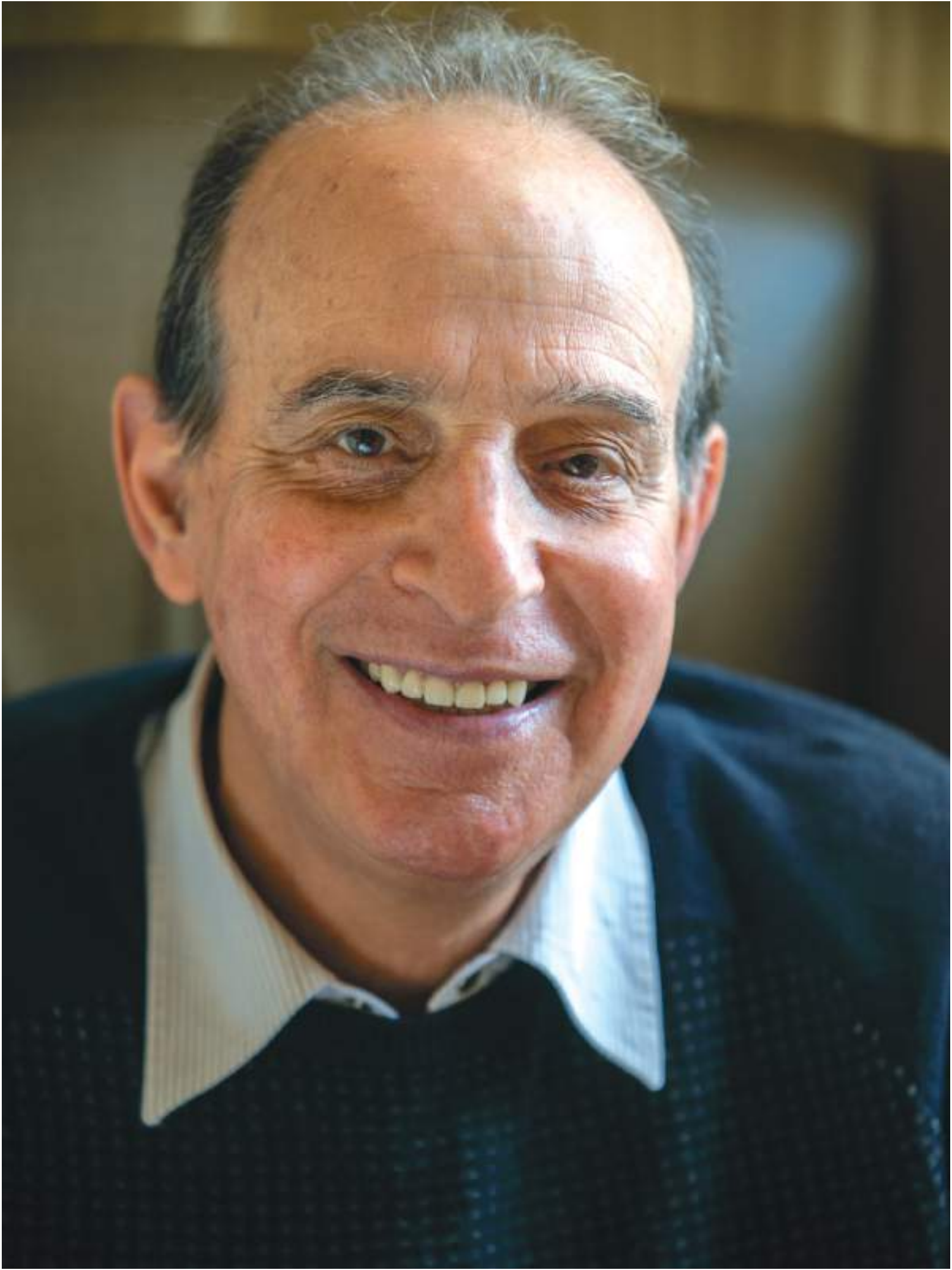
As the task force looks to the opportunities ahead, it is important to reflect on new and continued challenges. Task force members—especially the often heroic faculty of the Office of Medical Education—have proved to be dedicated and focused on implementable changes. While instruction around race and health inequities at the Medical School has been deliberate and well intentioned, curricular reforms thus far remain sporadic and moderately effective. The bulk of curricular changes have focused on first- and second-year medical education, despite abundant evidence that the clinical years have a greater impact on students and their future professional practice. Though further efforts on longitudinal coordination across all four years are underway, these small changes do not, on their own, add up to the rigorous, systemic curricular reform that is needed.

Significant controversy around the conversation on race in medicine persists. The proposed modifications to lecture content, while evidence based, sometimes run at odds with conventional medical wisdom and may not reflect the lecturer's own beliefs around race, or clinical practice witnessed by students on the wards. This further underlines the need for robust faculty development that prioritizes critical thought around a controversial topic and developing skills around unconscious bias and structural competency—instead of a simple replacement of dogma.

A final limitation of the current reform efforts is the lack of assessment. While we are proud and grateful for the immediate impact these collaborative efforts have generated, we cannot predict the long-term effects and efficacy without data. A recent query to the Office of Alumni Affairs yielded no information on what proportion of Brown medical alumni go on to work in underserved communities, which could be one way to measure the success of our initiatives. Another measure is the Medical School's commitment to faculty and student diversity. At institutions across the country, it is clear that attracting, recruiting, and retaining faculty, students, and administrators of color is key to addressing health disparities. Brown is far behind the curve on diversity, with one black male medical student in the current first-year class and 1.65 percent of the clinical faculty identifying as black or African-American.

These ambitious goals require real financial and administrative commitment. As we progress in our own professional development and imagine how to best care for all our patients, we remain cautiously hopeful about the current direction toward change and look forward to continued collaboration.

Alumni interested *in these reform efforts or who have more information on their work in under-resourced communities may contact the authors at against-racism-in-medicine@googlegroups.com.*



THE GENUINE ARTICLE

For 40 years, Ed Feller has been an inimitable teacher, mentor, and friend at Brown.

BY PHOEBE HALL

PHOTOGRAPHS BY DAVID DELPOIO

When Walter Klyce MD'18 was trying to decide when to get married, he didn't seek help from his parents or religious leader. Even his fiancée wasn't sure what to do. So Klyce went to see Ed Feller.

"Dr. Feller's known as a good person for giving life advice," he says.

The two men had never met before. But Feller was ready with words of wisdom.

"When you're in the medical profession, there is real pressure to put that before everything else. He does a good job of saying it doesn't have to be your whole world," Klyce says. "He said, 'Medical school is fine, but getting married is a huge deal. You should plan your life around getting married, not around medical school.' So we're getting married in April, during a week off."

RENAISSANCE MAN: Ed Feller left his gastroenterology practice 15 years ago to teach full time. "My job description is working with medical students," he says, "which is great."

Feller's deprioritization of medicine and medical education may be unconventional, but it wouldn't surprise any of the hundreds of students, alumni, colleagues, and others he's befriended in his 40 years at Brown. "He's one of a kind," says Alex Morang, director of career development. "They broke the mold."

On paper, Edward Feller, MD, PMD'03 sounds like a conventionally overachieving, ultra-accomplished Ivy League medical school faculty member. A gastroenterologist, he graduated from the University of Pennsylvania and New Jersey Medical School and trained at McGill and Harvard. His expertise in endoscopic techniques to visualize the pancreatic and bile ducts got the attention of a GI group in Providence, which recruited him; he went on to lead the GI division at The Miriam Hospital for 18 years. He's a clinical professor of medical science at the Warren Alpert Medical School, and he codirected the Community Health Clerk-

ship for a decade. Until last year he also was a clinical professor of health policy, services, and practice at the Brown School of Public Health.

But look closer at his CV. Feller left clinical practice in 2002 so he could devote himself to teaching at Brown. His 10-page list of scientific publications and presentations is liberally peppered with boldface and underlined type, to call out his hundreds of med student and resident coauthors. He's earned dozens of awards and honors for teaching, mentoring, and humanism.

And then there's that four-year stint at the University of Dijon Medical School, in France, with no degree earned. "I graduated the University of Pennsylvania with a 2.2 grade point average," Feller says frankly. "I couldn't get into any medical school in the United States."

Then he flunked his second year at Dijon. And he couldn't pass Step 1. "I was a horrible student," he shrugs.

He'll share these facts with anyone—especially medical students. "That kind of honesty about personal failures," Klyce says, "you can't believe how rare that is in medicine. People think confessing fault shows weakness."

"The students walk away feeling, boy, if Dr. Feller had all of these stumbling blocks ... that gives me hope," Morang says. "Maybe I will get through this, and I will also be successful."

DOGGED PURSUIT

If you know Woody Allen's voice, you'll recognize Ed Feller's. He has a kind face, the trace of a smile dancing on his lips. His white coat days behind him, his work uniform now is neat but casual: a sweater over a collared shirt, dark jeans, and a red Brown University lanyard with his Miriam Hospital badge. When you bump into him at the Medical School, he has a friendly word or an inquiry about some tiny detail in your life that he recalls from your last encounter, even if it was weeks or months ago; friends, colleagues, and students marvel at his photographic memory.

He grew up in Brooklyn, in Williamsburg, when it was "really a slum." The son of a housewife and a general practitioner, whose office was in their basement, Feller sometimes tagged along on his dad's house calls. Tall and lanky, he played basketball in high school and as a freshman at Penn. There he studied English, "and I got Cs, Ds, and Fs in my science courses," he says. "I didn't have to worry about what to do in the summer. I was always at summer school."

Feller started running in college. "The most interesting thing about me is my lifelong hobby is running nonstop, 100-mile trail races in mountains," he says. (The second most interesting thing, he adds, is that 2.2 GPA from Penn.) He's run some of the best known ultramarathons, including Leadville ("I think I saw God at about 80 miles") and Vermont (the "easiest" of the 100s), and the Boston Marathon more times than he can count.

"It's a simple measure of your own worth," he says of running. "You just get out and do it. And I've always felt great about that. And I just don't back off. ... I know what it means when it's the middle of the night, and you're on top of a mountain, you've got a flashlight, and you're just exhausted, and you just say, well, I'm just going to keep doing it."

> "HE SHOWED ME YOU CAN BE A GREAT DOCTOR AND TEACHER AND ALSO BE DOWN TO EARTH AND HAVE A SENSE OF HUMOR."

That same doggedness—not mental strength, he insists, just doggedness—kept him on the path to medicine, even when no US med school would take him, even after his failing year in Dijon. His wife, Wendy, an actor, supported them by singing in cafes. Feller took stock of himself, shaped up, and earned the grades to transfer to New Jersey Medical School for his third and fourth years. "France made me a man," he likes to say.

Feller didn't plan to pursue gastroenterology, but he fell in love with Montreal, and McGill, when he and Wendy went there to visit his brother, a surgical resident. The only elective available to Feller as a med student was in GI, so he took it, then stayed for residency. He liked the research, too; during his fellowship at Mass General, he published two papers in the *New England Journal of Medicine*, one as lead author. An expert in endoscopic retrograde cholangiopancreatography, or ERCP, Feller had joined the clinical faculty at Harvard, in 1977, when Herbert Rakatansky, MD '56, a cofounder of a GI practice in Providence, came calling.

"We wanted to recruit people who were smarter than we were," says Rakatansky, now a clinical professor emeritus of medicine. "We wanted to stay on the cutting edge. He had certain skills we didn't have." The new recruit also had to want to teach, supervise, and patiently explain himself to inquisitive students and residents. "[Feller] had a desire to be in an intellectually stimulating environment," Rakatansky says. "He was a superb, multitalented gastroenterologist."

But never intimidating. Anish Sheth '97 MD'01 was interested in GI before he took an elective with Feller; the experience clinched his decision. "He sort of made it a no-brainer because he was such an inspirational guy," says Sheth, a gastroenterologist with Princeton Medical Group in New Jersey. "His way to approach medicine in education is to take knowledge that's encyclopedic and present in a way an individual could understand."

Sheth has appeared on TV shows like the *Rachael Ray Show* and *Good Morning America* to answer common questions about GI problems, and he's co-authored a few books for a lay audience, including *What's Your Poo Telling You?* Feller, he says, "showed me you can be a great doctor and teacher and also be down to earth and have a sense of humor."

Feller used the same approach with his patients. "In practice he was responsive, attentive, caring, and he has an encyclopedic knowledge of medical literature," says longtime friend and colleague Fred Schiffman, MD, P'96MD'00, the Sigal Family Professor of Humanistic Medicine. "He always knew what the current information is and is able to put it in perspective" and into practice. "He would make creative, original connections and he was able to step back and see things from a different angle."

He wanted future doctors to be able to do the same. For 30 years, Feller has supervised a weekly journal club at The Miriam for third-year students, teaching them how to read scientific articles, put them into context, and identify their merits and flaws. For each paper, he assigns a facilitator role to one student, and questions to everyone else. Then they discuss it over lunch; Feller provides the cookies. "The way he does it, everyone contributes because everyone has a role," Klyce says. "He puts a lot of thought into it."

ROUND TABLE: At his weekly journal club at The Miriam Hospital, Feller teaches third-year students how to read and analyze medical literature.

"I don't know of any other experience in my medical career that has been as fruitful in teaching me *process* to enable me to generate perspectives independently," Aaron Kofman MD'14, an internal medicine resident at UC San Diego, writes in an email. "I carry Dr. Feller's approach with me regularly and know it has made an enormous impact on my practice."

The education portion of Feller's job description was key to luring him to Providence from Boston. "I've always loved teaching," he says. As much as he loved his clinical work, over time he realized that he loved his work with students even more. "I decided that if I died without teaching full time, I would have missed something," he says. "I literally just left my day job."

SECOND ACT

Now ensconced in the Medical School, Feller is in his element. In addition to the journal club and periodic lectures, he teaches first-year Doctoring, and at any given time he's working with a dozen or more students on projects for publication or presentation. This school year Alex Morang asked him to be one of five faculty advisers.

"I had always thought of him, how do we tap this reservoir that he has, of knowledge and interest and passion of working with the students?" Morang says. "I think that speaks to how highly I value him, that we only have five people who have been selected to do that, to work with all of our students in that capacity, in such a longitudinal way."

This new title makes official what Feller's been doing for years: mentoring and guidance, in life and career. "Dr. Feller truly wants students to figure out what makes them *happy* in medicine," Kofman writes. "Dr. Feller's mission is to really push you to investigate all aspects of what drives you and make decisions that help you hone your professional future."

Kofman says it is thanks to Feller's early and enthusiastic support that he will begin a two-year fellowship with the CDC's Epidemic Intelligence Service this summer. Some may consider public health an "unconventional" career path for an MD, he says, but Feller affirmed his choice from the start.

That's evidence, Kofman writes, of "how much he invests in getting to know his students and help them find the path that is the most rewarding for them."

Many current and former students praise Feller for pushing them to challenge themselves. Michelle Diop ScM'19 MD'19, who's in the Primary Care-Population Medicine Program and hopes to pursue a career in palliative care, had disappointing research experiences before coming to Brown. She told Feller she was concerned about finding a mentor who shared her goals for the program's required thesis project.

"I was only interested in qualitative work, but he vouched for a mentor with quantitative work," she says. Feller connected her with Associate Professor of Medicine James Rudolph, MD. Now she loves research; their meta-analysis on palliative care interventions for patients with heart failure—of which Diop was lead author—was published in the *Journal of Palliative Medicine* in January.

Diop says Feller regularly sends her articles about palliative care and tells her about events and opportunities in the field. "The fact he remembers what I'm interested in … when he has so many students and remembers me—he's amazing," she says.

"Dr. Feller has a real passion to help other people with their passion," says Za Janopaul-Naylor '10 MD'14, a psychiatry resident at Harvard. She met Feller just weeks before she graduated, but he tracked her down after she got to Boston with an offer to cowrite a chapter on cyberbullying for the medical textbook *The 5-Minute Clinical Consult*. They've collaborated on three editions.

"His openness to all areas of interest is really surprising. He's a GI doc and here he is helping me with cyberbullying," Janopaul-Naylor says. "Often people get siloed and feel they have expertise in only one area. He's not scared to go outside his boundaries and to learn. He's excited to learn about every topic."

Anish Sheth says he and his wife, Shilpa Pai '97 MD'01, a pediatrician, always visit Feller when they're in Providence. "My wife has nothing to do with gastroenterology," Sheth says, "but when we go out for dinner the two of them end up talking a lot more than he and I do. He can talk about anything. He's passionate about a lot of stuff."

In 2012 Sheth spearheaded the establishment of the Dr. Edward Feller Term Scholarship at the Medical School. "Everyone had a realization [Feller] was a special guy in medical school, but only when you leave Brown … you realize he's very unique in what he does," Sheth says. "This isn't hyperbole: through medical school, residency, fellowship—to this day I don't think I had a mentor as strong and influential as he was."

BON VIVANT

"Medicine is the best," Feller says. "I think that it's the most extraordinary career and calling that you could have. … But I think life happiness is a great relationship, good friends, things which excite you and which you enjoy, and no nasty personal surprises."

Feller always has enjoyed a full life outside of work, and constantly pushes med students to do the same. Thanks to his wife's influence he's an avid theater goer, and travels to theater festivals across the country. He loves jazz and classical music. He reads everything he can get his hands on. He hikes and he still runs (much shorter distances). He even tried playing the flute, after Wendy got him lessons as a gift. "I've always been good at finding stuff I love to do," he says.

He and Wendy raised two children, both physicians: Alex MD'03, a psychiatrist in private practice who teaches at Weill Cornell Medical College; and Sophie, who is doing postdoctoral research at the UCLA Center for Health Services and Society. Both worked in other fields before deciding to go to medical school, which pleases their dad.

"I proselytize for taking time off and doing something great—especially for doctors, who start so early and just keep going through," Feller says. "It's that extra time that you spend doing something else that gives the depth and texture to living."

Students who got to know Feller also knew his wife: Wendy was a regular presence on campus—she was a standardized patient in addition to her theater work—and at the dinners and social gatherings Feller hosted for his journal club groups and other classes. When Wendy was diagnosed with acute myelogenous leukemia, in 2004, the students rallied around them.

"Medical students would stay with her [at The Miriam] so I could go home and sleep for a couple of hours," Feller says. "They would set up a system."

"They took care of him," Morang adds. "They were always checking in on him. And they were bringing meals. And they were taking care of him like you take care of family, because they see him as family."

After Wendy received a bone marrow transplant, she went on TV and radio to encourage people to join marrow registries. That galvanized Feller to do the same on campus. In 2012 he received the Leadership Award from the National Marrow Donor Program, and he continues to advise registry drives at Brown. Since 2005, he says, his group has identified 27 donors—including Adam Vasconcellos '07 MD'11, one of the students who coordinated the drives.

Wendy died in 2013. She and Feller had been married 45 years. "It will never be the same. My life is diminished," he says. But he went back to work the next week. "It's not what I do—it's who I am." Returning to work, he says, "was life enhancing."

"Students are my safety valve," he adds. "I feel close to a lot of students—like a generation of students." He keeps in close contact with scores of current and former students, who treasure his funny emails, thoughtfulness, generosity, and unfailing support of their interests.

"Every time I see him, I walk away happy. He lifts you up," Diop says. Kofman invited Feller to his wedding in California last fall. "All of the time, he's flying somewhere to go to an alumni wedding, a baptism, a major life event," Morang says. "I think that speaks volumes."

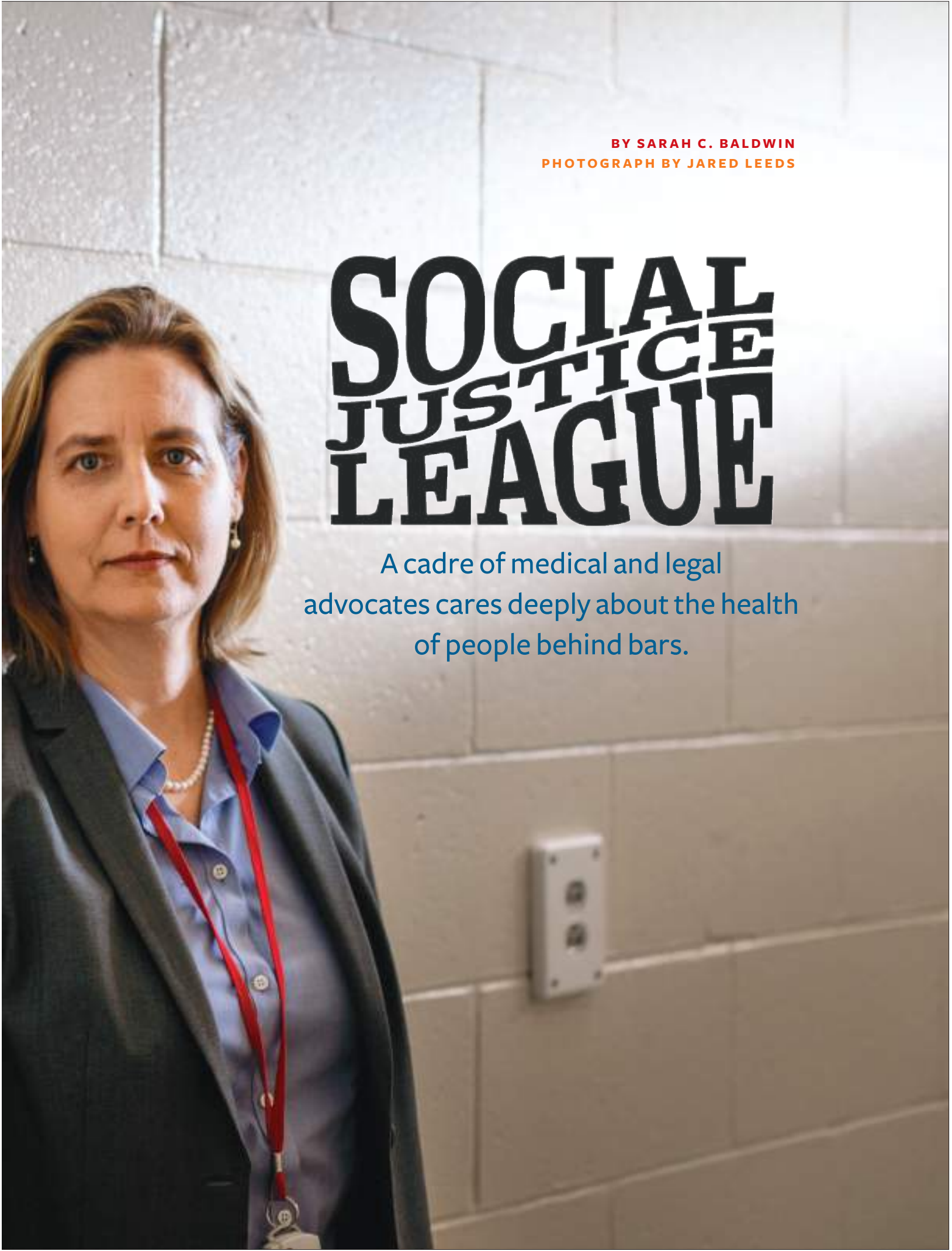
Students and alumni also have spoken with honors and awards—many, many times over. Feller is a seven-time recipient of the Senior Citation, the highest honor a graduating class can confer on a faculty member. Thirteen graduating classes have given him the Faculty Award for outstanding teaching. He received the W.W. Keen Award from the Brown Medical Alumni Association in 2012. And the Association of American Medical Colleges has honored Feller four times with the Humanism in Medicine Award, which recognizes excellence in mentoring.

"IT'S THAT EXTRA TIME THAT YOU SPEND DOING SOMETHING ELSE THAT GIVES THE DEPTH AND TEXTURE TO LIVING."

"Getting the awards is the gravy," Morang says. "Making the connections and having these amazing experiences and these valuable relationships that, in many cases, have gone on for decades with the alumni, is the true reward."

At 71, Feller says he never thinks about retiring. "I don't consider what I do work. I feel as if I'm blessed," he says. "I love writing, I love interacting with students, I'm learning every day new things. I have a lot of outside interests, but I love my work and I would do it forever."

WONDER WOMAN: Jennifer Clarke in a temporary holding cell inside the dispensary at the Rhode Island Department of Corrections' John J. Moran Medium Security Facility in Cranston, RI. Clarke is RIDOC's medical programs director.



BY SARAH C. BALDWIN
PHOTOGRAPH BY JARED LEEDS

SOCIAL JUSTICE LEAGUE

A cadre of medical and legal advocates cares deeply about the health of people behind bars.

IN 2005, BRADLEY BROCKMANN, JD '76 was working in Boston as a civil rights litigator for Prisoners' Legal Services of Massachusetts. On December 20, Nelson Rodriguez, a 26-year-old man with a cognitive disability and mental illness, hanged himself in Cell 49 of the isolation unit known as 10 Block in the maximum security prison in Walpole, MA. Brockmann and colleagues went to the prison the next day to begin interviewing the other 25 men on the tier, who claimed that Rodriguez had spent the night screaming for help and received none.

Brockmann describes those interviews as "horrendous," but the experience shaped the way he sees the problem of incarceration. "What I came to understand over time was that virtually all of my clients—dozens and then hundreds—had a substance use issue and/or a mental health disorder. And that is what's driving recidivism in our prison system: individuals with co-occurring mental health and substance use disorders."

He's not wrong. According to the Bureau of Justice Statistics, more than half of inmates in US state prisons have a mental health problem, and three-quarters of those individuals also meet the criteria for substance dependence or abuse.

At Brown, physicians and public health and policy experts like Brockmann have joined ranks under the aegis of the Center for Prisoner Health and Human Rights. Based at The Miriam Hospital, the center and its affiliated physicians and advocates work to develop programs to enhance continuity of care for released prisoners, as well as diversion programs to keep individuals with behavioral health disorders out of the justice system in the first place.

THE OTHER 1 PERCENT

The number of people behind bars with mental illness and addiction has been a disaster decades in the making, the result of two social policies that have arguably exacerbated the problems they purported to solve.

President Nixon's 1971 declaration of a "war on drugs" opened the door to a host of harsh penal policies for relatively minor drug offenses. The contribution of such policies to America's current epidemic of incarceration is widely acknowledged. Since 1981, when the "war" began in earnest, the number of people incarcerated for drug possession has swelled by 500 percent, from 41,000 to almost half a million. By 2012, 1 in 108 adults—nearly 1 percent of the American adult population—was behind bars.

Around the same time, many people with mental illness found themselves on the street, thanks to the well-intentioned deinstitutionalization movement. Starting in the 1950s and gaining momentum in the '70s and '80s, deinstitutionalization aimed to take psychiatric patients out of state hospitals, where conditions were often deplorable, and move them into group homes, where they could live with more autonomy and dignity. The idea took: in 1950, there was one psychiatric bed for every 300 Americans; by 2004, there remained one for every 3,000.

Radical cuts to federal mental-health funding, however, meant that the vast majority of planned facilities were never built. Patients were discharged with nowhere to go and no one to oversee their care. Many became homeless—and many ended up in jail or prison. By 2004, there were three times more individuals with serious mental illness in jails and prisons than in psychiatric hospitals. As the *Boston Globe* put it in a 2005 series on suicide in prison, the "inmate[s] now flooding the corrections system [are] the mentally ill for whom prison is increasingly the asylum of last resort."

The last resort—and for many, the last place they should be. Some, such as Rodriguez, end up in solitary confinement (also known as segregation), which can be psychologically damaging to a healthy person, let alone someone with a major mental disorder like schizophrenia. In one federal case, a judge ruled that "putting mentally ill prisoners in segregation is the mental equivalent of putting an asthmatic in a place with little air." And once they're in the system, the exit

is more of a revolving door. People with certain mental health issues, such as ADHD, can have difficulty in the highly regimented environment of prison, which only exacerbates their problems. "They can't follow orders—they spiral," Brockmann says. They rack up disciplinary infractions for noncompliance or simply "bizarre" behaviors. If they're released, they go untreated and fall into the same problematic behaviors as before. One-quarter of state prisoners with mental health problems have been incarcerated at least three times.

The "collision" of her patients' lives with the law intrigued Christine Montross MD'06 MMS'07 RES'10. A psychiatrist in the intensive treatment units at Butler Hospital and assistant professor of psychiatry and human behavior, she deals with the most severe cases of psychiatric illness. "I noticed over the years that many of the patients I treat come into contact with the criminal justice system," she says. "The questions that began to arise for me were 'Why?' and 'What happens when they do?'"

The answer, often, is that they get into trouble and they can't get out. In a 2016 paper published in the *New England Journal of Medicine*, Montross described a man suffering from paranoia who was ordered to leave a convenience store, refused, and was taken to jail. There, still paranoid, he refused to take antipsychotic medication and had to be forcibly removed from his cell. The man fought back, further worsening his plight by being charged with assaulting an officer—a felony. Instead of being treated for his mental illness, he's likely to spend years, probably without adequate psychiatric care, in a carceral setting that will only make his mental condition worse.

"If we recognize that prison or jail is not the appropriate first place for these people, then we need to have systems in place to offer support and treatment," Montross says. "Any of us could [have a psychiatric illness] at any point in our lives. Rather than see these people as 'other,' we must see them as vulnerable, and work for their care and protection."

In 2015, Montross received a Guggenheim fellowship to support research for a book about the intersection of mental illness and the criminal justice system, and has used it to study correctional facilities from Cook County Jail, in Chicago, to Norway's maximum-security Halden Prison. "Our society at times takes a simplistic and comfortable view that anyone who ends up in [jail] belongs there. ... We've adopted a position that is more punitive than rehabilitative," Montross says. In contrast, the Norwegian approach is to use the time of incarceration productively, to equip prisoners with skills so that they emerge able to thrive in and contribute to society. "That," she says, "is a very logical approach."

One promising step in the right direction is the 21st Century Cures Act, which former President Barack Obama signed into law in December. The legislation includes initiatives to reduce mental illness and addiction in the criminal justice system, including community treatment, diversion, and reentry programs, as well training programs for police and first responders. Says Brockmann: "Here in Rhode Island, the center is working with law enforcement agencies, the public defender, the mental health advocate, and other state actors to create an effective pre-arrest diversion program for individuals who need treatment, not jail, when they have a behavioral issue. We are optimistic that federal funding will help us move this forward."

"Rather than see these people as 'other,' we must see them as vulnerable, and work for their care and protection."

TREATING ADDICTION LIKE THE DISEASE IT IS

Prisoners are among the unhealthiest Americans, beset not only by mental and substance use disorders, but by chronic diseases such as asthma and diabetes and communicable diseases such as tuberculosis, HIV, and viral hepatitis—all of which are significantly more prevalent behind bars than in the community. Studies have found health care is uneven, with prisoners in short-stay settings such as jails getting the least amount of care.

Yet where most people would see a human health disaster, some see a chance to turn the tide.

"Make no mistake. Overincarceration is bad for fami-

lies, for communities, for society. It would be far better to dramatically reduce incarceration rates with more appropriate interventions that can lead to better outcomes for everyone. But given that this high-risk population finds itself in an institution temporarily, it would be foolish not to capitalize on the health and public health opportunities that presents," says Professor of Medicine Josiah "Jody" Rich, MD, MPH, who has been treating prisoners in the Rhode Island Department of Corrections (RIDOC) for almost a quarter-century.

Working with fellow Brown infectious disease docs Scott Allen MD'91 RES'94 (who is now at the University of California, Riverside), Timothy Flanigan, MD, Curt Beckwith MD'99 RES'02 F'05, Charles Carpenter, MD, and others, Rich has helped make Rhode Island a model for correctional health programs that address infectious diseases and substance abuse (see *Brown Medicine*, Fall 2007). Early on, he saw prison as an ideal place to make inroads into the HIV/AIDS epidemic as well as drug addiction, thanks to the, well, captive audience. (Rich is also known for helping change Rhode Island's five-year felony sentence for possession of syringes—"the craziest law in the country"—after years of advocating for a needle exchange program. Once sterile needles became available, the rate of HIV transmission dropped significantly.)

Today Rich is tackling another scourge from inside the walls: opioid use disorder.

According to the Centers for Disease Control and Prevention, over the past decade and a half, the rate of deaths in the United States from drug overdose has increased 137 percent—and the rate of deaths involving opioid overdose has risen 200 percent. Two pernicious trends underlie this new epidemic: the dramatic rise in prescribing opioid pain relievers, and the availability of heroin and its evil cousin, fentanyl, a prescription synthetic opioid 50 to 100 times more potent than morphine.

Rhode Island has not been spared. In 2013, the smallest state in the union earned the dubious double distinction of having the highest rate of illicit drug use in the country and the highest rate of drug overdose in New England. In August 2015, Governor Gina Raimondo took action, establishing the Overdose Prevention and Intervention Task Force, which includes both policymakers and medical experts—Jody Rich among them. The group released Rhode Island's Strategic Plan on Addiction and Overdose last November.

The goal of the plan is to reduce overdose deaths in the state by one-third within three years. Its strategy relies on intense collaboration among the Department of Health, RIDOC, insurers, and other agencies to, among other things, increase distribution of naloxone, widely known as Narcan and a key lifesaver in cases of opioid overdose, and expand treatment for people on opioid agonists such as methadone.

Medication-assisted treatment, or MAT, combines behavioral therapy and medications—methadone, buprenorphine (commonly known as Suboxone), or Vivitrol—to treat opioid use disorder. Although methadone has been FDA-approved since 1972 and is recommended by the World Health Organization, opponents object to what they perceive as rewarding offenders rather than punishing them, or as replacing one addiction with another. But forced withdrawal, which is still the rule in the vast majority of US prisons and jails, has dire consequences both for the individual—it's notoriously painful—and for society.

Methadone maintenance is more effective at keeping people alive: because an individual taken off methadone develops a much lower tolerance, he is at a much higher risk of overdose—and death—if he uses again on the outside. In a study released last year, Rich and others showed that keeping prisoners on methadone makes them twice as likely to seek treatment after they get out—and therefore much *less* likely to engage in drug-seeking behaviors, such as stealing.

Then there's the ethical dimension: in a paper that appeared in a special series of the *Lancet* in July 2016, Rich wrote that exacerbating imprisonment with "the physical and psychological burdens of opiate withdrawal … amounts to a double punishment." Further, he spotlights society's double standard when it comes to substance abuse. "We don't take [prisoners] off their blood pressure medicine, we don't take them off their diabetes medicine," he says. "When you take someone off [opioids] you cause predictable pain and suffering. I thought we were medical professionals. I thought we were supposed to be *alleviating* pain and suffering."

EPIDEMIC PROPORTIONS

Late on a Monday night last July, Rich returned to Providence from the International AIDS Society meeting in Durban, South Africa, where he had presented a paper on HIV, viral hepatitis, and tuberculosis among prisoners. The next

morning, jet-lagged, he rounded on patients at his AIDS clinic at RIDOC in Cranston. That's when he got a call from colleague Jennifer Clarke, MD RES'96 F'98 MPH'04.

"Jennifer said, 'There are a couple of women interested in starting medication-assisted treatment for opiate use disorder. Can you go over to the women's division and get them started?'" Rich recalls. When he got there, the nurse told him there weren't two, but a dozen women who wanted to begin the treatment. He didn't leave the prison until after dark—as usual, on his bike.

"I'm riding home that night having just heard all these heart-wrenching stories about how people did not get connected to treatment … I just wanted to cry," Rich says. "Why haven't we been doing this all these years? But now we're doing it. Every Tuesday since then we've been getting people started as quickly as possible. That's what's exciting me these days."

Last year, Governor Raimondo secured $2 million for the 2017 fiscal year to expand the MAT program, which is now available to eligible inmates for six months to one year. Some 120 RIDOC inmates are on the program on a daily basis, with plans to accommodate 300 a day—not only individuals already on methadone when they enter prison, but also those who aren't but could benefit from it.

The urgency of the Task Force's work intensifies daily. On average four Rhode Islanders die of overdose every five days. Last year 80 percent of overdose deaths in the state involved illicit drugs, and half of those involved fentanyl. Notably, 21 percent of 2014 and 2015 victims had been incarcerated in the two years before death.

> "One of the saddest things I hear is when someone says, 'Thank God I was incarcerated. Otherwise I'd be dead.'"

PATRICIA D'AIELLO

AVENGERS UNITE: The staff of the Center for Prisoner Health and Human Rights, from left to right: Michelle McKenzie, senior project director; Jody Rich, cofounder and director; Milly Perez-Cioe, executive secretary; Alex Macmadu, senior research assistant; Heather Gaydos, reentry project manager; Sarah Martino, project director; Bradley Brockmann, executive director.

Clarke, an associate professor of medicine, agrees with Rich that prison is fertile ground for improving people's health. Back in 1998, as she was completing a fellowship in women's health at Brown, she knew she wanted to work with the underserved and heard there was a job at RIDOC's women's facility. "I was the only one who thought that sounded *amazing*," she recalls. "So I got it."

For the next 18 years, she provided primary care to the female (and eventually male) prison population, and authored studies on the reproductive health and perinatal care of incarcerated women and on the practice of shackling pregnant inmates during labor and delivery.

But in December 2015, Clarke traded her white coat for a gray suit and became RIDOC's medical programs director. Now, instead of directly caring for individuals, she juggles the meetings, emails, and problem-solving that come with overseeing the health care of more than 3,100 inmates—not to mention the thousands of individuals who pass through on a short-term basis. Although she has been called a

STUDENT SIDEKICKS

Brad Brockmann, assistant professor of the practice in health services, policy and practice at the Brown School of Public Health, brings an unequivocally public health lens to his work as executive director of the Center for Prisoner Health and Human Rights. "A vast segment of our low-income population is not receiving proper behavioral health care. And untreated mental illness and untreated substance use disorders lead to involvement in the criminal justice system," he says. Even if they're treated on the inside, many return to the community and the cycle begins again. To break the cycle, he says, "We need not only to work on fixing the war on drugs, but to focus on a public health system that is not functioning for too many low-income individuals."

Founded by Jody Rich and Scott Allen in 2005 and housed in a vinyl-sided triple-decker on the scruffy edge of Providence's East Side, the center is dedicated to translating criminal justice and health research into sustainable policy and practice—for the good of incarcerated people, and for the good of society. Current projects include working with people awaiting trial to provide reentry support such as Medicaid enrollment and post-release care plans, developing best practices for treating LGBTQI prisoners, and developing and running diversion programs for people with substance use disorder. The center also helps run a National Institute on Drug Abuse-funded program to train early-career scholars to conduct research with prisoners and other justice-involved populations.

In addition, the center hosts lectures and panel discussions, and serves as a clearinghouse for information on a wide range of topics—mental health, substance misuse, chronic disease, age, gender, race—and how they intersect with incarceration.

Educating the medical community, policymakers, and the general public is one thing, but the center aims to educate prisoners as well. One way it does this is by harnessing Brown students' strong interest in health, justice, and human rights. "David Lewis told me, 'Follow the students,'" Brockmann says, citing the founding director of Brown's Center for Alcohol and Addiction Studies. "They have been a guiding light and make possible much of what we do."

With Elizabeth Perry ScM'19 MD'19, Brockmann developed a preclinical elective for medical students, Incarceration and Health; Matthew Perry ScM'19 MD'19 helps run it. Both students are in the Medical School's Primary

"drug pusher" by those who oppose MAT, she is quick to make the case for its merits, which include cost effectiveness. "For every dollar we spend on substance use treatment, we *save* 7 to 12 dollars," she says. "It's a win-win."

> Sixty percent of inmates with a substance use disorder relapse within two weeks after their release.

To Clarke, inaction is unacceptable. "We've all heard the definition of insanity: you keep doing the same thing over and over and expect different results. We're there. We know we have to do something different. We have leadership here, with the governor and [RIDOC Director] A.T. Wall. They are really forward-thinking and want to do the right thing, even if it might not feel good in the moment," she says.

Like Brockmann, Montross, and Rich, Clarke considers caring for prisoners a matter of social justice. For many inmates, the medical attention they receive from RIDOC is more than what they were getting on the outside. The irony that for some people prison is the best thing that ever happened to them, at least where health care is concerned, is not lost on Clarke.

"One of the saddest things I hear is when someone says, 'Thank God I was incarcerated. Otherwise I'd be dead.' That really speaks to how unstable some people's lives are in the community: lack of housing, violent relationships, substance use, mental health problems where they can't get treatment," she says. "[This] can be a time out for someone who's here for 30, 60, 90 days. We're not primarily a social service organization. … But for people whose lives are chaotic, for whom this is a better place, I feel it's really important to take that opportunity to provide health care."

Care-Population Medicine Program. Brockmann also received funding from the University's Swearer Center for Public Service to create, with Jennifer Clarke, a multisemester course that provided undergrads and graduate students with the tools and technical support necessary to develop health education programs for incarcerated individuals to address low health literacy in the population. "The students and the formerly incarcerated individuals who worked with them as consultants were amazingly creative and resourceful," Brockmann says.

For that course, Sarah Hsu '17 MD'22 developed an educational curriculum, pamphlet, and survey about pre-exposure prophylaxis (PrEP), antiretroviral drugs taken daily to prevent HIV infection, for inmates about to be released. The health literacy course inspired Hsu to work with Victor Ha '15 MAT'16 and two other Warren Alpert medical students to develop a course in prisoner health at Blackstone Academy, a charter school for grades 9 to 12 in nearby Pawtucket. The course is intended for "a new generation of students who care not just about incarceration and racial and social inequalities," Hsu says, "but what they can do to advocate." ***—S.C.B.***

HI, NEIGHBOR

Even with the most caring and effective doctors on the inside, an inmate's troubles may start all over again when he or she is released. Rich compares reentry to "walking out of a cabin into a blizzard. Where are you going to get money? Your next meal? What about the voices you hear? How do you keep from getting beaten up? You've also got a lot of people with a vested interest in your picking up drugs again." Sixty percent of inmates with a substance use disorder relapse within two weeks after their release.

It helps to have a supporter in the community. If you're lucky, it will be someone like Lynn E. Taylor, MD RES'00 F'05, a fiercely committed advocate for the marginalized and the stigmatized, with a special focus on people infected with hepatitis C virus (HCV). She is director of the HIV/Viral Hepatitis Coinfection Clinic at The Miriam Hospital and founder of Rhode Island Defeats Hep C (see *Brown Medicine*, Fall 2014), a project dedicated to the elimination of HCV in the Ocean State. RID Hep C's goals include ensuring all electronic medical record systems in the state include a prompt for one-time HCV screening of baby boomers, who, along with people who inject drugs, are most at risk of carrying the virus.

"I'm trying to help individuals while working on affecting system-level improvements," Taylor says.

One such individual is Paul Kelly, a 50-something man whose life story reads like that of so many caught in the cycle of incarceration, drug use, and illness: arrested at 14 for stealing, he's been in and out of prison for most of his life. He contracted HIV by injecting drugs while on the inside, where he contracted hepatitis C as well. Off and on for the past 18 years, he's been treated by Rich in prison and by Taylor on the outside.

Taylor, who is an assistant professor of medicine (clinical), says: "How do you really effect change? You hang in over time. Jennifer Clarke and Jody Rich have been doing this for years and years. They met many of our patients in the DOC, diagnosed them with HIV and HCV, became their docs, and said, 'I will stand by you through whatever for forever.' A lot of patients have never had that—not with a family member or friend, not *ever*. The continuity of care and investment by physicians helps people endure and improve their health and lives."

Kelly did endure, but not without a lot of effort—and some setbacks along the way, including a few relapses and stints in federal prison. Today, thanks to Rich and Taylor and his own resilience and determination, Kelly is sober and HCV free. He lives in AIDS Care Ocean State's Sunrise House, a drug- and alcohol-free facility for people living with HIV, and works in construction.

"I'm not on probation, I'm not on parole," he says, smiling. "I'm free. I haven't had that since I was 14 years old."

Kelly is among the 95 percent of incarcerated people who are ultimately released. That's 12 million individuals a year returning to their communities. Put that way, it's hard to keep seeing the health of prisoners as something that only matters behind bars. As Brockmann says, "Prisoner health is *public* health." The question we should be asking ourselves is, Do we want healthy neighbors?

Sarah C. Baldwin *'87 is a freelance writer and host of the bimonthly podcast* Trending Globally. *She is the former editor of* Brown Medicine.

WHAT TH

NATURE'S WRATH: Roche-a-Bateau was one of the hardest-hit areas in Haiti when Hurricane Matthew struck last October. Humanitarian emergency responders in Haiti have assisted 1.4 million people since the storm, according to the UN.

E WORLD NEEDS NOW

BY PHOEBE HALL

MARGARET TRAUB/INTERNATIONAL MEDICAL CORPS

Humanitarian workers and academics work together to find best practices—before the next disaster strikes.

IN THEORY, cholera treatment guidelines are pretty simple. Assess how dehydrated the patient is, get their weight and age, do some quick math, and program the IV pump to drip rehydration fluid into their veins. With some antibiotics, even a severely dehydrated patient will be back on their feet in a few days.

But what if you don't have a scale? Or a calculator? Or, for that matter, an automated drip pump? Suddenly, standards that seem straightforward on paper become extraordinarily difficult to follow in the field.

"That's something that I wouldn't have even thought of if I wasn't there actually doing the work," Adam Levine, MD, MPH, associate professor of emergency medicine, says of his experience managing a cholera treatment unit in Haiti after Hurricane Matthew tore through last October. "Even

though I've been doing research and clinical work in cholera for years, it was only in this trip that it really occurred to me what a barrier these specific operational things were."

The 30-bed cholera treatment unit in Les Anglais, which Levine was managing for International Medical Corps (IMC), faced those very barriers. So he created an Excel spreadsheet on his laptop that calculated the number of drips per minute of rehydration fluid a patient needed based on age and weight, then printed it out and taped it to the wall. Health care workers would estimate a patient's weight, count the IV drips, and track on a chart how many bags of fluid the patient got.

It was an effective, low-tech solution better suited for a low-resource setting. And it neatly illustrates the disconnect that can arise between academic experts working behind desks and humanitarian professionals on the ground.

"The people who work with humanitarian organizations on a regular basis have all sorts of things like this that they know about, things that they encounter in their regular practice," says Levine, who with IMC has responded to multiple humanitarian emergencies, including the Ebola epidemic in Liberia and civil wars in South Sudan and Libya.

"The academics who do research, and know how to do research, need to contact the humanitarian professionals to get the ideas and the insights into what are the real … problems they're having in the field," he says.

But the two groups sometimes mix about as well as oil and water, says Levine, who published the perspective piece "Academics are from Mars, humanitarians are from Venus" in the journal *Clinical Trials* last year. On the one hand, he says, many humanitarians have a "blind faith" that "whatever we're doing must be helping. So why do you need to study it?"

Meanwhile researchers can frustrate even the most receptive humanitarian organizations when they fail to account for the financial and staffing burdens of trial enrollment and data collection in a disaster setting.

An effective emergency response is possible only if these proverbial Martians and Venusians work together. "Humanitarians need the help of academics to be able to develop research studies, or even research with a lowercase 'r'—monitoring and evaluation—to be able to measure whether the programs that humanitarians are doing are having an impact," Levine says.

Last fall, Levine launched the Humanitarian Innovation Initiative (HI²) at the Watson Institute for International and Public Affairs at Brown to bridge the academic-humanitarian divide. With seed money from Watson, HI² is encouraging collaborations between faculty and other professionals from across the University to bring the principles of evidence-based medicine to humanitarian emergency response.

"Dr. Levine has really experienced the challenges of the field—which allows him to know what we're really suffering in the field," says Khaled Almilaji, MD MPH'18, a physician from Syria who treated injured protesters after the government crackdown began there; later, from Turkey, he assisted hospitals in opposition-held areas and helped run a polio vaccination campaign in northern Syria. He came to Brown last fall to earn his Master of Public Health.

It's important for humanitarian organizations "to look at the problem from the outside, what they're doing now, what are the mistakes, how to do it in a better way," Almilaji says. "Researchers are the best people to do this in the long term."

SHAKEN NOT STIRRED: Melissa Godfrey, left, and Lauren Park make oral rehydration solution at a humanitarian response training workshop last November.

DAVID DELPOIO

UNINTENDED CONSEQUENCES

As Levine focused on global health in the MD-MPH program at the University of California's San Francisco and Berkeley campuses, he became aware "that humanitarian response could actually do harm if it wasn't done properly," he says.

"I think the lay perception is that humanitarians rush in and do the best that they can, and anything that they do is great," he says. "In fact, just like in medicine, we can do harm as well as good. And the key is knowing the difference

FRONTLINE RESPONDER: Adam Levine, center, manages a cholera treatment unit in Haiti after Hurricane Matthew.

between the two. And really the only way to do that is through training, experience, and research."

Levine came to the Warren Alpert Medical School in 2009; the following year he joined IMC's emergency response team, after the earthquake in Haiti. There he saw firsthand "the unintended consequences of humanitarian aid" when he tried to find an antibiotic in a warehouse where a local hospital was storing tons of donated medical supplies, most of them unsolicited. As he searched he came across stacks of boxes of a prostate cancer therapeutic that was about to expire. "An entire palette in the warehouse was taken up by something we don't need, that a pharmaceutical company unloads on us to get a tax write-off, and I can't find the antibiotic," Levine says.

During his emergency medicine residency, at Harvard, Levine got involved with the Harvard Humanitarian Initiative, where he learned about efforts to professionalize the humanitarian field. "Previously, it has been very much like the Wild West," he says: aid workers, untrained in emergency response, would rush into a disaster area and treat and feed and house whoever they could in whatever way they saw fit. But they rarely conducted needs assessment surveys or kept detailed records of what they did, and they took any lessons learned home with them, leaving responders to the next disaster to start virtually from scratch. There was "no effective way, or systematic way, of documenting prior experiences so that people could learn from it in the future," Levine says.

Dave Polatty, MA, participated in humanitarian operations during his 11 years of active duty as a surface warfare and naval flight officer. Since joining the civilian faculty of the US Naval War College in Newport, where he's an associate professor, he's helped plan for potential humanitarian operations and relayed his experiences into teaching and research. In 2010, Polatty assessed the Navy's mission to Haiti after the earthquake. Like Levine, he saw the repercussions of a haphazard response.

"There was a huge military response from around the world that in hindsight could have been better coordinated," Polatty says. "Like most major disasters, everything was out of control for the first few days and weeks of the response. No one felt like anyone had control of what was going on down there." The US military needed to figure out how to respond more efficiently and effectively in the future; rather than reinvent the wheel, he "picked up the phone and called Harvard." He affiliated with their humanitarian initiative, and in 2015 founded the Civilian-Military Humanitarian Response Program, of which he's the director, at the Naval War College. The years of work paid off when Hurricane Matthew hit Haiti last fall, and "many of the lessons learned from the earthquake were put in place," he says.

Polatty and Levine finally met last year, and immediately found common ground. "We're in this tiny little state and 45 minutes apart on a bad day, and yet we were both coming up with the same conclusions from two totally different angles, which shows you there really is a need," Polatty says.

"JUST LIKE IN MEDICINE, [HUMANITARIANS] CAN DO HARM AS WELL AS GOOD."

"I love Adam's program because he recognizes the need to do true, evidence-based research in the field and bring it back and make it accessible in the classroom to future humanitarian leaders."

Brown and the Naval War College have a collaborative research agreement that Polatty says is critical for humanitarian research. "If we bring Brown students together with military students … there may be some really neat opportunities to have these future leaders meet one another beforehand, discuss these problems in an academic environment, which is very safe, and begin to build trust between one another, because we know there's a high probability they'll be working together in these complex environments," he says.

YVON VILIUS/INTERNATIONAL MEDICAL CORPS

BIG TENT

For better or worse, medical responders get all the glory when disaster strikes. But humanitarian emergency response needs public health experts to contain disease spread and coordinate vaccination campaigns; engineers to build shelters and treatment units; water, sanitation, and hygiene specialists; anthropologists to work with local communities; political scientists to work with local governments and aid in reconstruction efforts.

Brown has experts in all these areas, with interest and experience in disaster response; HI² is an attempt to gather them under one umbrella and help them work together.

"It's very easy to get siloed," says Robert Blair, PhD '06, the Joukowsky Family Assistant Professor of Political Science and International and Public Affairs. Blair has worked for years in Liberia, including during the Ebola epidemic; at the same time Levine was managing a treatment unit in Bong County, Blair was in Monrovia, trying to understand how government mistrust affected citizens' willingness to take steps to contain the spread of the virus.

"Just knowing who the other people are at Brown who are doing this sort of work, that's an incredible value added for me," says Blair, who is one of the initiative's affiliated faculty. "Collaborating across these disciplinary lines is tricky, because we come from disciplines that have different standards with different methods, with different target audiences. So I think that will be the next challenge: to see whether this really can spark collaborative ideas."

HI² is starting small, organizing talks and workshops; pointing undergraduates to such courses as Human Security and Humanitarian Response, Post-Conflict Politics, and Displacement and Refugees in the Middle East; and collaborating with other institutions.

Last October, Levine and three colleagues from Brown, along with academics, humanitarian workers, and military leaders from across the country, convened in Newport for an intensive workshop on Civilian-Military Humanitarian Response. "It was just two days of discussions about how to create meaningful research questions to advance humanitarian response in the future," Polatty says. "In two days we made a year of progress because we were all in a room together." Levine and Polatty are planning to cohost a follow-up event at Brown this summer, to continue to explore ways civilian and military responders can work together more effectively.

Levine eventually wants to offer humanitarian response training through HI²; last fall he led the first half-day, simulation-based workshop for MD, MPH, and MPA students, based on an undergraduate course he leads in the spring. "We're going to cram an entire semester's worth of classes into four hours," he said by way of introduction. After Levine gave a short lecture, the students worked in interdisciplinary groups of four to devise a needs assessment survey for hurricane survivors, and calculate rates of diarrheal disease and prepare a basic oral rehydration solution using salt, sugar, and limes for a refugee camp.

Participants compared statistical methodology and passionately debated the purpose of and questions for the needs assessment survey. As one group considered asking about satisfaction with camp facilities, Melissa Godfrey, RN MPH'18, whose studies focus on global health policy, reminded them: "This is a needs assessment, not an effort to institute morale or build community. It is hard because there is so much more we want to know than what's feasible and realistic in a case of an emergency."

> "YOU REALLY HAVE TO EVALUATE EVERY SITUATION, BECAUSE THAT TIME IS AS VALUABLE AS TREATING PATIENTS."

In a debrief over lunch, Levine agreed, advising the right balance between quantitative questions like "do you have shelter?" and more qualitative ones about issues they face finding shelter. "If you ask whether [the shelter is] adequate, the answer will always be no," he said. "It's important to pinpoint the actual needs."

"It was great we had an interdisciplinary workshop

ASK AROUND Adam Levine, right, shows Henry Sookram, left, and Khaled Almilaji how to randomly survey a refugee camp using a model made with sugar cubes and wooden stirrers.

DAVID DELPOIO

where people brought their own expertise to the table," Lauren SunHye Park MD'19 says later. For example, while she focused on acute health problems for the survey questions, she says her MPH and MPA colleagues "thought of the bigger picture." She adds: "We prioritize things a little differently. We were able to partition the work by our strengths."

Park, who hopes to volunteer in disaster settings as a physician, says she valued the emphasis on working in low-resource settings. "That's a big thing we don't learn in med school," she says. "It's not a cookie cutter for every disaster. You really have to evaluate every situation, because that time is as valuable as treating patients."

IDEAS INTO ACTION

Levine's experience as a frontline responder and a researcher makes him uniquely qualified to lead HI². During the Ebola epidemic, he served as director of the Ebola Research Team for International Medical Corps, and played an intermediary role between IMC staff and the NIH, which was launching a randomized controlled trial of an experimental Ebola treatment. He impressed on the researchers the impact their activities would have on IMC's resources, from water and protective equipment to transportation and accommodations; and explained to aid workers the nitty-gritty details of running a clinical trial, including concepts like randomization.

That's exactly the type of understanding that HI² can foster on a larger scale. In addition to receiving training at Brown, humanitarian aid workers affiliated with the initiative, like Khaled Almilaji, advance its mission by sharing what they've learned in the field. ("We're working together and learning from each other," Levine says. "We learn as much from Khaled as he does from us.") The initiative is supporting 25 international fellows—nearly all from resource-limited countries affected by disaster—to conduct interdisciplinary, evidence-based research with Brown faculty and students, and then put their findings into action back home.

Some problems researchers tackle will be dramatic—like Levine's ongoing work to simplify diagnosis of dehydration in cholera epidemics—while others, related to policies and procedures, may seem prosaic. But all will be potentially life-changing for humanitarian responders. Almilaji says streamlining disaster response procedures and reporting, for example, would ease a major burden on local humanitarian organizations in Syria and Turkey, which are "overwhelmed" by the different rules and guidelines of each international NGO from which they get funding and other assistance.

"A huge problem in humanitarian aid is there's not a tremendous amount of consistency," Levine agrees. "The same way we worked to improve standardization in medicine," in the form of national, evidence-based guidelines, "we definitely need something like that in humanitarian work."

"If they're speaking the same language, if they have the same criteria, terms, units for their reports, it would be more easy to coordinate and find gaps in the work and fill it quickly," Almilaji says. "Otherwise those who suffer are the civilians."

At the end of the day, that's who both humanitarians and researchers want to help.

ALUMNI ALBUM

CHECKING IN WITH BROWN MEDICAL ALUMNI

FUTURE ALUMS: Members of the MD Class of 2020—the Medical School's largest class yet—received their first white coats last October.

ADAM MASTOON

CLASS NOTES

MD

1985

Richard A. Parker is chief medical officer of Acadia Healthcare Solutions, a Burlington, MA-based health care data aggregation and analytics technology company founded in 2002. The company announced it had recently received $30 million of growth capital from Merck GHI, GE Ventures, and other existing investors.

1986

Michael Siegman '83 is a general and thoracic surgeon at Suncoast Surgical

CURRENT STATUS?

Career news, weddings, births—your classmates want to know. Go to **med.brown.edu/alumni** and click on "Updates and Class Notes."

Associates in Brandon, FL, which he founded in 2003. He is the former chief of staff at Brandon Regional Hospital and is also affiliated with Memorial Hospital of Tampa.

1990

Christopher K. Breuer is codirector of the Tissue Engineering Program at Nationwide Children's Hospital in Columbus, OH.

Peter Kilmarx was promoted to rear admiral (assistant surgeon general) in the US Public Health Service, the uniformed service of public health professionals. An expert in infectious disease research and global health, Peter is deputy director of the National Institutes of Health's Fogarty International Center, which addresses global health challenges. He previously held leadership positions with the Centers for Disease Control and Prevention.

1991

Emma Simmons MPH'04 RES'94 and **Scott Allen** RES'94 are the founders of the Access Clinic in partnership with the Riverside University Health System in Moreno Valley, CA. The clinic, of which Scott is the medical director, offers primary care for developmentally disabled adults using the "patient-centered medical home" model of care. Emma is a clinical professor and associate dean of student affairs and Scott is a clinical professor of internal medicine at the UC Riverside School of Medicine. They live in Riverside and have two children.

1993

Robert Pierce joined the board of Immunomic Therapeutics Inc., a privately held clinical stage biotechnology company. He is the scientific director of experimental pathology at the Fred Hutchinson Cancer Research Center in Seattle.

1995

Joanne Wilkinson, MSc '90 RES'98 is a family medicine physician at the Memorial Hospital of Rhode Island Family Care Center and an adjunct clinical assistant professor of family medicine at the Warren Alpert Medical School. Her research includes ways to improve mammography rates among women with intellectual disabilities, faculty development in family care, and social adjustment of stroke survivors.

Peter Kilmarx was promoted to rear admiral (assistant surgeon general) in the US Public Health Service.

1996

Joseph Diaz MPH'09 was appointed associate dean for diversity and multicultural affairs for the Division of Biology and Medicine at Brown in November. Joe had served as interim associate dean since September 2015.

Jonathan Kurtis '89 PhD'96 was nominated for and accepted as a member of the American Society of Clinical Investigation for his work on malaria antigens and vaccines. He is a professor of pathology and laboratory medicine at the Warren Alpert Medical School and director of the Lifespan Center for International Health Research.

1997

Srihari Naidu '93 is the director of interventional innovation and director of the multicenter hypertrophic cardiomyopathy program at Westchester Medical Center and Maria Fareri Children's Hospital in Valhalla, NY. An interventional cardiologist, he previously directed the Cardiac Cath Lab, Interventional Fellowship Program, and HCM Center at Winthrop-University Hospital. Hari is a trustee of the Brown University Corporation.

2003

Hassen Sayeed, JD, joined the law firm Paul Hastings in New York City as a partner in the litigation department. He has more than a decade of experience counseling life sciences companies in all aspects of complex patent litigation. He also has litigated cases involving biotechnology and medical devices. A resident of Madison, NJ, Hassen was previously a partner at Ropes & Gray.

Barrett W. Bready '99 is the CEO of Providence genomics firm Nabsys 2.0, which has produced long-range, non-optical maps of whole human genomes using its high-definition electronic DNA-mapping platform. The maps have been used for genome-wide analysis of structural variants. Nabsys, which Barrett founded in 2005, collaborated with a consortium hosted by the National Institute of Standards and Technology to develop the technical infrastructure to enable translation of whole human genome analysis to clinical practice. In November, Barrett was appointed to the MedMates board of directors.

2004

Andrea Tak-Ling Jue '00 married Darryl Chiang on September 10 in Manhattan. She is an ophthalmologist at Cataract &

Corneal Associates and at Advanced Eye Care in New York City.

2008

Apara Dave is an infectious disease specialist at Core Physicians in Exeter, NH. She completed her residency at Duke University Medical Center and a fellowship in infectious disease at Beth Israel Deaconess Medical Center in Boston.

David L. Ain '04 joined the clinical faculty of the University of Pennsylvania. He performs cardiac and endovascular interventions at Pennsylvania Hospital and sees patients at Penn's practice in Washington Square. He can be reached at David.Ain@uphs.upenn.edu.

2009

John J. Rommel '05 joined Cape Fear Heart Associates in Wilmington, NC. A cardiologist, John specializes in the diagnosis and treatment of acute and chronic congestive heart failure through medication, mechanical circulatory support, and cardiac transplantation. He completed his residency as well as fellowships in cardiovascular disease and advanced heart failure and transplant cardiology at the University of North Carolina Hospitals in Chapel Hill.

Neel Shah, MPP '04 and his wife, Julie, welcomed a son, Luca, in September. They live in Cambridge, MA, where Neel is an assistant professor at Harvard Medical School and associate faculty at Ariadne Labs.

George Turini '05 ScM'16 RES'14 F'16 joined Southcoast Physicians Group in Fairhaven and Fall River, MA. He earned a master's of science in clinical and translational research at Brown, in addition to completing a residency in urology and a fellowship in minimally invasive urologic surgery at Brown University/Rhode Island Hospital. He is an active member of the American Medical Association, the national and New England sections of the American Urology Association, and the Endourological Society.

2010

Peter Chai '06 MMS'07 RES'14 joined the new division of toxicology at Harvard Medical School and Brigham and Women's Hospital as an assistant professor of emergency medicine and medical toxicology in February. Previously he was an assistant professor of emergency medicine in the Division of Medical Toxicology at the University of Massachusetts Medical School. In January, Peter was lead author of a pilot study in the *Journal of Medical Internet Research* that found opioid pills tagged with ingestible biosensors can effectively monitor compliance in real time. (See *Brown Medicine*, Winter 2016.) Co-authors included **Stephanie Carreiro**, MD RES'13.

Neel Shah and his wife, Julie, welcomed a son, Luca, in September.

2011

Rajiv Kumar '05 is president and chief medical officer of Virgin Pulse, which supports workplace wellness programs and in February 2016 bought ShapeUp, which Kumar cofounded. In his new role he heads the Virgin Pulse Institute,

EYE ON ALUMNI

Where the Kids Are

A school-based clinic strives for total health.

About a quarter of Baltimore students are chronically absent from school every year, many for acute illness and chronic conditions like asthma. Unsurprisingly, kids who miss a lot of school fall behind academically, are less likely to graduate on time, and are more likely to drop out. It's a vivid illustration of how health, education, and poverty can intersect to set a child up for a lifetime of lower achievement and lost potential.

Pediatrician Tina L. Cheng, MPH '83 MD'86 has devoted her career to addressing these disparities. "All the work I've done has focused on vulnerable populations and trying to figure out how to interrupt the cycle of disadvantage," she says. "We need to invest in making sure children are growing up healthy, ready to learn, and on the trajectory to productive adulthood."

Cheng, who is the director of the Department of Pediatrics for the Johns Hopkins University School of Medicine and pediatrician-in-chief of The Johns Hopkins Hospital, says health and educational disparities are "totally intertwined." But when students have access to school-based health services, studies have shown that attendance improves. "If we are really going to address health disparities, we can't do it all in the doctor's office," she says. "We really need to go where the kids are."

In 2014 Cheng partnered with Sara Johnson, PhD, MPH, an associate professor of pediatrics and of public health

Tina L. Cheng

> "If we are really going to address health disparities, we can't do it all in the doctor's office."

at Johns Hopkins, to found the Ruth and Norman Rales Center for the Integration of Health and Education. The health center serves more than 1,500 students at two Baltimore charter schools, and logs about 100 school nurse and doctor visits a day. The medical staff, including a physician, treat the usual headaches, sore throats, and playground scrapes. They diagnose and treat all manner of illnesses, and prescribe and fill medications. But that's just the beginning.

"We wanted a more comprehensive approach, integrated into a school," Cheng says. The staff screen schoolwide for vision, dental, asthma, and other problems; keep immunizations up to date; and teach kids to manage chronic conditions like asthma and diabetes as well as their medications. The center also has embedded health education into the curriculum, including physical activity and nutrition programs.

Evaluations of the Rales Center's impact on health and academic outcomes are ongoing, Cheng says, but after two years, already "we have been able to decrease emergency department visits for common conditions like asthma, and decrease absenteeism at school because we take care of health conditions in the clinic."

Cheng wanted to be a physician ever since her kindergarten days in Iowa, but she shied away from pediatrics in defiance of adults who told her it was "a good field for a woman."

"But then when I did my pediatrics clinical rotation [at Brown], I loved it," she says. She wanted the opportunity to help kids "make decisions about health behavior that can last a lifetime." Her interest in preventive medicine and social determinants of health took her to UC Berkeley, where she earned her MPH.

Research and programs on health disparities often focus on adults, Cheng says; she educates and empowers clinicians, researchers, and policymakers to address the inequities that affect children, too. "They're a little over 10 percent of health care costs in our country, but they're 100 percent of our future," she says. "They don't vote and most kids are fortunately healthy, so I think sometimes they're not prioritized in health programs that tend to focus on high-cost conditions."

Cheng has spearheaded numerous initiatives to tackle child health disparities, including the Healthy Generations Program in Washington, DC, which works with teen parents and their children and aims to reduce teen pregnancy and improve child and family outcomes; and the NIH-funded DC-Baltimore Research Center on Child Health Disparities, where she's the principal investigator of a project to prevent youth violence.

She also sees patients and trains residents at Hopkins' Harriet Lane Clinic. "I don't want to ever give that up," Cheng says of her practice. "That's the reason why I came into medicine. Whatever I do [at the clinic] informs what I do [elsewhere]."

Cheng, who met her husband, Ken Conca, PhD '82, when they were undergrads, says their daughter, who's applying to medical school, and their son, a college sophomore, influence her as well. "Being a parent makes you a better pediatrician," she says. "It is a great education."

In her limited spare time, Cheng loves running and volunteers locally. But she can't imagine spending less time at work. "I always feel I could do more," she says. Becoming director of pediatrics at Hopkins, last year, gave her "a platform to … make sure every child is healthy."

"That there's such a high proportion of kids living in poverty is a real shame," she says. "We need to try to address that, and also try to buffer the impact that poverty and other adverse experiences have on kids' developmental trajectory."

—Phoebe Hall

JOHNS HOPKINS MEDICINE

EYE ON ALUMNI

Each One, Teach One

A nonprofit provides sustainable cancer screening tools.

IN COUNTRY: Maggie Carpenter, center, led a training visit to Senegal in 2016.

When Maggie Carpenter, MD '91 visited Ethiopia in 2010, there was no cervical cancer screening being done in the northern Gondar region—even though the rate of death from the disease is extremely high there.

Carpenter knew the Pap smears performed in developed countries are too expensive and too involved to replicate in low-income ones. She realized there's another process, called visual inspection with acetic acid, or VIA, that could work: the screening uses vinegar, which is inexpensive.

Carpenter founded Go Doc Go, a nonprofit made up of volunteer physicians who travel to under-resourced countries to outfit local health care providers with equipment and supplies for VIA as well as outpatient procedures to treat lesions. Volunteers train providers how to do the screenings and treatment so that the program can continue after volunteers leave. All funding comes from private donations.

"As a primary care doctor wanting to get involved in international health, there weren't a lot of short-term opportunities, especially ones that were sustainable. I wanted to make sure that I was doing something that could continue whether I was there or not," Carpenter says.

> "I wanted to make sure that I was doing something that could continue whether I was there or not."

TEAM EFFORT: Senegalese physicians, midwives, and nurses were trained to screen for cervical cancer using visual inspection techniques.

COURTESY GO DOC GO (2)

One of the first patients screened through Go Doc Go in Gondar had traveled nearly 400 miles to the hospital for something unrelated when doctors found a lesion on her cervix. She was the first woman there to receive cryotherapy.

"Had she not happened to come to the hospital that day for something else, she would have more than likely ended up with cervical cancer in a few years," Carpenter says.

Roger Waltzman '88 MD'92 is an oncologist who did clinical research in gynecological cancers. He and Carpenter met

as undergrads at Brown and reconnected when she started Go Doc Go. Waltzman now sits on its board.

"It became clear to me that sustainability of an organization is critical in order for it to scale and grow," Waltzman says. "[Go Doc Go] enables providers on the ground to do the screening with equipment that remains there indefinitely. We can expand, but they don't need us forever."

Kristen Austin, MD, a gynecologist based in Seattle, was teaching at the University of Gondar's hospital in 2014 when Carpenter held a three-day training program for hospital staff, medical students, and residents.

When Carpenter left Gondar, Austin continued the program and made sure the equipment was being used.

"Because [Carpenter] had already established a relationship there and I was able to continue the training portion of it, we were able to get a solid program on the ground," Austin says.

By the time Austin returned to Seattle a year later, the screening program was integrated with the residency training program at the university.

To date, Go Doc Go has screened approximately 2,500 women in Ethiopia and has new programs in Senegal and Haiti. The organization is considering developing a program to supply IUDs to health care providers in Haiti because of the threat of Zika there and the link between the virus and microcephaly.

Waltzman hopes to develop a program for Warren Alpert medical students or residents that would send them to under-resourced countries like Ethiopia to work on cancer prevention.

"There are so many different training experiences for students and residents at Brown. This would add immeasurably to that," he says. ***—Amy Anthony***

For more info, *visit godocgo.org.*

which advances research, analytics, and best practices in the workplace well-being and engagement industry.

2012

Alina Markova is an assistant attending dermatologist at Memorial Sloan Kettering Cancer Center in New York City. She directs the inpatient dermatology consult service and provides outpatient supportive oncodermatology care. She completed her dermatology residency at Boston Medical Center.

Jennifer Yong and **Michael Kim** '10 were married October 15, 2016, in Briarcliff Manor, NY. Both are third-year residents at Westchester Medical Center, she in ophthalmology, he in neurosurgery. They live in Elmsford, NY.

RESIDENTS

2000

Lynn E. Taylor, MD, F'05, assistant professor of medicine (clinical) at the Warren Alpert Medical School, was named a member of the Centers for Disease Control and Prevention and Health Resources and Services Administration Advisory Committee on HIV, Viral Hepatitis and STD Prevention and Treatment. The committee advises HHS, CDC, and HRSA regarding objectives, strategies, priorities, and policies for HIV, viral hepatitis, and other STDs. In May 2016, Lynn received the Viral Hepatitis Testing Recognition Award during the National Hepatitis Testing Day Observance at the White House.

Lynn Taylor received the Viral Hepatitis Testing Recognition Award at the White House in May.

2013

Kevin Hui '07 and Lisa Gomi '10 married on May 14, 2016, at the Crane Estate in Ipswich, MA. Attendees included **Anna Hsu Chon** '10 MD'14, **Courtney Olson-Chen** '06 MD'10, and **Justin Jihoon Yoon** '09 MD'13 F'18. Kevin practices family medicine at South Cove Community Health Center in Boston's Chinatown.

John Luo '09, president and founder of Doctor's Choice, an organization that helps patients choose Medicare coverage, published a book, *Retiree's Guide to Medicare*, in October. Topics include choosing a plan, understanding the supplemental and prescription plans, and when and how to sign up.

2014

Aaron Kofman will begin a two-year fellowship with the CDC's Epidemic Intelligence Service in July. He will graduate from the Internal Medicine Residency Program at the UC San Diego School of Medicine in June.

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ALUMNI ALBUM

2005

Amity Rubeor, DO, recently became Rhode Island's only doctor certified in performance medicine, designed for dancers, musicians, and others active in the performing arts. Amity completed the Brown University-Memorial Hospital of Rhode Island Primary Care Sports Medicine Fellowship in 2015. She practices at Care New England Medical Group Sports Medicine in East Greenwich, RI, and is an assistant professor of family medicine (clinical) at the Warren Alpert Medical School.

> Elizabeth Lowenhaupt joined the board of directors of the National Commission on Correctional Health Care.

2006

Uma Kolli, MD, opened a family medicine practice, Fall River Family Health, in September. She has provided primary care to patients of all ages in Fall River, MA, for 10 years, and has special interests in women's health and preventive care. Her practice is affiliated with Saint Anne's Hospital.

2007

Elizabeth Lowenhaupt, MD, an assistant professor of psychiatry and human behavior (clinical), of pediatrics (clinical), and of medical science (clinical) at the Warren Alpert Medical School, joined the board of directors of the National Commission on Correctional Health Care. She completed the Combined Training Program in Pediatrics, Psychiatry, and Child and Adolescent Psychiatry at Brown. She is the associate director of training for both the triple board program in pediatrics, psychiatry, and child and adolescent psychiatry and the child and adolescent psychiatry fellowship at Rhode Island Hospital. She also codirects both the psychiatry and neurosciences clerkship and the brain sciences course for the Medical School.

Taro Minami, MD, received the Beckwith Family Award for Outstanding Teaching from the Warren Alpert Medical School Department of Medicine in May 2016. Taro is an assistant professor of medicine (clinical) in the Division of Pulmonary, Critical Care, and Sleep Medicine, and the director of simulation and ultrasound training and the fellowship site director for pulmonary and critical care medicine at Memorial Hospital of Rhode Island. He also teaches Critical Care Ultrasonography for the American College of Chest Physicians.

2009

Ali Ahmad, MD, joined Wichita Surgical Specialists last fall as the Kansas city's first surgical oncologist. His interests include hepatobiliary, pancreatic, esophageal, gastrointestinal, and endocrine surgery and hyperthermic intraperitoneal chemotherapy. He completed an internship in general surgery at Brown; residency at the University of New Mexico; and fellowship in surgical oncology at Boston University. He and his wife, Umber, have two children.

2013

Stephanie Carreiro, MD. See **Peter Chai** MD'10.

Sophia Rizk, MD F'16 joined Southcoast Physicians Group Medical Oncology in Fairhaven and Fall River, MA. After receiving her MD from New York Medical College, she completed her internship, residency, and chief residency in internal medicine, followed by her fellowship in hematology and medical oncology, at the Warren Alpert Medical School. She belongs to a number of professional societies, including the American Society of Hematology and the American Society of Clinical Oncology.

2014

Antonella Fine, MD F'16 joined Sturdy Memorial Hospital in Attleboro, MA, as the physician director of Hospital Infection Control. She completed her internal medicine residency and adult infectious disease fellowship at the Warren Alpert Medical School. Her areas of practice include general infectious diseases, hospital-acquired infections, infection control, antimicrobial stewardship, and HIV primary care. Her husband, **Sean Fine**, MD RES'14 F'17, is a gastroenterology fellow at Rhode Island Hospital.

Alla Goldburt, MD, joined Hallmark Health Medical Associates' family practice in Stoneham, MA. A family medicine physician with a focus on obstetrics, her clinical interests include preventive medicine, adolescent health, prenatal care, reproductive health, and end-of-life care. She previously practiced at the Primary Care Center in Plainville, MA.

2015

Stephen A. Klinge, MD, joined Orthopaedic Associates in Marlborough, MA, as an orthopedic surgeon. He completed his residency and advanced orthopedic trauma fellowship training at Brown, and a fellowship in sports medicine at the University of Connecticut, where he trained under a shoulder surgeon and an

SINCE YOU ASKED

Gretchen E. Green '96 MMS'98 MD'00

RADIOLOGIST

Vice Chair, Board of Directors of the National Women's History Museum

Greensboro, NC

How did you become interested in the history of medicine and women's history?

In high school, I wrote a history paper on Dr. Bertha Van Hoosen, the founder of the American Medical Women's Association. The paper placed second nationally at the National History Day competition, and I was hooked on history. Her life was such an inspiration that it has kept my fascination ever since.

I continued my history research through the Program in Liberal Medical Education, combining the history of the pharmacology of twilight sleep, the obstetrical anesthesia technique developed by Dr. Van Hoosen, with the history of women physicians' actions during the Progressive Era, culminating in a master's degree. I am eternally grateful to the PLME and especially Dean Edward Beiser for the support I needed to pursue that study.

There is a great need to educate everyone on the nuances of women's history, so everyone can benefit from knowing women's diverse accomplishments. That is what motivated me to join the board of directors of the National Women's History Museum, where I serve as vice chair.

How does this inform your practice?

My interest influenced my decision to specialize in women's imaging in radiology, primarily breast, obstetrical, and pelvic imaging. History isn't just a look back in time, it's how we look ahead to what we can do better in the future. In the field of childbirth anesthesia, equality in pain relief for women in 1915 became a rallying cry for basic human rights. Women argued that receiving medical care was a key indicator of their social standing, and played an active role as advocates for their own health care decisions. The desire to organize on behalf of medical causes was just as important for women 100 years ago as it is in 2017.

What's on your music playlist?

My favorite artist is Peter Gabriel, but my playlists contain everything from Gregorian chant to hip hop. Some songs are great for running, others are more meditative.

How do you manage work/life balance?

Cooking helps me keep things in perspective and to reframe "mistakes." We spend our professional days as physicians so afraid of doing something wrong. Cooking is much more forgiving, and a way I show love for my family. If I burn something in the kitchen, I call it caramelized. If it's not very pretty, it's rustic. I love Julia Child's quote: "Learn how to cook—try new recipes, learn from your mistakes, be fearless, and above all have fun!"

Helping to build the National Women's History Museum has become a lifeline for me. Our goal is to build the first museum of its kind in any nation's capital, to serve as a physical manifestation of the idea that women's history is much more than most of us know, a diverse collection of stories begging to be told.

> History isn't just a look back in time, it's how we look ahead to what we can do better in the future.

Who lives at home with you?

I am married to a physician and we have two children, ages 6 and 8. Being a two-MD family definitely has its challenges, and we have taken a creative approach to do enough of all the things we need and want to do. After 10 years as a full-time partner in private practice, I took a sabbatical last fall to carefully consider my next life chapter, and to work on the museum's next phase of development. ***—Kris Cambra***

For more about Gretchen, *visit brownmedicinemagazine.org.*

COURTESY GREEN

anterior knee pain expert. Steve and his wife live in Wayland, MA.

Edward Hurley, MD F'18 is president-elect of the Junior Section of the Society for Pediatric Research of the American Pediatric Society. A neonatology fellow at Women & Infants Hospital, he will begin his one-year term as president on July 1, 2017. Ed and his wife live in Seekonk, MA, and have a daughter.

2016

Thomas Holsaeter, MD, joined the hospitalist team at Orange Regional Medical Center in Middletown, NY. He received his medical degree at the University of Oklahoma College of Medicine and completed his internal medicine residency at the Warren Alpert Medical School.

FELLOWS

1978

Barbara Stonestreet, MD F'78, a professor of pediatrics at the Warren Alpert Medical School and staff neonatologist and director of the fellowship program in Neonatal-Perinatal Medicine at Women & Infants Hospital, received two two-year grants totaling $881,100 from the National Institutes of Health to determine the most effective treatment strategies for full-term and premature infants exposed to hypoxia-ischemia and other perinatal brain injury.

2016

Nancy Kang, MD, a gastroenterologist, joined the staff of St. Francis Hospital and Medical Center in Hartford, CT. She earned her medical degree at Boston University School of Medicine and completed her internal medicine residency at Beth Israel Deaconess Medical Center/Harvard Medical School. She is a graduate of the gastroenterology fellowship at Brown/Rhode Island Hospital.

OBITUARIES

ALUMNI

XIAN MARIE O'BRIEN PHD'10

Xian O'Brien (née Christian Shaver), 42, died unexpectedly November 15. She graduated from MIT with a bachelor's degree in biology and cognitive studies in 1998, and earned a PhD in the Pathobiology Graduate Program at Brown in 2010. She completed her graduate and postdoctoral research in the Department of Surgery at the Warren Alpert Medical School and was appointed an instructor in surgery. Her research focused on the development of new drugs to improve the ability of the human immune system to fight disease. She published scientific papers and trained a number of young investigators.

She is survived by her partner, Michael Cross, and her mother. Gifts in her memory can be made to the East Greenwich Animal Protection League, PO Box 184, East Greenwich, RI 02818; or Hasbro Children's Hospital, Hasbro Children's Hospital/Rhode Island Hospital Foundation, PO Box H, Providence, RI 02901.

PETER SMITH, MD F'77

Peter Smith, 75, died December 9 after a 10-year struggle with Parkinson's disease and Lewy body dementia. He attended medical school at the University of Basel in Switzerland and completed residency at T. C. Thompson Children's Hospital in Chattanooga, TN, in 1975. After completing the fellowship in pediatric hematology and oncology at Rhode Island Hospital in 1977, he joined the faculty of Brown University, where he loved teaching, the intellectual challenge of medicine, and the emotional intensity of working with children and their families. He served as the pediatrics clerkship director from 1984 to 1991, and received the Senior Citation from the Brown MD Class of 1986.

In 1987, Dr. Smith received the Senior Class Award. He was recognized several times during his career with awards for his service to patients with hemophilia and served as the medical director of the Rhode Island Hemophilia Program for many years. He was appointed professor emeritus of pediatrics in 2001. He spoke French, German, and Spanish fluently and enjoyed traveling the world. He is survived by his wife, Heidi; two children; and two grandchildren.

FACULTY

JOHN E. FARLEY JR., MD

John E. Farley Jr., 92, died October 18 in Providence after a brief illness. A veteran of the US Army, he received his bachelor's degree from Providence College and his medical degree from Tufts University in 1948. He trained at Boston-area hospitals, including the Floating Hospital for Children and Boston Children's Hospital, and completed his residency at St. Joseph's Hospital in Providence. In 1953, he launched a pediatric practice based out of his family's Riverside, RI, home that he would operate for the next four decades. An "old-school" doctor, he made house calls, black leather bag in hand, and took patients' phone calls late into the night. With a firm belief that physical and mental health are tightly intertwined, he had a long-standing affiliation with Bradley Hospital, where he served for decades as director of pediatrics. As an adjunct clinical professor at Brown University, he trained medical residents at Bradley in the psychiatric dimensions of children's health. In the early 1960s he was instrumental in founding the East Providence Community Mental Health Center, and the Adams-Farley Counseling Center in Riverside is conamed in his honor.

Dr. Farley was a fellow of the American Academy of Pediatrics and the chair of its Rhode Island chapter. An early ad-

vocate of the Head Start Program, he promoted universal school breakfasts for Rhode Island children, work for which he was honored in 2000 by the Rhode Island chapter of the AAP. In retirement he continued to work with the George Wiley Center in Pawtucket on behalf of disadvantaged Rhode Island children. He is survived by his wife, Mary; three sons; five granddaughters; and three great-grandchildren. Memorial donations may be made to the Bradley Hospital Foundation, PO Box H, Providence, RI 02901; or East Bay Center, 610 Wampanoag Trail, Riverside, RI 02915.

CATHERINE E. KERR, PHD

Catherine E. Kerr, 52, died November 12 in Watertown, MA, of multiple myeloma. A graduate of Amherst College, she completed a PhD in American studies at Johns Hopkins University in 1994. In 1995, while teaching at Harvard, she was diagnosed with multiple myeloma. She researched the constantly shifting range of therapies for the disease and participated fully in treatment decisions. Seeking guidance from teachers in the healing and martial arts, she embarked on intensive daily practice of qigong, tai chi, and meditation. After years of humanities training, she started down a new path in science, aided by a career development award from the National Institutes of Health to support retraining.

At Harvard Medical School, Dr. Kerr contributed to important early findings in the cognitive neuroscience of meditation. Her emerging work provided novel ways of measuring how mindfulness and tai chi can transform practitioners' bodily awareness and sensory acuity. In 2011, she joined Brown's Department of Family Medicine and was named director of Translational Neuroscience in the Contemplative Studies Initiative. At Brown she created the Embodied Neuroscience lab, whose main focus was the Vitality Project, a clinical trial she designed to investigate the healing role of qigong in cancer survivors. A talented teacher of contemplative practices and mentor of young students, she was instrumental in shaping the emerging field. In 2015, she traveled to India to present pioneering work on the neuroscience of mindfulness to His Holiness the Dalai Lama at the Sera Monastery, where she also was called upon to provide basic neuroscience teaching to young monks.

In addition to her husband, Jon, she is survived by a sister and a half-sister. In her memory the Mind and Life Institute has created a new honor, the Catherine Kerr Award for Courageous and Compassionate Science. Those interested in donating to this award may visit www.mindandlife.org/make-a-gift/catherine-kerr-award. To support multiple myeloma research, visit the Multiple Myeloma Research Foundation at www.themmrf.org.

> After years of humanities training, Cathy Kerr started down a new path in science.

KAREN PHILIPPI

MICHAEL MCKEOWN, PHD

Michael McKeown, 63, died December 21 from complications of Alzheimer's disease. He was a professor of medical science in the Department of Molecular Biology, Cell Biology, and Biochemistry. Dr. McKeown earned his undergraduate degree at Stanford and his doctoral degree at the University of California, San Diego, where he was a National Science Foundation fellow. As a Helen Hay Whitney postdoctoral fellow, he began his study of sex differentiation using the fruit fly, *Drosophila melanogaster*, as a model system.

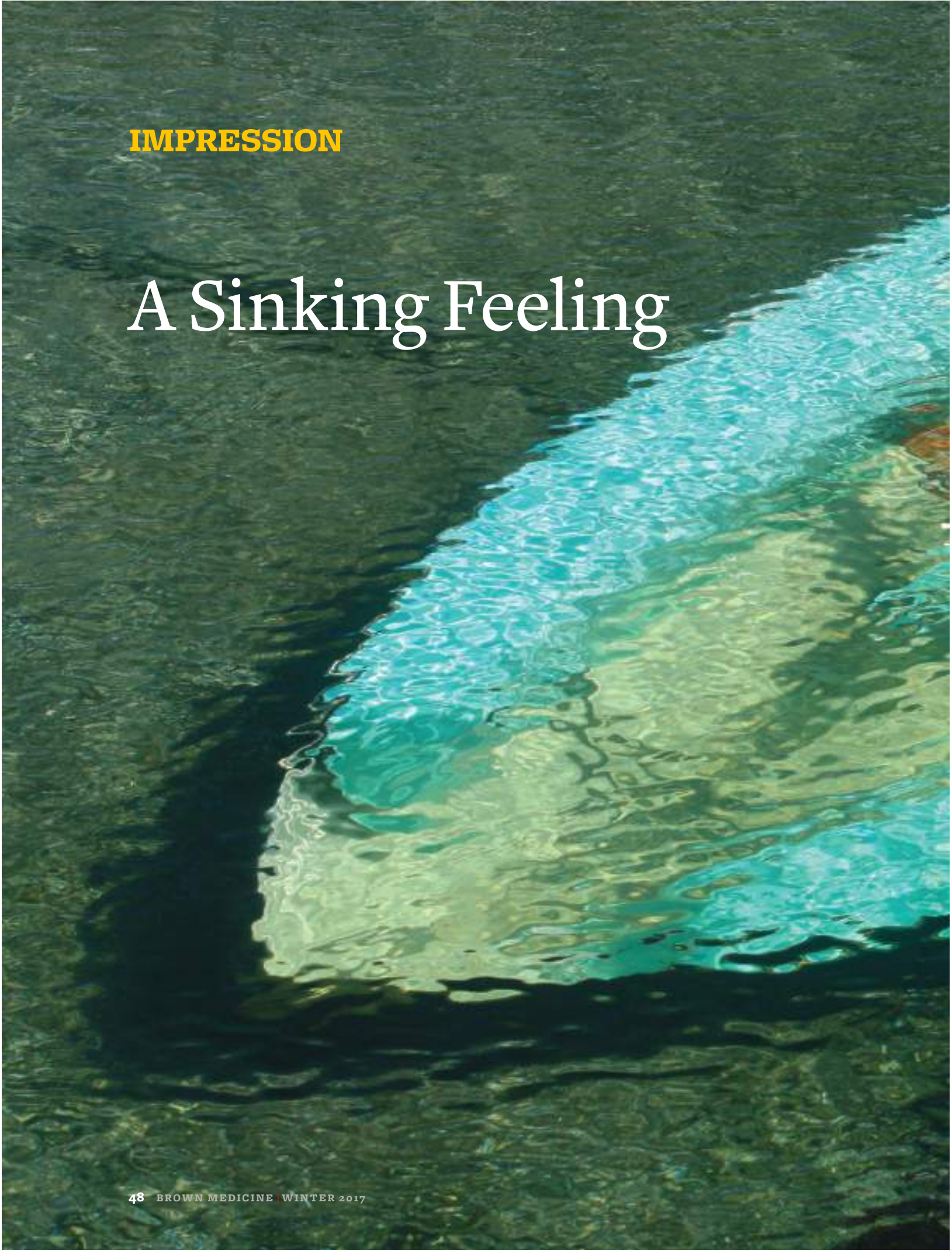

Michael McKeown

In 1985, Dr. McKeown joined the faculty of the Salk Institute for Biological Studies, where he was a Pew Scholar in Biomedical Sciences. He came to Brown in 2000. His laboratory studied the genetic and neural underpinnings of sexual behavior, using the genetically tractable *Drosophila* system. He taught and developed both graduate and undergraduate courses in genetics, and he served as the director of a Howard Hughes Medical Institute Undergraduate Science Education grant award to Brown University. He also served as the director of Graduate Studies for the MCB Graduate Program from 2001 to 2009. In 2010, he received the Elizabeth H. Leduc Award for Teaching Excellence in the Life Sciences at Brown.

He is survived by his wife, Erica, and his three children. Contributions in his memory may be made to the Cure Alzheimer's Fund, www.curealz.org.

IMPRESSION

A Sinking Feeling



"Walking down a quiet path near a harbor in Provincetown on a brisk fall day in 2008, I glanced over the water's edge and noted a small sunken boat in about 10 feet of water," writes Leonard Mermel, DO, professor of medicine and the medical director of the Department of Epidemiology and Infection Control at Rhode Island Hospital. "The sun was at a perfect angle, giving the image a dreamy appearance, and I snapped away with my old Canon EOS. What caused the boat to settle on the seafloor at that spot was unclear—was it a recent storm? A breach in the hull? I do not know."

Mermel is involved with local, national, and international infection control and infectious disease initiatives aimed at reducing the risk of health care-associated infections. He enjoys traveling to far-off reaches of the world and capturing the essence of such places through photography. The Warren Alpert Medical School hosted an exhibition of his work in 2016.

—Kris Cambra

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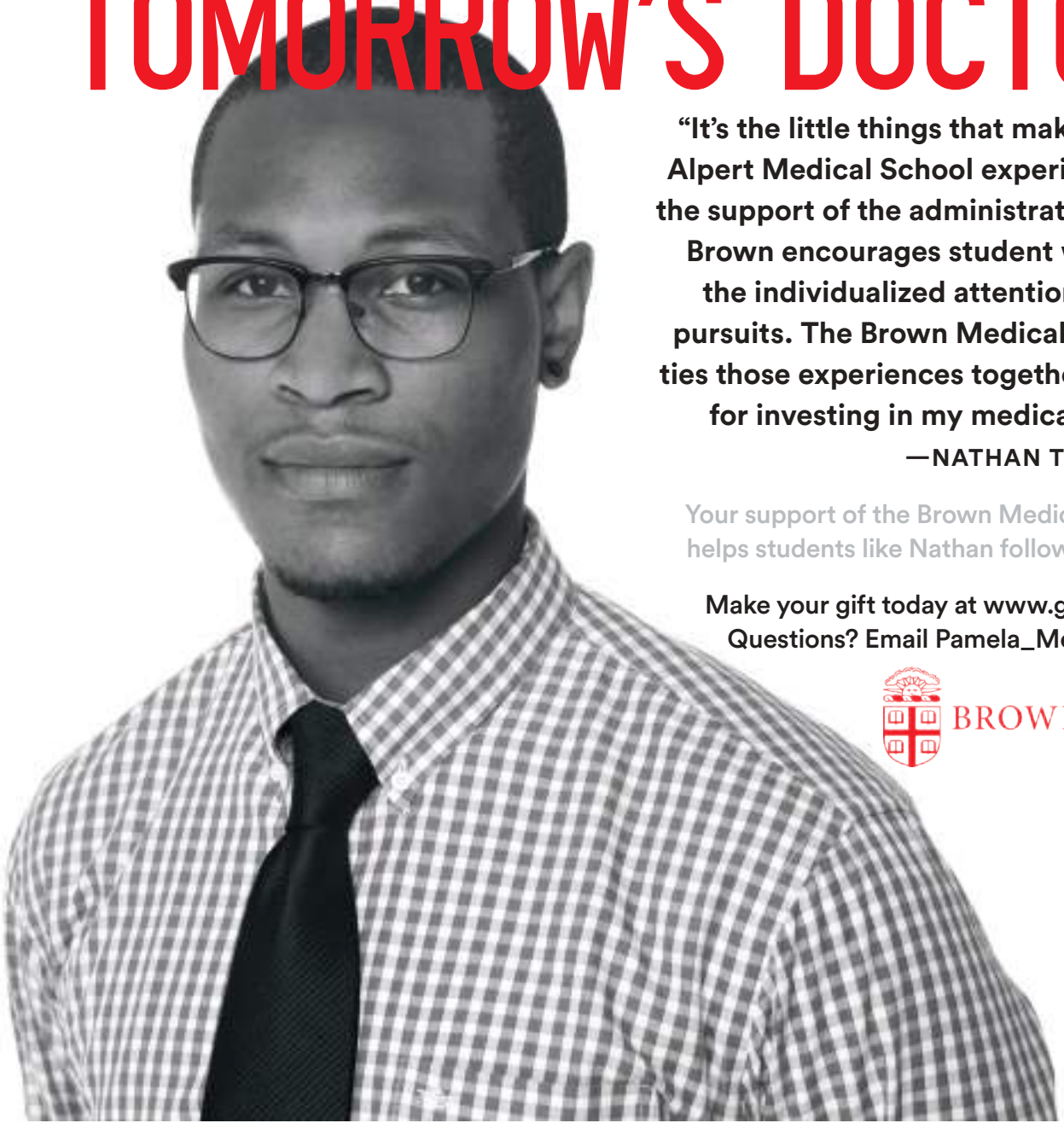

"It's the little things that make the Warren Alpert Medical School experience special: the support of the administration, the ways Brown encourages student wellness, and the individualized attention to scholarly pursuits. The Brown Medical Annual Fund ties those experiences together. Thank you for investing in my medical education."

—NATHAN THOMAS MD'18

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BROWN TOGETHER