BROWN MEDICINE

Volume 24 | Number 3 | Fall 2018

PLUS:

About Face

The transition from military to medicine isn't as radical as you think.

LETTER FROM THE DEAN

Coming Together

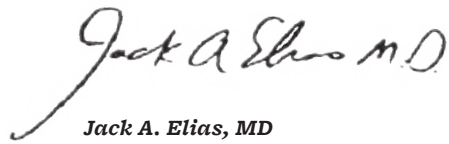
In this issue of *Brown Medicine*, you'll learn about the successes to date of Advance-CTR, a multi-institution, statewide program that is anchored in the Medical School and designed to support translational research at Brown and in Rhode Island. It's hard to believe we've already reached the midpoint of this five-year grant that has quickly and dramatically changed our research capacity at Brown and across the partner institutions.

This award was a critical step in achieving our goals to increase disease-focused, multi-investigator science at Brown. As you'll see, investments in pilot funding, research training, cross-disciplinary collaborations, and entrepreneurial activities have already yielded major results. In addition, it has allowed junior investigators to garner independent grant funding. Advance-CTR is a tremendous success story for Brown and Rhode Island. We look forward to watching its successes compound over the remaining years of its funding cycle.

This issue also tells the story of a number of medical students who are veterans of the armed services. We are very proud of these students who have served our country admirably and have chosen to pursue careers in medicine. They bring a unique and critical perspective that we welcome at the Warren Alpert Medical School of Brown University. Another six students will pursue military service after they graduate.

On the hospital front, there's more good news to report. Brown has signed a memorandum of understanding with Care New England and Partners HealthCare to be the primary academic research and teaching institution of record for Partners-CNE in Rhode Island. As you know, a Partners-CNE merger has been in the works and will be consummated pending final regulatory approval. With this agreement, the three institutions have committed to deepening our collaboration through a clinical, medical education, and biomedical research affiliation. We are pleased to continue our longstanding and fruitful partnership with Care New England, and to work with Partners to develop new opportunities to enhance research, education, and care for the people of Rhode Island.

Sincerely,



Jack A. Elias, MD
Senior Vice President for Health Affairs
Dean of Medicine and Biological Sciences

SCOTT KINGSLEY

"We're just not that big a deal, and we have no business thinking otherwise."—*Ken Miller,* ***Page 32***

FEATURES

DEPARTMENTS

COVER

Tom Lopardo MD'20, photographed by Dana Smith.

STUART BRADFORD; WEBB CHAPPELL; DAVID DELPOIO

LETTER FROM THE EDITOR

Lane Shift Ahead

This is the last issue of *Brown Medicine* that you will receive.

In February 2019, *Medicine@Brown* will arrive in your mailbox. Think of it as the same magazine but with a new name, and a fresh, engaging design. The content will be much the same: a mix of news, essays, and features that reflect both what's going on in Providence and with our alumni around the world. The magazine's purpose also remains the same: *Medicine@Brown* will remind our readers why they went into medicine in the first place, and why they are proud to be connected to Brown's medical community.

The reasons for this change are sort of mundane, so I'll spare you the details. I will tell you this process has been much like any significant shift in life—uncomfortable and scary at first, followed by a period of gradual acceptance (or maybe resignation), and ending with excitement at the new possibilities and opportunities this change will bring. I can't wait to show you what we've been doing.

Fortunately, change is something we do well here at the Warren Alpert Medical School. Formerly known as the Program in Medicine. And the Brown University School of Medicine. And Brown Medical School.

Even the alumni magazine has gone through several iterations. Alumni of the early classes may remember receiving *Signs & Symptoms*, before *Brown Medicine* was born in 2000. And now we bring you *Medicine@Brown*.

The first issue of *Brown Medicine*, spring 2000.

Whenever there is a need for evolution in my life, I think of this quote by Leon Megginson (often misattributed to Darwin): It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.

Kris Cambra

WHAT SAY YOU?

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

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BUDGET BITES: Tacos with pico de gallo, one of the dishes students made in the "Food and Health" class. Turn the page for Mike Makuch's pico de gallo recipe.

RYAN DESROCHERS MD'20

STUDENTS

Good Eats

The kitchen is the classroom for med students learning about nutrition.

One Friday evening this spring, Mike Makuch, MAT, chair of culinary arts at Johnson & Wales University, gathered with about 20 students in one of his school's kitchens, surrounded by professional-grade ovens and countless cooking tools.

When Makuch pulled out a cart piled high with chicken, lamb, peppers, onions, bok choy, and more, the students grabbed ingredients, formed groups, and started to conceptualize dishes. For the final class of "Food and Health," their task was to create a healthy meal for a family of four on a tight budget. But not everyone was a culinary student—many Warren Alpert medical students filled the kitchen as well.

Since a med student and former chef came up with the concept nearly five years ago, "Food and Health" has taught food science, nutrition, and cooking skills to medical and culinary students alike. In each class, students hear a lecture on a nutritional science theme, like whole grains or low sodium, and then venture into the kitchen to explore recipes and techniques with guidance from Makuch and Johnson & Wales students.

"The ultimate hope is that they're able to build some of these concepts that we teach them in the lab into their practice," Makuch says. "Hopefully it makes relating to patients that much easier."

With a recent push from the American Heart Association to better educate med students about nutrition, the limited ways medical schools teach food science are in the spotlight. A 2013 survey uncovered that 71 percent of medical schools fail to provide all the nutrition education hours recommended by the National Academy of Sciences,

and 36 percent don't provide even half, according to the AHA. The advisory—published in April and led by Karen Aspry MD, clinical assistant professor of medicine—points out holes in nutrition education for medical students, and suggests practical, experiential, and interprofessional ways to teach food science.

While medical school curricula may delve into the biology and chemistry of nutrition, they don't always include more practical aspects of nutrition science, says Paul George, MHPE '01 MD'05 RES'08, associate dean for medical education and an adviser for the course. "I'd love to see a longitudinal thread around nutrition woven into the curriculum," he says, adding that he is trying to add some practical nutrition instruction into the fourth year of study.

Course leader Catherine Gannage MD'21 says she rarely sees doctors offer specific ideas to improve the way patients eat. Finding her nutrition education lacking, she took the course to become a better cook and a better doctor. "This is actually some concrete information that I could pass on. I could change my family's habits," she says.

Andrew Del Re MD'21, another course leader, says he grew up in an Italian family where food was a centerpiece of culture, and he struggled with his weight in adolescence. After extensive research and changing his exercise and eating habits in high school, his quality of life improved dramatically, along with his grades and musical skills. "People can change their lives through these lifestyle changes," he says.

Nutrition education is only the tip of the iceberg, Del Re says: "It goes way beyond the transmission of nutrition knowledge." Though "Food and Health" might only reach students who choose the course as an elective, the student leaders hope to create lasting inspiration for doctors to engage with patients and the foods accessible to them. "If we know the skills in the kitchen, we can transmit those skills to patients," Del Re says.

The course seeks to cultivate a curiosity and passion for cooking, letting students build confidence in the kitchen. While learning to make hummus, one medical student asked to share a family recipe, which garnered rave reviews. "When I learned how to make hummus, it changed my world forever," Del Re says. "Forever."

Going forward, the course leaders hope to include more material about engaging with patients' food environments: understanding what food is available to them, what foods are central to their cultures, and why they eat the way they do. They aim to teach future doctors creative and practical ways to work around the dearth of fresh, nutritious foods accessible to many patients. Populations of low socioeconomic status warrant particular attention, since they may not be able to afford many healthier options, Del Re says.

"You can give all the nutrition recommendations that you want, but if they're not able to apply it, then they'll be stuck," Makuch says. "That's the power of food. It's really transformative."

—Elena Renken '19

PICO DE GALLO

- 3/4 pound tomatoes (about 2 medium), seeded and finely diced (1-1/2 cups)
- 1/3 cup chopped cilantro
- 1/4 cup finely chopped red onion
- 1 small fresh jalapeño or serrano pepper, finely chopped
- 1 tablespoon freshly squeezed lime juice
- 1/8 teaspoon kosher salt, or to taste
- 2 cloves of garlic minced or paste

Combine all ingredients and refrigerate for at least one hour.

Facts + Figures Meet the MD Class of 2022

144 students | **71 men 73 women** | **AVERAGE AGE: 23** (range 20-34)

STUDENTS

What to Expect

A new mom pens a guide to parenting for her fellow med students.

MICHAEL SALERNO

When Shayla Durfey MD'19 ScM'19 got pregnant midway through her first year at the Warren Alpert Medical School, she immediately looked to the student handbook for guidelines for student parents. She found none.

That was surprising, Durfey says, since the medical student body is at least 50 percent women and she knew other students had had children. She turned to Assistant Dean for Student Affairs Jordan White, MD, MPH, thinking that together they could write a policy. "We realized that a policy cannot address every intersection of the curriculum and pregnancy," Durfey says. "It's not realistic."

Instead, Durfey worked closely with White and got widespread input from Medical School administrators to write *The AMS Pregnancy & Parenting Handbook*. It explains policies around student leaves of absence, how the federal Title IX law protects students during and after pregnancy, and financial aid implications of taking time off. It also includes practical guidance on how to find a support system, postpartum care, and even listservs for sharing baby equipment with local physicians and medical student parents.

"We were very conscious of the language used throughout the handbook to accommodate fathers, adoptive parents, and transgender individuals, to reflect all types of experiences," Durfey says.

In her research, Durfey found few other medical schools that offer guidance for student parents. She and White have shared the handbook with a national listserv of student affairs coordinators, to give them an outline that could be tailored to their specific schools. And Durfey is planning to continue her work with a research study on existing resources for student parents.

With the Medical School's support, Durfey, who is a student in the dual-degree Primary Care-Population Medicine Program, spent a year in the Academic Scholars Program. The plan was successful all around: she researched and completed her master's thesis, and had time to recover and spend time with her son, Gabriel, now almost 2.

What's more, she says, "I realized I love doing research and I want to stay in academic medicine as a career."

—Kris Cambra

DURFEY'S TOP TIPS

1 Keep an open mind. "Pregnancy is full of surprises," she says. "Make the best plans, but have a Plan B, and a C."

2 Having a child during medical school is challenging, but not impossible. Knowing where your supports are and how to reach out to them is critical, she says, and that's when having a guide is indispensable.

Get a copy of the handbook by contacting Jordan_White@brown.edu.

STUDENTS HAIL FROM:

50 US or Canadian colleges and universities

30 US states

13 countries (birth or citizenship)

5,737 total applications

304 applications to **Primary Care-Population Medicine** combined MD-ScM program

22 admitted

ROUTES OF ADMISSION:

AMCAS **72**

Program in Liberal Medical Education **60**

Postbaccalaureate **8**

Early Identification Program **4**

QUOTABLE

"Hats off to Brown for making sure that data-waiver training is provided for all student physicians. We need a 'no wrong door policy' for MAT. ... People buying Suboxone illegally is actually a cry for help.

—**VIVEK MURTHY**, MD, MBA, 19th Surgeon General of the US, June 11, at the Curriculum Development in Opioid Management symposium held at the Warren Alpert Medical School

There is a very high bar to be a stool donor.

—**COLLEEN KELLY**, MD RES'06, associate professor of medicine, June 5, *US News & World Report*, on the challenges of finding fecal microbiota transplant donors

In practice, there is no real difference between a badly drawn dog and a beautifully drawn dog. Either way, it's still a dog.

—**FRANÇOIS LUKS**, MD, PhD, profesor of surgery, of obstetrics and gynecology, and of pediatrics, July 3, *Medscape*, on teaching med students illustration to better communicate with patients

We've seen reform in home loans, but the same change hasn't even been discussed when it comes to medical training loans.

—**JOEY JOHNSON**, MD RES'17 F'18, June 11, *Reuters*, about a study that found a third of surgical residents have more than $200,000 of educational debt

All in all, students are often left with a choice: Maintain the authenticity of your diversity and be excluded, or forfeit that sincerity as the price for inclusion. Diversity or inclusion. You can't have both.

—**JENNIFER TSAI** '14 MD'19, July 12, in a *Scientific American* blog post"

TECH SAVVY: Grace Wanjiku (in red shirt) demonstrates a smartphone-connected, portable ultrasound to ICU physicians at Kenyatta National Hospital in Nairobi in April.

SHIRLEY WU, MD

GLOBAL HEALTH

Anytime, Anywhere

Kenya gets its first emergency medicine master's degree program.

During her emergency medicine training at Brown and Yale, Grace Wanjiku, MD, MPH RES'15 learned to first check a trauma patient's ABCs: airway, breathing, circulation, disability, and exposure.

But when she returned to her home country of Kenya in 2015 to start a program teaching trauma care to medical students approaching graduation, they told her they were scared whenever they encountered a patient with acute injuries. They didn't know what to do or where to start.

No program exists in Kenya to train medical students in emergency medicine (EM)—the field was only recognized as a distinct specialty last year. This fall in Nairobi, Wanjiku, an assistant professor of emergency medicine at Brown, will share her knowledge and experience by helping develop a curriculum for the country's first master's degree program in her discipline.

"I feel the gap and I feel the difference in care when I'm working here [in the US] versus when I go home," Wanjiku says. "It's a very underdeveloped area, and a lot of patients are suffering and losing their lives just because the doctors are not appropriately trained for this."

With a grant from the Carnegie African Diaspora Fellowship Program, Wanjiku will collaborate with Benjamin Wachira, MMed, an assistant professor of emergency medicine at Aga Khan University Hospital Nairobi, to create the master's program in EM at the university. Wachira is the country's only full-time emergency physician, and this education is in high demand in Kenya, Wanjiku says.

Without a well-established system of ambulances, clinicians at hospitals are often the first point of contact for patients with life-threatening injuries, Wachira says via Skype. But many of those doctors are recent graduates or otherwise lack experience. "The least trained people get to work in an environment of the most acutely ill patients," Wanjiku says, and potentially preventable deaths and injuries do happen.

Mortality decreases dramatically when clinicians receive EM training in these kinds of settings, Wachira adds.

As EM spreads quickly across the globe, more programs in the specialty are emerging. Sustainability is key to Wanjiku's project, since high physician turnover means a loss of knowledge, says Adam Levine, MD, MPH, director of the Division of Global Emergency Medicine at the Warren Alpert Medical School. "As she creates that residency, she'll also be creating a sustainable pipeline of future emergency physicians that can work at different hospitals around Kenya and improve the quality of care provided to patients with acute illness and trauma," he says.

"This is what I believe is my life's work," Wanjiku says. "This is a specialty that I love, and I care about it, and I want to be part of developing it in my home country." ***—E.R.***

ANATOMY OF A BOTANIST

Natural Habitat

There are around 100,000 specimens of plants, fungi, algae, and the like in the Brown University Herbarium. Most were collected more than a century ago. It's a nice—and definitive—permanent record of what used to grow in Rhode Island: "Nobody can argue with it, because we have an actual plant," says Timothy Whitfeld, PhD, a research assistant professor of ecology and evolutionary biology and the herbarium's collections manager. "But what we want now is a collection from the 21st century." Whitfeld came to Brown in 2013 with that goal in mind. "The amazing thing is that for such a small state, it has a lot of diversity," he says. "There's about 1,700 species that grow here." To properly document Rhody flora, Whitfeld has to go town by town, habitat by habitat, at least twice a year, and collect everything he can. He's added about 1,000 specimens to the herbarium so far. "It's very hard to get everything," he acknowledges. But it's important to try: a comprehensive collection is a physical record of ecological change over time and space, indispensable for botanists but also climate scientists, who can track the spread of invasive species, earlier flowerings, and fluctuations in diversity and distribution. When Whitfeld has grant money, he can hire undergrads to help with this massive undertaking ("even in a small state, one person can't cover the whole area"); otherwise he's on his own. He has one thing in his favor, at least: "Plants don't run away," he says. "They won't fly away."

—Phoebe Hall

GATEWAY SPECIES

The bunchberry started Whitfeld down his career path. It's "one of the first I really remember wondering to myself, 'What is that plant?'"

THAT'S A PADDLIN'

In Rhode Island, "the best place for canoeing is the Wood River through Arcadia," Whitfeld says, but "the Boundary Waters is the best place in the world."

ADAM MASTOON

SUPPORT LOCAL JOURNALISM

In the field, Whitfeld presses collected specimens between sheets of newspaper. "The *Brown Daily Herald* is perfect, exactly the right size," he says. "I hope they never stop printing the paper."

ESSENTIAL EQUIPMENT

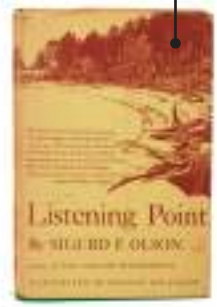
A hand lens and Whitfeld's dog-eared field guide and notebook always accompany him into the field.

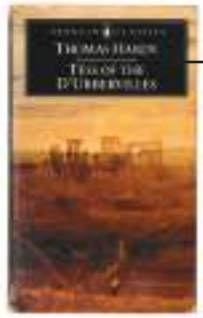
TRIED AND TRUE

Back in the herbarium, specimens are arranged and dried in this plant press. "It's the same procedure that has been used for centuries," Whitfeld says. "It's low tech at the extreme."

SMALL WORLD

Whitfeld, who once lived in Minnesota's North Woods, found this first edition of Olson's meditations on that wilderness at a shop in Johannesburg.





SENSE OF PLACE

Like Hardy, Whitfeld is a native of Dorset, England. The author's vivid description of the landscape transports the expat home.

BEACHCOMBER

Ever the collector, Whitfeld likes to pick up shells at the beach, where he spends as much time as possible in the summer.

TRAILBLAZERS

Whitfeld and his team at their camp in Papua New Guinea, where he studies tropical ecology. "The field site is a long way away from everywhere," he says. "It feels like you're really exploring."

LOST WITHOUT IT

A handheld GPS helps Whitfeld record exactly where he finds specimens. The pink flagging helps him find the GPS on the forest floor, where it tends to blend in.

COLLABORATION

Engineering Success

Undergrads devise unique solutions to real-world medical challenges.

Last fall, cardiothoracic surgeon Neel Sodha, MD, walked into a classroom full of Brown University engineering students and presented them with a problem.

Cardiac bypass surgeries save hundreds of thousands of lives every year, but create new risks for some patients, as plaques and other debris break loose from the heart and travel to the brain. Each year, around 10,000 people nationwide suffer embolic strokes.

Aortic filters designed to prevent those strokes, by capturing debris before it exits the heart, simply don't work as well as doctors would hope. Sodha, an assistant professor of surgery and director of the cardiovascular ICU at the Lifespan Cardiovascular Institute, challenged the students to come up with something better.

A team of five students worked through the fall semester on a new aortic filter, building a prototype and testing it for safety as well as its effciency at capturing embolic debris without impeding blood flow. They filed a provisional patent for the design of their device, Embonet.

Last spring, Embonet won first prize in the Advanced Healthcare Systems track at the 2018 Johns Hopkins International Healthcare Design Competition. The team is now exploring commercial options and hopes to license the technology to a medical device company.

Ileana Pirozzi '18 says that the problem-based approach and the chance to work side-by-side with a surgeon made for an invaluable educational experience. "Being able to sit in on surgeries and to look at existing medical devices to understand why they're failing … was really something you can't get in just the four walls of a classroom," she says.

But it's not just the students who benefit. Ravi D'Cruz MD'13 RES'16 F'19 has served as a clinical adviser for the course since 2016 and overseen five projects.

"It's really nice as a clinician to be able to bring people into your space," says D'Cruz, a fellow in neonatal and perinatal medicine at Women & Infants Hospital.

Last year D'Cruz advised a group of students who created a new kind of transilluminator, which doctors use to help find veins for blood draws and other procedures but are maddeningly unwieldy, he says; people constantly fumble and drop them. The undergraduates devised an idea for a wearable transilluminator that's much easier to use.

"I used to be an architect before going into medicine, so I had this background knowing that there are things that are fixable through design," D'Cruz says. "But one of the biggest issues I see is that we build up silos where designers aren't privy to the problems in health care, and the people who can identify the problems in health care don't know how to fix them through design. So it's nice to have a way to bring those two sides together."

—Kevin Stacey

"Being able to sit in on surgeries and to look at existing medical devices was something you can't get in the four walls of a classroom."

BRIDGING THE GAP: Neonatalogy fellow Ravi D'Cruz (center) works with biomedical engineering students Kabisa Baughen (left) and Shannon Crowley in the NICU.

WEBB CHAPPELL

ASK the Expert

How does tanning change the brain?

Recent research suggests that frequent exposure to the ultraviolet rays used in tanning beds can be harmful not just physically but also psychologically. Martin A. Weinstock, MD, PhD, a professor of dermatology and of epidemiology at Brown, the chief of dermatology at the Providence VA Medical Center, and director of the Cutaneous Oncology Program and Pigmented Lesions at Brown Dermatology, studies melanoma and the link between indoor tanning and skin cancer risk. He explains the connection.

The dangers of exposure to indoor tanning, as in tanning parlors, tanning beds, etc., is due to the fact it's an exposure to an addictive carcinogenic radiation. Not everyone who's exposed gets addicted. It's not nearly as addicting as, for example, cigarette smoking or opioids. But in fact exposure to the UV lights used in indoor tanning causes a reaction in the brain that affects endogenous opioids produced in the body. Again, it's not as addictive as taking some opium or a related compound, but it does have the potential for addiction.

The idea behind indoor tanning facilities is they get people to go once, then go a second time, to the point they're using it on regular basis. That's part of the danger associated with it: it can lead to a repetitive activity. The people who are the focus of the vast majority of marketing for indoor tanning are teenagers and young adults, and these facilities are often located in proximity to high schools. It's pretty despicable that the owners are running cancer generating clubs, and trying to get these young people to repetitively use this potentially addictive and carcinogenic exposure, which they pay for!

COMMUNITY

The Magic Minute

Look out over the Providence skyline any given night at 8:30 and you'll see dozens of blinking lights. It's not a trick of the eyes; it's an entire community using the power of a light to say good night to patients at Hasbro Children's Hospital.

Good Night Lights began in 2010 when the hospital's resident cartoonist, Steve Brosnihan, was saying goodbye to a patient being discharged the next day. Brosnihan, who commutes by bike and bus, realized the route to his bus stop was visible from the patient's window. "I told my young friend I would be at that corner at a certain time and would flash a good-night signal with a light mounted on my handlebars," he says. "I left the hospital that night and flashed the signal back toward the patient's room as scheduled. To my surprise—and delight—I suddenly saw the rectangle of his window blink on and off in reply."

Brosnihan arranged the good-night flash with other patients. In 2015, he asked a bar across the river from the hospital, The Hot Club, to flash their neon sign. Good Night Lights took off from there. Each night, tugboat captains and police officers and businesses blink their lights from 8:30 to 8:31. The Biltmore Hotel installed an automated beacon on its roof, and Brown's Sciences Library created a walking robot signal in its windows. During the school year, student athletes add a human touch with flashlights.

COURTESY STEVE BROSNIHAN

Brosnihan's simple idea has turned into a moving act of goodwill that unites a community every night. "When I have crazy dreams, I see Good Night Lights catching on in other cities with children's hospitals," he says. ***—K.C.***

HOSPITALS

Getting to Zero

With patients' advice and new tools, a hospital aims to prevent all suicide deaths.

Try to imagine yourself in the shoes of someone who wants to take their own life. "Think about the pain and the hopelessness and the devastation that they felt, that it actually got to the point that they wanted to die," says Robin Furcolo, 55, of Westerly, RI, who lost her sister, uncle, and cousin to suicide, and has attempted suicide herself. "People don't see that side at all."

Listening to those with experiences like Furcolo's is central to the new Zero Suicide Initiative at Butler Hospital, which aims to reduce suicides in its inpatient programs and after patients are discharged. "It's important to us that on our committees, we have the patient voice and the family voice represented," says Diane Block, PhD, Butler's director of quality and patient experience.

As part of the new initiative, Block and Michael Armey, PhD F'12, an associate professor of psychiatry and human behavior (research), have been speaking with doctors at the hospital about how to talk about suicide. They've held trainings for clinicians on safety planning, and discussed how to improve the tracking of local suicide deaths. In the face of climbing national suicide rates—up 22 percent from 2006 to 2016, according to the CDC—Block expects major changes for the hospital in the next year.

Furcolo, a member of Butler's Patient and Family Advisory Committee, emphasizes the importance of doctors listening carefully to patients. "You can't come in dictating," she says. "You have to build a rapport, work together as a team. Listen to what they have to say and how they feel."

Butler's Zero Suicide Initiative follows recommendations from the national Zero Suicide effort, which contends that suicide deaths are preventable. The team will examine how suicide is documented at Butler and what services have proved to be most beneficial for those vulnerable to suicide, among other topics. A first step for the initiative will be looking inward—understanding how patients with high suicide risk experience care at Butler.

To identify such patients, Armey is studying patterns of behavior that are tied to suicide risk, to better understand how that risk originates, he says. His department also is exploring interventions involving landline phones and mobile devices. "We really want to try to leverage what we know on the science side of things to improve both our assessments as well as our interventions," he says.

The initiative's aims extend beyond Butler's doors. Transitions of care are known to be dangerous times for patients at risk of suicide: Furcolo says hospitals often discharge patients without plans for their continued care, leaving them even more vulnerable. After a suicide attempt, people often form plans to end their lives in case the urge returns.

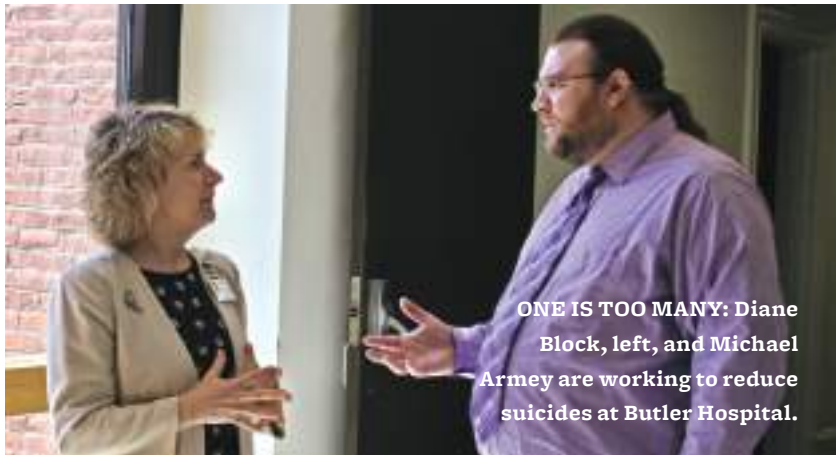
"That line is very, very easy to cross the second time," Furcolo says. "When you feel alone and you feel like you have no one to turn to, and nobody cares and you feel like you're hopeless and you are desperate, you think about ending the pain. And you will think about suicide."

The Zero Suicide Initiative is part of the Patient Safety Movement, which seeks to lessen harm to patients resulting from preventable medical errors, Block says. "This is that same philosophy turned to psychiatry," she adds.

Furcolo encourages providers to ask patients with depression if they're considering hurting themselves or taking their own lives. "Most of the time you're going to get an honest answer," she says. "I think most people do want help."

—E.R.

If you are having thoughts of suicide, call the National Suicide Prevention Lifeline at 1-800-273-8255.



ONE IS TOO MANY: Diane Block, left, and Michael Armey are working to reduce suicides at Butler Hospital.

DAVID DELPOIO FOR *THE PROVIDENCE JOURNAL*

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

The Right to Know

A Supreme Court decision has troubling implications for physicians.

We have all taken care of *that* patient at some point. The one who makes an appointment to see you for a medical problem they have extensively researched online (using questionable sources) and presents a remedy they would like you to sign off on, which doesn't quite resonate with your treatment approach. You remind yourself to take a deep breath and continue to ask open-ended questions while parsing through the origins of their medical misinformation.

Whenever these situations arise, especially as a resident, I find myself experiencing a range of emotions: a surge of frustration, a peppering of self-doubt, and an enormous summoning of strength to remind myself it is in the best interest of the patient to calmly present the facts until a consensus (or lack thereof) is reached.

The reality is, physicians and other health care professionals have decades of experience dispelling "fake news." Misinformation in medicine takes many different forms, from outright false information promulgated by individuals or organizations with an agenda to subtly skewed research methods and results funded by industry. Infamous cases include tobacco companies that underwrote studies to downplay the health hazards of cigarettes or, more recently, Dr. Andrew Wakefield's debunked *Lancet* study on the link between the MMR vaccine and autism. The latter is a troubling reminder that the perpetrator can sometimes be one of us.

As a physician, I understand that a significant part of my role is to use my years of training to guide patients toward medically accurate, informed decision making in matters related to their health. We all agree there are "good" and "bad" sources of medical information and a developed society favors authenticity. But do we?

BLAIR THORNLEY

In June, the Supreme Court made a momentous ruling in a case that was dubbed as pitting the "right to know" against the "right to free speech." Briefly, the court cited the First Amendment and ruled in favor of crisis pregnancy centers (CPCs) in California, overturning a state law that required unlicensed centers to disclose that they were not licensed medical facilities and had no licensed medical providers supervising the provision of services. Many CPCs routinely provide pregnancy tests and ultrasounds with interpretation of results, according to the case's plaintiff, the National Institute of Family and Life Advocates. NIFLA also argued that they should not have to inform clients about the availability of low-cost access to state family planning services, including contraception and abortion, as required by the law.

I recognize that this case is particularly contentious due to personal views on reproductive autonomy. Yet the ruling made me reflect on its repercussions on medicine, a field whose cornerstone is disseminating evidence-based information presented by an authorized expert to a trusting person seeking their services. If a provider does not need to specify whether they are licensed or not, does that make my training and license to practice medicine irrelevant to society?

I have thought long and hard about the court's decision and struggle with reconciling an individual's right to free speech with the potential of providing misinformation. History has shown us that harm is done when science is adapted by those with an agenda. In the age of Dr. Google, I still believe the single most important thing we can offer as physicians, even when faced with confrontation, is respecting our patients' right to know.

Minoo D'Cruz *is a family medicine chief resident at Brown. She is interested in global maternal and child health and plans to practice full-spectrum family medicine, including obstetrics.*

BY PHILIP A. CHAN, MD, MS RES'09 F'11

Why Do You Want to Be a Doctor?

The answer changes after years of practice.

I remember during my interviews for medical school being asked the age-old question, "So, why do you want to be a doctor?" My response, of course, was to "help people" and "change the world." Now I ask the same question and hear the same answers from today's idealistic medical school applicants. For them, as for me many years ago, the ideals are sincere. But for many of us in medicine, they are difficult to maintain over the course of training and practice.

I've recently been reflecting on these conversations. Has my answer changed? Have I achieved what I set out to accomplish? Is it even possible to change the world? As I grow older, my answers become less clear.

During the end of my infectious diseases fellowship and the start of my work with HIV, I began to understand how hard it is to implement change. HIV intersects with many major social determinants of health: stigma, socioeconomic status, substance use, homelessness, mental illness, etc. People living with HIV who are on treatment and have an undetectable viral load have a near-normal life expectancy and can't transmit the virus. However, treating HIV often involves addressing multiple social determinants of health. Some of these, like homelessness and poverty, are likely to take precedence over medical care. People who don't know where they are sleeping tonight or where their next meal is coming from may not have the capacity to care about taking their HIV medications or going to see their doctor.

It wasn't until I reached the level of attending physician and started working with Project Weber/RENEW that I began to understand the scope of the problem. Project Weber/RENEW is the result of the 2016 merger between two previously independent organizations. Project RENEW was started in 2005 by Colleen Daley Ndoye to provide harm reduction and related support services to female sex workers. Three years later Rich Holcomb launched Project Weber to provide similar services to male sex workers. Since its merger, the unified Project Weber/RENEW has served sex workers of all genders, including expanded programming focused on transgender sex workers. My experiences with this organization have forever shaped how I approach my work.

SEX WORK IN THE UNITED STATES

Few populations in the United States are as poorly engaged in social and health services as sex workers, and specifically male sex workers. Gay, bisexual, and other men who have sex with men (MSM) account for the significant majority of new HIV infections in the US, largely due to biological (anal sex is more likely to transmit HIV than vaginal sex) and network (more HIV cases among MSM) factors.

In the case of male sex workers, the intersection of HIV and social determinants of health is especially evident. Substance use and addiction are highly prevalent in this population, as are other mental illnesses. Social factors such as stigma commonly affect these men. A large proportion identify as heterosexual and perform sex work for drugs. As a result, HIV prevention and treatment services focused on gay, bisexual, and queer men may overlook this group.

To truly support male sex workers and others with similar experiences, we need to understand, and address, these different determinants of health. Project Weber/RENEW provides numerous services to sex workers in the Providence area. I serve on its board of directors and work closely with Colleen as well as Rich, who continues to deliver harm reduction services through the organization. Rich has openly told his story about being a male sex worker, about overcoming challenges that few people have ever faced. His experiences and others were portrayed in the 2017 documentary *Invisible*.

Project Weber/RENEW provides testing for HIV and hepatitis C virus, education and counseling, clothing, basic needs, syringe exchange, naloxone training and distribution, and linkage to other services such as housing, mental health care, and substance use treatment. These services are delivered by peer outreach workers—individuals who are in recovery from substance use addiction, have participated in sex work, or have experienced homelessness or incarceration.

SHIFTING THE PARADIGM

My experiences with Project Weber/RENEW have helped shape my beliefs on how medical providers and research

JAMES STEINBERG

scientists need to better engage underserved populations. First, we must make our services more accessible. Those most in need of care are not always going to come to us. We must employ a patient-centered approach: offering services where people live or where the burden of disease is greatest, offering walk-in and evening/weekend hours, improving communication (e.g., through interpreters, materials accessible with minimal literacy), and working to mitigate insurance and cost issues. The health care system is incredibly complicated to navigate, even for those of us who work in it. For those without the means, it can be an impossible barrier.

Second, we as providers and research scientists have to be more involved in the community. It is difficult to research problems in the community without interacting with people to understand their issues and challenges. It is also difficult to understand people if you don't understand the community they come from. We have to work with local groups to address health issues, listen to their needs, and work with others to help address what *they* think is important—and then, place the needs of the community above our research agenda. Though research can be an important part of community engagement, it's not the only part, and it should be guided by the community.

Third, we need to dedicate resources. This includes financial commitments from public health, clinical, and academic institutions to ensure that we can implement change. It means basing care delivery on metrics other than the amount of financial compensation received, and working to implement flexible and innovative health care models. Programs should also be regularly evaluated to ensure that needs are being met and that health outcomes are achieved and equal to the standard of care in other populations.

To achieve this vision, our collaborations should maximize our individual strengths, including the robust policy and data reporting infrastructure of public health institutions, the care delivery of clinical institutions, and the innovation and research funding of academic institutions. Together we can deliver state-of-the-art health care and determine effective policy and implementation science approaches. Furthermore, funding from each sector can better complement and amplify resources than any one sector alone. For example, research grants, public health funding, and clinical revenue can all help offset the infrastructure and cost of care for underserved populations. With this approach, effective and world-class models of care delivery can be implemented for underserved communities.

Am I going to change the world? Probably not. Perhaps I am a little more realistic than I used to be. I continue to learn every day from my patients and from community leaders like Colleen and Rich. My experiences with organizations like Project Weber/RENEW affirm the value of this work and attest to the ongoing need for more physicians and research scientists to be involved in community work. I see this approach as an essential component of addressing the health and well-being of our patients. I may not change the world. But perhaps a community is enough.

Philip Chan *is an associate professor of medicine and of behavioral and social sciences at Brown. An infectious diseases physician, he is the director of HIV/STD Testing and Prevention Services at The Miriam Hospital Immunology Center and a consultant medical director for the Rhode Island Department of Health Center for HIV/AIDS, Viral Hepatitis, STDs, and TB. Learn more about Project Weber/RENEW at www.weberrenew.org.*

Always Faithful

A doctor on deployment treats more than the individual.

Looking out across the vast desert, I see a massive wall of sand and dust rapidly approaching our position. This colossal and ominous force of nature is one of the bigger sand storms we have experienced while deployed to the Middle East.

It is exhilarating to be halfway across the world in a land invaded by countless nations over time. The climate is oppressively hot and the wildlife almost alien. Although seemingly devoid of life in most places, this region is rich in cultural history. Even so, I sometimes wonder how humans have managed to live here for so many years.

My unit is deployed here for six months. We are on an Air Base that has supported US and coalition military forces for nearly two decades. I am one of several medical officers on base, but I am attached to the only Marine Corps infantry battalion deployed to this region.

Deploying for the first time with my unit to this part of the world has been a culture shock. It is certainly different than practicing medicine in a hospital setting. At the same time, I have learned so much in my few months on the ground. It has been more than just keeping the sand out of my eyes; more than just seeing patients in clinic. Practicing medicine in an operational and deployed setting presents unique challenges and has forced me to learn lessons I could learn nowhere else.

BATTLE READY

Having to work with limited resources forces a provider to decide whether they can give adequate care on site or must transfer a patient to another facility. I have run into this issue multiple times. I recall one patient whom I believed had a kidney stone. He was in quite a lot of pain, and his blood work showed signs of kidney injury. Normally I would send him to the emergency department for a CT scan. Here, however, transferring a patient to a hospital with imaging capabilities would be a four- to five-hour process requiring much coordination: putting together a mission summary memorandum, requesting command approval, obtaining vehicles for transport, and making sure the weather will permit ground movement. Until now, I had never been involved with the logistical side of medicine. But without a logistical framework in place, adequate medical treatment cannot be provided here.

Another challenge has been the sheer volume of men and women who fall under my care. We deployed with almost 1,000 Marines and sailors who are now spread out across multiple countries in

GETTY IMAGES

the region. Preparation and pre-screening alone are difficult: pre-deployment HIV testing, mandatory neurocognitive examinations for all personnel, screening for disqualifying medical conditions, and more. Travel to different countries also requires certain vaccinations, such as polio. Prophylactic malaria medications are required for others. This process is necessary to prepare our troops for battle, but it can certainly be cumbersome and time consuming.

One of the more interesting differences in practicing medicine in the military is the way patient privacy is treated, especially while deployed to a combat zone. Until now I had considered this a fundamental, relatively unbreakable principle of patient care. What is discussed in the exam room stays between patient and provider. In this setting, however, there is some gray area when it comes to privacy.

More than once a Marine has approached me wanting to discreetly discuss a medical issue. Usually their first question is whether any information will be shared with command leadership. The response to this question is not a simple "yes" or "no." Privacy must be respected, but the command needs to be notified if a patient presents a risk to themselves, others, or the mission. Often there is a lot of discretion left to the provider on how to handle these situations.

What do you do when someone discloses a preexisting medical condition? Take, for example, a Marine who admits he was diagnosed with Wolff-Parkinson-White syndrome several years before. He is fully functional and exercises every day but sometimes experiences palpitations. By regulation, this is a disqualifying condition and he should not be deployed. From a medical perspective, he warrants evaluation by an electrophysiologist and possibly an ablation procedure, which could be curative. At the same time, the chances of him developing a fatal arrhythmia while on deployment are small. In all likelihood he could finish out this deployment without any problems. Additionally, this particular Marine's absence would create a significant leadership gap if he were to be sent home, not to mention the tax dollars that would then be spent to fly out a Marine to replace him. In the end, there is no way to reliably predict what will occur, but a judgment call must be made.

Perhaps it is wrong to consider what effect medical decisions will have on a unit's operational readiness. Some would argue that medical decisions should be made solely with the patient in mind. While there is some merit to this, I believe military medical providers must strike a balance between what is good for the unit and what is good for the patient. I cannot make my decisions in a vacuum: I have to consider how my decisions and interventions will affect my unit's warfighting ability. Sometimes this means going against a patient's wishes. Sometimes it involves bending regulations in extenuating circumstances. Just as often, though, I must make medical decisions that my command leadership does not support. Going against a superior officer is difficult but can be necessary for a patient's sake. In many ways I act as a liaison between the medical and operational communities, which means I need to be well-versed on both sides.

Working with a Marine Corps infantry battalion has been an eye-opening experience. Some days are difficult, physically and emotionally. Learning to navigate between the medical and military communities has been an exercise in adaptability and mental fortitude.

Military medical providers must strike a balance between what is good for the unit and what is good for the patient.

The greatest reward is becoming part of a brotherhood that has stood the test of time for more than 200 years. I am not a Marine. I do not hold a rifle in battle. In reality, I am an outsider within my unit. But I feel a sense of belonging here that I have felt nowhere else. My career as a military medical provider is only just starting, and I consider it an honor and a privilege to be where I am now. I would exchange this experience for nothing. Semper Fi.

Lt. Amadeo De Luca-Westrate *is a graduate of the US Naval Academy. He accepted a commission into the US Navy in May 2012 and then attended the Warren Alpert Medical School. After completing a transitional year internship at Walter Reed National Military Medical Center, he was assigned to 3d Battalion, 7th Marine Regiment in Twentynine Palms, CA, where he serves as the battalion surgeon. He is now deployed as part of the Special Purpose Marine Air-Ground Task Force–Crisis Response–Central Command.*

GOT YOUR BACK: Scotti Pfirrman, left, and Tom Lopardo were among the millions of Americans who served in Afghanistan and Iraq after 9/11. Now third-year medical students, most of their classmates were in elementary school when they deployed.

LEAN ON ME

In the military and in med school, these servicemember students find it's the people beside you who make or break your experience.

TERRY L. SCHRAEDER, MD
PHOTOGRAPHS BY DANA SMITH

Army veterans Tom Lopardo Jr. MD'20 and Scotti Pfirrman MD'20 met in the lobby of the Warren Alpert Medical School as first-year students. They quickly realized they had deployed on the same mission in 2009.

"I remember we were downstairs and Tom was like, 'Are you kidding me?'" Pfirrman says.

Their battalions, one in the air and one on land, protected each other in Nangarhar, one hill apart in northeast Afghanistan.

"I flew a small scout helicopter for reconnaissance, looking for anything unusual," Pfirrman says. "It is hard to distinguish what is an enemy soldier. Sometimes we would look for someone who was in a suspicious place or who had a weapon or something that just didn't look right. You learn to see things … pattern recognition, I guess."

"When we called in air support and we heard that chopper coming in, it was like, aah," Lopardo recalls. "When the chopper comes over the hill, it just goes quiet. The enemy knows what that sound means, because they better stop and they better hide."

Pfirrman and Lopardo deployed twice, for 12 months each time, to the War in Afghanistan, the second-longest war in US history after the Vietnam War.

The two men traveled different paths to the military and to medicine. Pfirrman graduated from West Point. Lopardo enlisted right after graduating from Oliver Wolcott Vocational Technical High School in Torrington, CT. During his second tour, he had an epiphany.

"By the end I had experience in wrapping up blast amputations, packing gunshot wounds, and I got to suture. Very advanced-level stuff," Lopardo, 31, says. "I saw a lot, had a lot of trauma. It was one particular day, I said all right, I want to do this. … I called home and told my mom, 'Hey, don't laugh at me, but when I come home I want to go to medical school.'"

After nine years in the military, Lopardo went to college and became a paramedic. Now a third-year medical student, he plans to be a critical care specialist.

"I love ICU medicine and I like surgery. I feel calmer under pressure. I can think clearly, and I tend to like to jump to the lead, especially if nobody else is stepping up. I feel comfortable making decisions," he says.

Pfirrman thought about medicine while at West Point, but 9/11 happened during his freshman year and he wanted to deploy first. At age 35, this humble, broad-shouldered "natural-born leader," as his fellow vets call him, is thinking about a career in neurology.

"If I had told myself five years ago when I was in the military this is where I would be, I would have said no way. I didn't picture myself in that elite group of people," Pfirrman says, laughing. "I guess I just picture myself as more of one of the guys and a pilot, and just take care of my people at the end of the day. I guess that translates into medicine, just take care of your people."

Like all vets, they know loss, tragedy, and triumph. Pfirrman lost one friend to suicide and watched another, a Green Beret, rebuild his life after stepping on a land mine.

"Overall, it motivates me to continue down the path. Sometimes, when things aren't so great after a long week of studying, you kind of get stuck in your hole," Pfirrman says. "You have to just keep plugging forward, acknowledge your own mistakes, and try to make it better for the next time. You just have to realize that life can be short."

DUTY CALLS: Far left, Scotti Pfirrman in the Kiowa Warrior helicopter he piloted. Left, Tim Wright, on the right, in Afghanistan. Above, Mike Zaskey treats an infected wound in Haiti, in 2010. Right, Lauren Luther demonstrates her marksmanship.

COURTESY PFIRRMAN, WRIGHT, ZASKEY, LUTHER

NOT YOUR TYPICAL MED STUDENTS

Last year, 354 prospective medical students selected "Veteran" for military status on their American Medical College Application Service (AMCAS) form. Military service is highly regarded at Brown, says JoAnne McEvoy, MA, director of admissions at the Warren Alpert Medical School.

"The committee welcomes veterans to apply and values their contributions to the class and to medicine," she says, adding that what stands out in applications from veterans is maturity, self-discipline, and a demonstrated commitment to service. Veterans often bring practical leadership experience within a large bureaucracy, a skill set that transfers well to the complex field of medicine.

"While life experience as a veteran would be a valuable perspective in many areas, when working directly with other veterans it can offer empathetic understanding for a group of patients who often feel their experiences are not really understood," McEvoy adds.

These are not your typical med students. They had to squeeze in pre-med science courses at night and perform well in postbaccalaureate programs during or after their military careers. Some started college several years after high school. Some saw direct combat. A few deployed on multiple tours to dangerous areas. They were pushed physically and tested emotionally by extreme temperatures, scorpions, desert sandstorms, and heavy artillery.

All have worked in unpredictable environments with a variety of people, responsibilities, and unimaginable stress.

The training and cultures of medicine and the military are distinct, yet the experiences, at times, may be similar. Soldiers witness sadness and sorrow trying to serve and trying to help; so do doctors. Both have ways of dealing with stress, suffering, chaos, and death. Military training may be the most formative experience of a soldier's life, just as medical training may be for a doctor.

Mike Zaskey '17 MD'21, a former Army sergeant and medic, enlisted at age 17 from his hometown of West Springfield, MA.

After six years in the military, Zaskey came to Brown and earned a degree in neuroscience. He operated a forklift at a Pepsi warehouse while waiting to start med school. Now 30, he says he likes physical work and has always had a sense of responsibility.

"After 9/11, I felt my country was at war, and I have an obligation to do something," he says. "My father was an infantryman in Vietnam. He died between my sophomore and junior years of high school from ALS brought on by Agent Orange. That was traumatic. That is actually what spun me on the path to medicine."

A member of the elite 82nd Airborne Division, Zaskey was assigned to the Global Response Force, a rapid-response unit created to react to unforeseen events around the world. He was deployed to Iraq and Afghanistan, and in 2010 landed in Haiti 24 hours after the earthquake to provide medical care, food, and other supplies. He's made 32 parachute jumps.

Zaskey shares an unspoken bond with the other veterans in this compatible group of med students. His closest friend is Alec Kinczewski MD'21.

Kinczewski, 34, served as a commissioned officer in the Army from 2006 to 2014 in Iraq, South Korea, Kuwait, Germany, and Japan. He started thinking about a career in medicine while overseas.

"There were some pretty seminal moments in Iraq where we had people come back who'd been horribly disfigured in the war," Kinczewski says. "It planted the seed in my seeing the incredible difference physicians made and I always had an incredible respect for the field of medicine."

Kinczewski was an information technology specialist in the military. Since coming home, he has worked to help homeless vets with Thomas O'Toole, MD, professor of medicine, at the Providence VA Medical Center.

"With us, I think we have had to deal with some extreme stresses," Kinczewski says. "But we have found some ways to cope with that and still be successful. I think it is about finding ways to work a job with very long hours and very serious demands and finding the balance with that."

Pfirrman agrees. "Having a good support network is incredibly important. Whether that is family or old friends from the service or new friends from med school, just having a good support network is good," he says.

Lauren Luther MD'22 is a Marine Corps veteran and Harvard graduate. Though she'd never fired a gun before joining the Marines, she became a certified marksmanship coach and a platoon commander in Afghanistan. With an interest in reconstructive plastic surgery, she wants to help injured soldiers. Her advice to anyone considering military service may apply to those going into medicine as well.

"Have a clear and strong reason why you want to serve," Luther, 30, says. "You will face mental, physical, and emotional exhaustion, maybe all at once, maybe for a very long time. In those moments, your dedication to the cause has to be solid enough to power you through."

COURSE ADJUSTMENT

These former military leaders now find themselves at the bottom of the medical chain of command, with a new mission to excel in their studies and become doctors.

"The academics have been a little more rigorous than I had planned," Pfirrman says. "I had been through flight school and I had studied engineering, so I thought I would be up to snuff. But things move much quicker and with much more volume in medical school."

Whether it's taking a basic science exam or taking care of patients, these students often rely on their military training. "As a pilot, you learn technical aspects of an aircraft and some rules of what you have to do when you fly, and how to adjust all that to meet the situational demands of what is going on," Pfirrman says. "I think that mindset will help me."

"I had been through flight school, so I thought I would be up to snuff. But things move much quicker in medical school."

Max Kitaj MD'21, a former Army medic in Afghanistan, remembers the steep learning curve of his first year of med school. It was, he says, "exciting, at times frustrating, and just a huge learning experience across the board, from the subject matter to my own interpersonal dealings with people, especially people a lot younger than me. It has not been easy. I have grown a lot this year."

He appreciates the environment at Brown. "I think this is a really great place," he says. "You feel really held and supported here. There are mentors, advisers, therapists, learning specialists. I use them all and they are great. From other people I know at other med schools, that's the exception to the rule. It is very supportive here."

Kinczewski adds, "You have to take care of yourself and you have to find help. The very first day here, I went to talk to the behavioral health counselor. For me, it is more of a well visit than anything else. But it is good to have those there."

Kitaj, 33, enlisted after getting a BA in biology at the University of California, Santa Barbara. He wants to be a psychiatrist. Interested in spirituality and medicine, Kitaj goes on Zen meditation retreats and has completed training courses in spiritual care.

"It was an intense four years, and some intense moments in Afghanistan. There is still a lot of processing going on," he says. "Everything I am blessed with right now—a pregnant wife, being at Brown medical school, living in Providence—it's unbelievable. Loving friends and family. Enough resources to do all this. Not for a second would I wish that I hadn't done [the Army]. And yet it is still a tender experience, definitely."

Patrick McGlone MD'21 was a Marine from 2012 to 2017 and a member of a Scout Sniper Platoon, but he never got the chance to deploy. He describes himself as a "stereotypical Marine," a competitive power lifter, and ultra-marathoner. He has run 50 miles in 13 hours.

His unit deployed after he entered medical school. "I am a little jealous," he says. "It is awesome for those guys. I wish I could be there with them. Kind of disappointed that I missed it. But I am also really happy with what I'm doing here and don't really regret that choice at all."

SERVICE ORIENTED: Uzoamaka Okoro is one of three military women at the Warren Alpert Medical School. "My whole life has been making commitments," she says.

A COMPLICATED PAST

Half a century ago Brown University discontinued ROTC (Reserve Officer Training Corps) on campus amid protests over the Vietnam War.

"Brown's history with the military is very complicated," Evan Stern '16 MD'20 says. "I was surprised that there were as many veterans as there are at Brown."

Service men and women from every branch have now returned to the campus. In 2012, the University established the Office of Student Veterans and Commissioning Programs to assist them.

Senior Associate Dean for Medical Education Allan R. Tunkel, MD, PhD, is impressed by the students who have military backgrounds. "I think the veterans contribute to the diversity of the students we are seeing at the school and bring a wealth of experiences that are important for our other students to hear about," he says.

Not everyone knows these students were in the military. And they don't always proactively talk about it. Receptions from other students have ranged from awkward to accepting.

"Around here at Brown and in medical school in general, like nobody in their entire life has been in the military," McGlone, 24, says. "They have never known anyone in the military, their family doesn't know anyone in the military. All they know is what they see on TV. I personally have had a great experience here in terms of people being curious."

"During first year, apparently people were scared of me; I intimidated a lot of people," Tom Lopardo says. "I had a beard. I have full tattoos. … People just saw that and

READY TO SERVE

The Health Professions Scholarship Program prepares students for military service—and medicine.

Six students at the Warren Alpert Medical School are just starting their military careers. The Health Professions Scholarship Program (HPSP) offered by the Army, Navy, and Air Force provides tuition, books, fees, and living expenses, and it commissions medical students as second lieutenants. After medical school, the HPSP students will complete military residency programs and then be deployed, serving one year of active duty for every year in the program.

Nationwide, approximately 270 medical students graduate in the Army HPSP annually. They make up 80 percent of active duty military physicians.

Uzoamaka Okoro '16 MD'20 decided to be a doctor at age 16 and applied to Brown's Program in Liberal Medical Education. Three years later she joined the military via the HPSP.

"I decided to pursue a career in medicine because I truly value wellness, justice, and equality," Okoro says. "My whole life has been making commitments."

Born in Los Angeles to parents from Nigeria—her father is an engineer and her mother a VA nurse—Okoro ran track and played rugby for Brown and the US national team. She was inspired to join the military after watching her mother care for veterans and their families.

She chose the HPSP not only to minimize the financial burden of medical school but to have the opportunity "to bring the humanity of medicine to the military in violent or high-conflict contexts, and … to treat not only American soldiers and their families but also civilians in other countries and even potential combatants."

Timera Brown MD'22, also in the Army HPSP, graduated salutatorian from Tougaloo College in 2018.

"I have wanted to attend med school since age 8 when I was by my mom's side when she was being treated for her brain cancer," Brown writes in an email. "HPSP is a huge financial blessing … and an awesome opportunity to give back my services."

HPSP students attend a Basic Officer Leadership Course before medical school. Tim Wright MD'19 believes that training helped him particularly during his third year of med school, when he began to face the fatigue, stress, and hierarchy of health care.

"Especially going into clerkships, where there is much more of a team unit, with a hierarchy, there are people directly above you and there are people many notches above you," he says. "Being familiar with a chain of command was helpful. I think you are much more prepared for that when you have some exposure to another system."

Their experience with the military's structure as well as its organizational feedback and accountability may serve these doctors-in-training well.

"Medicine is a team sport. No matter what you are doing, you have to learn to work with other people," Wright says.

people were kind of hesitant with my appearance, I guess.

"But my core group of friends—they seem to think I am a big teddy bear," he says.

Scotti Pfirrman is more than willing to talk to anyone who's interested. "We all have our own experiences and stories, and if you are interested, just ask," he says.

Stern says he doesn't think there's tension between the military and civilians, but there's "a lack of knowledge here at Brown. The fact that a lot of people around us, they just don't know about the military. They are curious and willing to learn, but they just don't know."

He graduated from Brown and is now an HPSP medical student (see sidebar). He is also an EMT and volunteer fireman—and chose medicine over a shot at a baseball career. He says sometimes being in the military at Brown can feel like being the "other."

"I think it is just like anything else: if you have never encountered someone who is X or Y, that is the 'other,'" Stern says. "But when you start realizing that whatever label is being used pejoratively, [it] has a person behind it, and that person is not so different than you—that is where tolerance and understanding truly comes from, that personal interaction."

Lopardo agrees. "Just like everyone else who has life experience, everyone has something to bring to the table," he says. "There are things you can learn from people. Everyone can learn something from everyone else."

Including learning not to stereotype. "Don't lump us into a category. Just because I am tattooed and have a beard and was an infantry guy doesn't mean I support Trump and that everyone should be deported and all that crap," Lopardo says. "Honestly, people are a lot of times just scared to ask questions. Don't be afraid to ask questions. If you ask a question I don't want to answer, I am going to tell you that. It is as simple as that."

They may disagree on US foreign policy, but as soldiers they defend the Constitution and the country. Their reasons for becoming doctors, their personal and political views, their socioeconomic backgrounds, races, and genders vary. They represent a wide range of backgrounds and beliefs.

Anthony Yao MD'21, an Air Force HPSP student, describes himself as "a college-educated Chinese guy from a privileged upper-middle-class background." He says the military is a true place of diversity.

"I could tell you that it is stressed in the military that your race, ethnicity, creed, sex, etcetera does not matter—what matters is if you can get the job done, and in my opinion that is as objective and fair as any criteria can be," he wrote in an email.

> "If they ever called and said they needed something, I would be right there."

Uzoamaka Okoro '16 MD'20 is one of three military women at the Medical School. (Timera Brown MD'22, a graduate of Tougaloo College, joined the first-year class along with Lauren Luther.)

"Being a woman of color in these two historically exclusive spaces, I am conscious of my intertwined identities and how they may impact how others see me and how I may choose to approach a situation," Okoro says. "When I'm in the military setting, I notice that I am extremely aware of my gender. When I'm in on the medical side of things, I feel more aware of my race."

"Actively making the choice to join the military inherently involves relinquishing a piece of your individuality for the well-being and strength of the Army," she says. "However, I have not felt that I have had to compromise my identity in order to serve."

FRIENDS FOR LIFE

The camaraderie among this group is palpable. They tease each other one minute and offer support and comfort the next. They are like supportive siblings with a bond of brother- and sisterhood—especially if one is having a tough time on Memorial Day or other anniversaries.

Just as they did in Afghanistan and elsewhere, these former soldiers still look out for each other. "If they ever called and said they needed something, I would be right there. … I know for sure I could count on them if I needed something," Lopardo says.

Pfirrman adds, "The fact that they are there and I could reach out to them … is huge."

"These are probably my best buddies here," Kinczewski agrees.

The group's loyalty and leadership are matched only by their selflessness and humility. "Anything I have accomplished in the military was a direct result of the incredible Marines I had the privilege to lead," Luther says.

Their devotion and work ethic will undoubtedly translate to the care of their patients someday.

And at least one former soldier, Tom Lopardo, is thinking of returning to the military. But instead of as a medic, he will be a surgeon.

Terry L. Schraeder *is an internist and a clinical assistant professor of family medicine at the Warren Alpert Medical School. She is the director of the Physician as Communicator Scholarly Concentration.*

SCIENCE IS A TEAM SPORT

THE DAYS OF "SCIENCE FOR SCIENCE'S SAKE" ARE OVER. ADVANCE-CTR IS LAYING THE FRAMEWORK FOR RESEARCH THAT CAN BE TRANSLATED INTO THERAPIES, DIAGNOSTICS, AND GOOD PUBLIC POLICY.

BY PHOEBE HALL
ILLUSTRATION BY STUART BRADFORD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JIM PADBURY, MD,

KNOWS

HE USES

TOO MANY

SPORTS METAPHORS.

"There's no I in team."

"We're together on the same field."

"We meet at the 50-yard line."

These all came out in about 15 minutes. But it wasn't gratuitous, really; the Patriots fan (and former high school football player) had a point. Just as no one person can bring home the Vince Lombardi trophy, no one institution can land the NIH grant that everyone calls IDeA-CTR (mercifully condensed from Institutional Development Award Program Infrastructure for Clinical and Translational Research).

"We, Brown, wanted to be in the translational research game," says Padbury, the William and Mary Oh-William and Elsa Zopfi Professor of Pediatrics for Perinatal Research and professor of pediatrics. But the IDeA-CTR is designed to bring institutions together, not compete with one another. "This needed to be not a Brunonian grant but a Rhode Island grant," he says.

The IDeA program was established by the National Institute of General Medical Sciences in 1993 to build biomedical research capacities in states with historically low levels of NIH funding; just 10 states or groups of states have earned its CTR award. All are coalitions of academic and health care institutions.

Though Brown is the host institution for this infrastructure award, Padbury stresses they're on equal footing with their five partners: the University of Rhode Island, Care New England, Lifespan, the Providence VA Medical Center, and the Rhode Island Quality Institute.

That collaboration, he says, was "central to our success." They landed $19.5 million in funding over five years to establish Advance Clinical and Translational Research (Advance-CTR) in 2016, of which Padbury is program director. Right away the group began funding research, providing training and services, and nurturing early-career scientists across Rhode Island.

Now, as they enter year three of the grant, they're seeing results. Research is already being translated: from lab to market, from bench to bedside, from knowledge to action.

"Translational research" may be one of the latest buzz phrases in science, but it neatly expresses the purpose of medical inquiry since time immemorial. Whether the question is big or small—how does this protein cause disease? does this device improve diagnosis? why do so many people who work here have cancer?—the end goal is to help patients and enhance public health.

But changing the world doesn't come cheap: it requires funding and job security, mentoring and professional support, data analysis services and training. Advance-CTR makes all of that and more available "to any clinical and translational researcher in the state," says Helen Leffers, MS, the administrative director of Advance-CTR.

That goes for investigators beyond the program's six partners, adds communications manager Gabrielle Stranieri. "We really are a hub for resources," she says.

"Translational research" may be one of the latest buzz phrases in science, but it neatly expresses the purpose of medical inquiry since time immemorial.

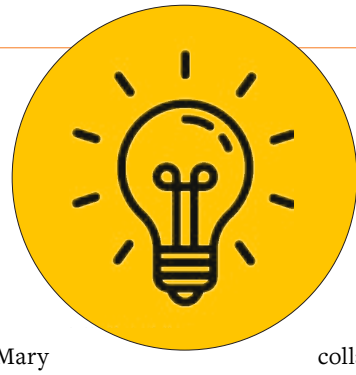
Already they have funded more than 50 investigators, through their Pilot Project awards, which support collaborations across disciplines and institutions; Mentored Research Awards, which provide protected time and funds for junior researchers; and other programs. Advance-CTR also offers an array of research services in biostatistics and study design, biomedical informatics, and clinical research; and holds classes and workshops at locations across the state on topics ranging from data management to ethical research practices to mentoring training.

But wait, there's more. "We have also catalyzed more than a dozen successful extramural research awards and one startup company," Padbury says, pausing for emphasis. "In two years."

With renewal of the IDeA-CTR award in mind, Leffers believes they'll be able to report a high return on investment. "Success for us means showing the impact of our awards and services on the Rhode Island research community," she says. "We want to be able to tell the story of how investigators have been able to advance their research and their career development as a result of our resources."

Here are a few of those stories.

A BRIGHT IDEA



When Eliza Van Reen PhD'07 and Gustavo Fernandes, PhD, teamed up to develop technology that could help sleep-deprived teenagers do better in school, a light bulb went on.

Research by sleep experts like Mary Carskadon, PhD, professor of psychiatry and human behavior, suggests that early school start times undermine adolescents' academic performance because their natural circadian rhythms keep them up too late to get a good night's sleep.

In 2014 Carskadon began collaborating with Jimmy Xu, PhD, professor of engineering and of physics, on a dynamic (or "smart") lighting system for schools that could shift the circadian rhythms of sleepy teens to help them stay awake and, ultimately, improve their grades.

But lots of other people live lives that don't match up with their internal clocks—shift workers, medical residents, and security guards, among others. Van Reen and Fernandes, the junior researchers on the project, saw an opportunity to scale up. "We thought that our technology could be of broader interest to other groups," Van Reen writes in an email.

Before they could get to that point, though, they needed a boost. That's where Advance-CTR's Pilot Projects Program came in.

When the pair met, Van Reen was an assistant professor of psychiatry and human behavior. She had completed her PhD in Carskadon's lab and, after postdoctoral training at Harvard Medical School, she returned to Brown to continue her research on health issues related to adolescent sleep. Fernandes, meanwhile, was a postdoctoral researcher in Xu's lab, working on photonics—technologies that generate and manipulate light, from everyday devices like our phones and TVs to specialty equipment like medical imaging and optical lasers.

Van Reen and Fernandes enjoyed their collaboration and wanted to build on it. "As we approached the final stages of the [school lighting] project, we wanted to further develop the use of sensors along with the circadian-targeted light recipes that we had been working on," Fernandes writes in an email. "We decided that [the Advance-CTR award] would be a good fit as we could leverage some of the resources of the ongoing project, like participants, light systems, etc., and quickly establish proof-of-concept."

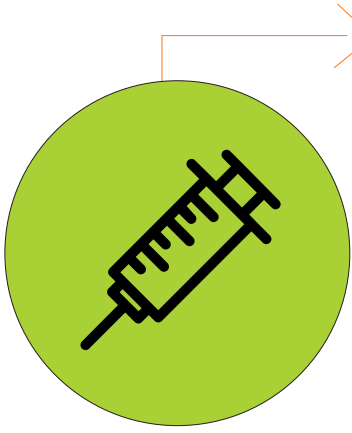
With their Pilot Project award, they did just that. They started talking about commercializing their system and wrote a patent application. The word "startup" crossed their lips.

"The idea of making the leap from academia to startup happened gradually," Fernandes writes. They sought advice on funding strategies, intellectual property, legal matters, and marketing. "We gave up our academic positions after we talked to investors," Van Reen said at the annual IDeA Symposium in June. "It's hard to get money if you have a foot in both doors. People don't believe you're committed."

Van Reen and Fernandes founded Circadian Positioning Systems in Newport in 2017. But they haven't completely cut the cord with Brown. "We both still talk to our academic mentors all the time," Van Reen said.

It's no problem for Advance-CTR that two of their awardees left academia, Leffers says. In fact, they "absolutely" consider it a success. "Our goal is to improve health in Rhode Island," she says.

A JOINT DISCOVERY



Brett Owens, MD, says he isn't trying to put himself out of business. But if he can find an alternative to the meniscus tear surgery, one of the most common orthopedic procedures, the chief of sports medicine at The Miriam Hospital might have some more free time on his hands.

Owens, a professor of orthopaedics, and Chathuraka Jayasuriya PhD'13, an assistant professor of orthopaedics (research), are using their Pilot Project award from Advance-CTR to investigate whether mesenchymal stem cells, which derive from bone marrow, could be used to repair meniscus tears.

"One of our goals is hopefully to be able to avoid a surgical intervention, and hopefully be able to work just with an injection, potentially, of cells," Owens says. He's hedging because their idea is very much unproven right now—but, he adds,

"The future is definitely biologic."

Jayasuriya admits that at first he wasn't excited about the project. A cartilage biologist, he'd been pursuing the idea of using stem cells to repair cartilage damaged by osteoarthritis (OA). Because meniscal tears are often associated with OA, and vice versa, Owens theorized they could use stem cells to repair them, too. Jayasuriya came around: "If you could try to attenuate [OA] at an early stage by preventing the injury or by healing the initial injury that causes the disease, that might be a unique strategy," he says.

Allogenic, or donor, stem cells present challenges when transplanted to treat blood diseases or tumors, because native white blood cells identify the foreign cells and destroy them. But the knee joint is a "unique environment," Owens says, because it doesn't have a blood supply; nutrients are delivered through the joint fluid. "This is what's piqued our interest: the potential absence of blood supply could be a mechanism that allows allogeneic tissue to be able to revive and heal in the environment," he says.

Using stem cells isolated from young, healthy cartilage and menisci, Jayasuriya and Owens say they've done proof-of-concept studies and submitted two papers. They have a patent pending on the cells and plan to apply for an NIH Research Project Grant (R01). "The preliminary data, it looks great," Owens says. "This is a little bit pie in the sky, or a moonshot. But it's pretty exciting."

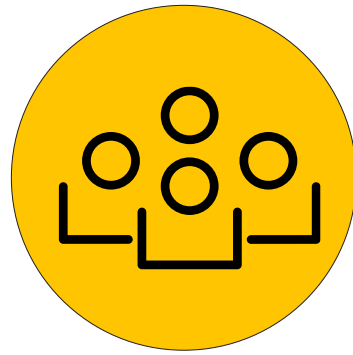
They have recently seen the injectable meniscus therapy work well in human organ culture experiments, Jayasuriya says. "We've only scratched the surface. And I think the CTR gave us the opportunity to do that," he says. "You need to have some sort of funding mechanism that says, 'hey, I believe that you guys can make it,' for anything to happen."

He credits the award for their collaboration, too. "[Owens] does the surgeries, and I do the molecular biology," Jayasuriya says. "It's a really nice system that they encourage. I don't think it really would have been easy without something like that pushing us together."

STRONGER TOGETHER

Connecting researchers across disciplines and institutions is one of the chief missions of Advance-CTR. Its first community engagement Pilot Project award brings together not only researchers from Brown and the University of Rhode Island, but also members of the Narragansett Indian Tribe, whose reservation encompasses 1,800 acres in Charlestown, RI.

Two freshwater ponds are the centerpieces of that land, where people fish for bass, perch, pickerel, and other species. But historically the Narragansetts lived on a far larger swath of southern New England, says Elizabeth Hoover AM'03 PhD'10, Manning Assistant Professor of American Studies at Brown, and they hunted, fished, grew, or traded for all of their own food. Now, she says, with their seriously reduced land base and no shoreline access ("No one wants to share their beachfront property"), fish from the ponds are a critical connection to the tribe's past food sovereignty.



That's why testing that found the two ponds are contaminated with mercury and PCBs, a legacy of the state's industrial past, was so devastating to the tribe, says Hoover, who's written extensively about food sovereignty and the cultural effects of fish advisories.

"You've got this conundrum here," adds Marcella Thompson, PhD, an assistant professor of nursing at URI. "While you want to protect the public … when tribal peoples don't eat the fish and don't go fishing, they lose the language around what the fish are called, they lose their traditional methods of fishing, and they lose that connection to culture and community."

Thompson, Hoover, and their co-PI, Dinalyn Spears, MS, the tribe's director of community planning and natural resources, are partnering with the Narragansett tribal government to assess the impacts of the contamination. The collaboration first came about in 2013 when Hoover contacted Spears on behalf of the community engagement arm of Brown's Superfund Research Program, which she co-leads with Thompson.

"I knew Dinalyn because we're both fancy shawl dancers," says Hoover, who is part Mohawk and part Mi'kmaq and has danced at the Narragansetts' annual powwow. "I asked her, what are things you wished you had the time and resources to work on, and how can we help you get funding and the help you need?"

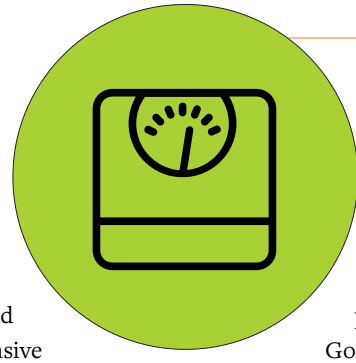
Preliminary sampling by the EPA several years ago had indicated the fish were contaminated with mercury, and Spears wanted to confirm it.

Superfund and other grants covered the tests as well as focus groups, which asked Narragansetts how they used the ponds and what the fish and fishing meant to them, Hoover says. Tribal members helped the researchers catch the fish for analysis and develop community engagement activities for kids and adults, including fishing tournaments, workshops, and art projects.

Thompson says the Advance-CTR Pilot Project award allowed them to develop a fish consumption survey, and is helping with statistical analysis. The project represents a somewhat different type of translational research than the clinical work many CTR awardees are doing, as the team—including the tribe—will translate their findings "into knowledge and education, and then into policy, and then into action," she says. When the researchers bring their results to the Narragansett leadership, they, and the tribe's members, will decide what to do next.

"They are a sovereign nation," Thompson says. "Some of them have said, regardless, because it's so important to them, they're going to continue to eat the fish. These will be difficult decisions to make."

MOVING ON UP



The main goal of cardiac rehabilitation is just like it sounds: rehabbing your heart. But patients who go through the program—most of whom have had a heart attack or cardiac surgery and are overweight—often make radical lifestyle changes, including exercising more and eating better. Yet after 12 weeks of intensive therapy, they don't lose much weight.

"One could imagine that that could be really discouraging," says Carly Goldstein, PhD F'17. "And it makes me wonder about how that affects long-term adherence."

Goldstein has been studying cardiovascular health and behavior since she was a grad student at Kent State. During her postdoctoral research fellowship in The Miriam Hospital's Weight Control and Diabetes Research Center, she applied for a career development award (K23) from the National Heart, Lung, and Blood Institute; when she didn't get it, a colleague forwarded her the call for Advance-CTR applications. In July 2017, she received a Mentored Research Award.

"I was overjoyed," Goldstein says; she had funding to stay at Brown for another two years. Then came more good news: she'd resubmitted the K23 application, and thanks to the show of support from Advance-CTR, this time the grant came through.

"Our award … makes [trainees] even more competitive for these Ks from NIH," says Advance-CTR's program coordinator, Ed Hawrot, PhD P'14, who is also the senior associate dean for biology and the Alva O. Way University Professor of Medical Science at Brown.

"For CTR, [Goldstein's K23] is a major success because she was able to transition from our local institutional career development award mechanism to an individual, faculty-level award from the NIH that is highly competitive at a national level," Hawrot adds. "The K23 award provides protected time—three to five years—for intensive training to prepare recipients to conduct NIH-supported, patient-oriented research."

Now an assistant professor of psychiatry and human behavior (research), Goldstein is trying to tease out which interventions not only best help cardiac rehab patients lose weight, but that they'll also keep using. Cardiac rehab is "one of the only intensive lifestyle interventions that we have full insurance coverage for," she points out. "To not have these folks losing weight is a real missed opportunity."

All of the tools Goldstein will offer in the study have a technology component, from an activity tracker like a FitBit, to a virtual reality game (which she helped develop on another grant) where players decide whether the main character will eat a doughnut at the office or go for a walk. "It's like a choose-your-own-adventure game," she says, that will "allow the user to practice the behavioral skills that we're teaching." Participants also might attend virtual meetings on topics related to weight loss, including how to make cultural foods more heart healthy. "I'm probably going to do one on eating at your favorite Rhode Island restaurants—how to go to a clam shack and still stay on track," she says.

Goldstein continues to work closely with her CTR project mentors, and two of them—Professor Rena Wing, PhD, and Associate Professor Graham Thomas, PhD, both in psychiatry and human behavior—tapped her to be co-investigator on their study to improve the long-term effectiveness of an online weight loss program.

"Without the CTR," Goldstein says, "I wouldn't be able to do something like this, because I wouldn't have had a faculty position."

Center Stage

How did humans evolve to have reason, consciousness, and free will? An excerpt from KENNETH MILLER'S latest book, *The Human Instinct*.

I'm hoping for a clear sky tonight. It's expected to be the peak of the annual Perseid meteor shower, a chance to glory in streaks of sudden fire as fragments of a comet come crashing through the Earth's atmosphere. In between those moments of spectacle, there will be a chance to lie still in the darkness and absorb the quiet beauty of the nighttime sky. The experience has always made me feel small against the vastness of space, but it's also one that has helped me, as a biologist, appreciate what it means to be human. Although I expect to be alone in my small backyard, I'm not the only one who will be looking up tonight. Tens of thousands of people will be watching around the world, a quiet and widely scattered assembly of those who remain fascinated by such events year after year.

Consider the setting. Joined by these many others, I'll lie back against the surface of a small, rocky planet, peering up in wonder at the twinkling riot of forms and colors and patterns. The sparkling fire of the meteors is new, generated only a fraction of a second before it flashes across the sky. The tapestry of starlight, however, is a sampling of history, some of it unimaginably ancient. I orient myself by Polaris, the north star, fully aware that the stream of steady light it provides is more than four hundred years old. Sirius is much brighter, owing to its nearby position. Its light took just eight and a half years to reach me.

Of all the creatures, of all the forms of life that grace the surface of this small planet, there is only one that looks this way into the nighttime sky. Only one knows the Perseid spectacular is coming. Only one plots the distances to stars. Only one contemplates the age of its universe, only one is aware of the mysteries to be solved in starlight. While all of life is one, while all of life is linked by ancestry, structure, and design, only the human creature seeks answers to questions in the stars. This is what makes it worthwhile to consider how this creature came to be, and what its presence on this planet means.

ADAM'S PROMISE

For people in Western cultures, the character of Adam once defined the essence of human nature both in promise and tragedy. As author Marilynne Robinson '66 has noted, the story of evolution brought on the collapse of the Genesis narrative, and with it, in her view, the enlightened humanism that produced Western civilization and gave birth to the very science that would, ironically, lay waste to the myth of Eden itself. To her and many others, Adam was much more than a pseudo-explanation for the origin of our species. He was the metaphorical source of man as a moral creature with obligations to family, community, and ultimately to the righteousness of truth. While evolution is surely true, as Robinson admits, what it put in Adam's place was hardly a satisfactory image to replace these fine qualities:

> *For old Adam, that near-angel whose name means Earth, Darwinists have substituted a creature who shares essential attributes with whatever beast has recently been observed behaving shabbily in the state of nature. Genesis tries to describe human exceptionalism, and Darwinism tries to discount it.*

I think Robinson is fundamentally wrong about the implications of what she calls "Darwinism." That is, in fact, my reason for writing this book. But she is surely right about the conclusions many have drawn from the emerging story of human evolution. We could begin with the very exceptionalism she tries so valiantly to defend. Henry Gee, in his book *The Accidental Species*, also discounted such exceptionalism. Nothing, he wrote, is uniquely present in our species, including attributes such as language, toolmaking, intelligence, mathematics, or even self-awareness. So, we have no reason to presume ourselves special, unique or, as Gee gleefully points out,

ILLUSTRATION BY KEN ORVIDAS

the "pinnacle of Creation." We're just not that big a deal, and we have no business thinking otherwise.

Gee's gospel of insignificance states that evolution was not bound to produce us or anything like us. The drama of evolution plays out not in an irresistible rise to perfection, but in a random walk through endless possibilities, none more significant than the other, none especially worthy of our attention.

If these constructions tend to devalue human life just a bit, in the eyes of many interpreters of "Darwinism," there are even more depressing findings to deal with. Our bodies, our minds, our behaviors have all been shaped by the harsh demands of survival in the face of the relentless pressures of natural selection. As a result, however sophisticated we may seem, we are rude creatures at heart, motivated by drives and values that serve principally to propagate our genes and ensure our own survival and that of our kin. As Richard Dawkins once wrote, "Let us try to teach generosity and altruism, because we are born selfish." The endowments of evolution apparently include a surplus of ruthless greed and aggression, but a deep and telling absence of love and kindness, virtues that, according to Dawkins, are not inherent in our species and can only be passed along by deliberate effort.

To all too many, the answers that emerge from the Darwinian narrative are dark, foreboding, and deeply unsettling. First among these is the conviction that our minds are not our own. They surely were not formed in the image and likeness of a supreme being, and they were not even fashioned in a way that allows us to seek the truth of our own existence. Rather, our brains are organs like any other, only one component of a survival machine designed to resist death just long enough to push its genes forward into the next generation of struggling, highly socialized primates. Evolutionary psychology can explain our moral values as instinctive behavioral patterns hewn only by selection for life within the group. Art is made to attract mates, altruism is practiced for selfish reasons, even if we "think" otherwise, and "truth" is a constructive illusion connected only loosely to an unknowable reality. Freedom of thought and action is part of that illusion, a lie the brain tells itself to allow the human animal to function in a way that enhances its chances of success. High culture is not the work of genius, but the product of chance adaptations working in many brains to sculpt a veneer of beauty around the mundane realities of life and struggle. Beauty itself is defined only by its ability to produce such illusions as allow us to go on under the absurd circumstances of personal futility and ultimate death.

Seen by those who would explain every impulse, from anger to joy to love, in Darwinian terms, the human project seems worthy of neither pride in past nor hope for the future. If even consciousness is an illusion, then it is pointless to contemplate that future, seek wisdom in the past, or celebrate human achievement. By contrast, the myth of Adam once affirmed a genuine humanity. It told us that choices were freely made, that their consequences were genuine, and that rebellion made possible by truly independent thought was an essential part of human nature. It was for such reasons that Marilynne Robinson lamented the "death of Adam" in terms like these:

> *Our hypertrophic brain, that prodigal indulgence, that house of many mansions, with its stores, and competences, and all its deep terrors and very right pleasures, which was so long believed to be the essence of our lives, and a claim on another's sympathy and courtesy and attention, is going the way of every part of collective life that was addressed to it—religion, art, dignity, graciousness.*

While certainly not a creationist in the sense of denying evolution, Robinson perfectly articulates the profound concerns of those who recoil from extremes of the "Darwinism" she describes in such chilling terms. But her view of evolution as a denial of human nature, as a nihilistic project that devalues not just religion, but art, music, literature, and even science, is, I believe, profoundly wrong. What evolution tells us about human nature projects an entirely different vision of our species. It invites us to revel in the living world of which we are a part and to see ourselves as central characters in the greatest drama the universe has yet brought forth. It is a story that fully matches the sense of grandeur with which Charles Darwin once tried to endow his greatest theory, and we should delight in telling it.

Kenneth R. Miller '70, P'02 *is a professor of biology. He studies cell membrane structure and function and has produced more than 60 scientific papers and reviews. He is the author of the popular books* Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution *and* Only a Theory: Evolution and the Battle for America's Soul. The Human Instinct: How We Evolved to Have Reason, Consciousness, and Free Will *was published in April 2018.*

► *To watch a video interview with Ken Miller, go to www.brownmedicinemagazine.org.*

ALUMNI ALBUM

CHECKING IN WITH BROWN MEDICAL ALUMNI

OPENING CELEBRATION: Associate Dean Allan R. Tunkel, Laura Dean MD'18, and her husband, Jay Kelly, left to right, kick off Commencement weekend.

MADELINE JOHNS

CLASS NOTES
ALUMNI

1978

Stuart Merl '75, a medical oncologist, retired in January. "I admit I am a casualty of the Epic electronic medical record. On the other hand, retirement is great. I have more time for visiting family, other travel, hobbies, and house maintenance chores. Pamela Guise Merl '75 and I are still married, with seven grandchildren."

1980

Judith Owens, MPH '77 F'87 is the director of the Center for Pediatric Sleep Disorders at Boston Children's Hospital and a professor of neurology at Harvard Medical School. She was the lead author of the 2014 American Academy of Pediatrics Policy Statement supporting healthy school start times. Previous roles include director of the Pediatric Sleep Disorders Clinic and the Learning, Attention, and Behavior Program at Hasbro Children's Hospital and associate professor of pediatrics at the Warren Alpert Medical School. She is the editor-in-chief of *Behavioral Sleep Medicine*.

1982

Lloyd Minor '79, P'16, dean of the Stanford University School of Medicine, was a featured speaker at the sixth annual Big Data in Precision Health Conference at Stanford in May. Under his leadership, Stanford Medicine has established a strategic vision in precision health. A professor of otolaryngology-head and neck surgery and a professor of bioengineering and of neurobiology, he's an expert in balance and inner ear disorders. In 2012, he was elected to the National Academy of Medicine.

Peter Panton '79, P'11MD'15, PMD'21. See **Christina Panton** '11 MD'15.

1983

Richard Ellenbogen '80, P'11MD'18 saw his daughter, Rachel Ellenbogen '11 MD'18, graduate from the Warren Alpert Medical School in May. She's now an intern in the family medicine

ANYTHING TO SHARE?

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

program at Strong Memorial Hospital in Rochester, NY. Rich is an attending surgeon at Harborview Medical Center in Seattle and a professor and chair of the University of Washington Department of Neurological Surgery.

1986

Andree Heinl ’83, PMD’15, PMD’18. See **Rob E. Heinl IV** MD’15.

Robert Panton ’83 MMSc’86. See **Christina Panton** ’11 MD’15.

1996

Andrew Capraro celebrated his 18th year at Boston Children’s Hospital as an attending in their emergency department. He’s led the ED’s IT initiatives since 2007, implementing an EHR, then branching out into business intelligence. He has received teaching awards and recently was voted vice president of the Medical Staff Organization. He writes: “While Brown Medical School is a bit in the rearview mirror (over 20 years ago!!!), my experience there has been a major influence and has definitely motivated me throughout my career. If anyone wants to contact me, they can reach me at andrew.capraro@childrens.harvard.edu.”

1998

Myechia Minter-Jordan, MBA ’94, president and CEO of the Dimock Center in Roxbury, MA, was named to *Boston Magazine*’s “The 100 Most Influential People in Boston” list. The magazine wrote that she’s “become one of the leading voices on various medical issues, not the least of which is the opioid crisis. … [I]n a city that really needs more influential people of color in senior roles, she has stepped up in the media, in community activities, and on boards across the city.” (See *Brown Medicine*, Spring 2016.)

REUNION DINNER: Above, alums reminisce over a photo taken on their graduation day. Left, Jonathan Lee ’99 MD’03; his wife, Glenna Lee; and their kids, Annika and Sarina, dress up for their close-up. Below, Brown Physicians, Inc. board members Mark Sigman, Angela Caliendo, Jack Elias, Karen Furie, Louis Rice, and Abrar Qureshi (left to right) accept the W. W. Keen Award from the Brown Medical Alumni Association.

MADELINE JOHNS

ALUMNI ALBUM

COOKE LECTURE: Mike Zahalsky '95 MMS'98 MD'99 (top right) spoke to a full house of alums, students, and families, including Peter Bevins MD'78 (left) and Randa Reitman '80 MD'83 (above).

1999

Graham Gardner '95, CEO of Kyruus, a Boston-based startup that helps pair patients with providers, has raised $10 million in funding to grow its platform, which is used by health systems such as University of Miami Health System and USF Health.

2005

Barham Abu Dayyeh, MPH, a gastroenterologist and the director of Bariatric and Metabolic Endoscopy at the Mayo Clinic, visited Al Kuwait Hospital in the United Arab Emirates in July as part of the Ministry of Health and Prevention's Visiting Doctors Program. His interests include bariatric and metabolic endoscopy, manage-ment of post bariatric surgery complications, endoscopic retrograde cholangio-pancreatography, and endo-scopic ultrasound.

Paul George, MHPE '01 RES'08 became the associate dean for medical education at the Warren Alpert Medical School in July. He will continue to oversee the clinical curriculum across all four years of study, and will work with the directors of educational programs including innovation and entrepreneurial activities and the MD/PhD program. Paul led the effort to integrate extensive training in substance abuse screening and intervention into the curriculum, including instruction in medication-assisted treatment of opioid use disorder.

2008

Grace Cheung '04 married Thomas Yu in Cape May, NJ, in August 2017. Alums in attendance included **Melissa Choi** '04 MD'09 and **Teddy Youn** '02

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MD'09. Grace is the digital director for Chicago Mayor Rahm Emanuel and Tom is an outpatient pharmacy manager at Mount Sinai Hospital in Chicago. Contact Grace at yuhavegrace @gmail.com.

Carla Moreira is a clinical assistant professor of surgery at the Warren Alpert Medical School and a vascular surgeon with University Surgical Associates, with affiliations at Rhode Island Hospital, The Miriam Hospital, and the Providence VA Medical Center.

2009

Melissa Choi '04. See **Grace Cheung** '04 MD'08.

Teddy Youn '02. See **Grace Cheung** '04 MD'08.

2011

Ajar Kochar, MHS, is an interventional cardiology fellow at Duke, where he also trained in cardiovascular medicine, earned his Master of Health Sciences, and completed a clinical research fellowship. He completed his internal medicine residency at Johns Hopkins Hospital. Ajar received a Duke Institution for Health Innovation grant to develop a machine learning-based model to identify patients with cardiogenic shock and predict cardiac decompensation. Follow him on Twitter @Ajar_Kochar.

2013

Ravi D'Cruz RES'16 F'19 received a Teaching Award in Pediatrics from the pediatric residents at Hasbro Children's Hospital. This is his second year receiving this award. He is a neonatology fellow in the Department of Pediatrics at Women & Infants Hospital.

2014

Matt Klein completed residency in June and is an attending physician in the emergency department at Northwestern Memorial Hospital in Chicago.

2015

Rob E. Heinl IV married Sarah Simpson on June 9 at St. Joseph Cathedral in Columbus, OH. An internal medicine resident at Emory University School of Medicine, Rob is the son of **Andree Heinl** '83 MD'86, PMD'15, PMD'18 and Robert Heinl, MD PMD'15, PMD'18 and the brother of **Nicole Heinl** MD'18.

Christina Panton '11 married Sam Wotzka on June 16 in Chicago. Brown was heavily represented by family and friends: Christina's father, **Peter Panton** '79 MD'82, PMD'15, PMD'21; uncle **Robert Panton** '83 MMSc'86 MD'86; and sister, **Connie Panton** MD'21; as well as **Zuni (Choudhary) Hafez** '11; **Tracey Martin**; **Hari Vigneswaran** MD'16; **Janani Vigneswaran** MD'16; **Linda Chao** MD'16; and **Laura Harrison** MD'21. Christina is an obstetrics/gynecology resident at Loma Linda University; Sam works in the film industry.

Tracey Martin completed the medicine residency program at New York University School of Medicine and began a fellowship in gastroenterology at Cornell this summer.

2016

Angel Byrd PhD'14, a postdoctoral research fellow in the Department of Dermatology at Johns Hopkins School of Medicine, received the CloudHealth Genomics Award for outstanding poster presentation at the New England Science Symposium at Harvard Medical School in April. She is investigating the role of neutrophils in hidradenitis suppurativa, a debilitating, inflammatory skin disease.

Linda Chao is a resident in the orthopaedic surgery program at Wake Forest University.

Hari Vigneswaran is in the urology residency program at the University of Illinois at Chicago.

Janani Vigneswaran is a resident in general surgery at the University of Chicago.

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SAUBER LECTURE: Jake Kurtis '89 PhD'95 MD'96 talks about his work to develop a malaria vaccine.

ALUMNI ALBUM

COMMENCEMENT: Clockwise from top, MD'18 grads Alicia Lu, Aviya Lanis, Indu Voruganti, Jason Sarte, Hans Gao, and Alice Tin (left to right) take a selfie; Ryan Clodfelter MD'18 with professor Jody Underwood, MD; Senior Citation winner Amos Charles, MD, delivers the faculty address; Natalie Locci-Molina MD'18 celebrates with her daughter.

DAVID DELPOIO

2018

Rachel Ellenbogen '11. See **Richard Ellenbogen** '80 MD'83.

Anshu Kataria is a member of the inaugural class of the Hackensack Meridian School of Medicine at Seton Hall University, making him something of a trailblazer: he received his ScM in May in the inaugural class of the Gateways Master of Science in Medical Sciences program at the Warren Alpert Medical School. A native of Edison, NJ, he earned his bachelor's at Rutgers and has been a volunteer EMT.

Shawn Verma '13 graduated from the Warren Alpert Medical School the same weekend as his five-year undergraduate reunion, and began his clinical psychiatry residency at SUNY Upstate Medical University in July. He remains interested in environmentalism and the proposed link between a greater mental orientation toward eco-psychology and novel psychedelic therapeutics, and enjoys pursuing good health through fitness, especially playing squash. Shawn had the good fortune to spend five weeks in Honolulu last winter doing a rotation at the Queen's Medical Center and exploring Hawaii in his free time. Contact him at shawn.s.verma@gmail.com.

2019

Matthew Lee '15 won first place in the 15th annual Michael E. DeBakey Medical Student Poetry Award from Baylor College of Medicine for his poem "nick in time." The DeBakey Medical Foundation, which sponsors the award, will submit his poem to a major medical periodical for consideration for publication.

RESIDENTS

1969

Betty Vohr, MD F'70, P'92 won the Albany Medical College Alumni Association 2018 Distinguished Alumna Award for her research and clinical work to improve the lives of high-risk premature infants and infants with hearing loss. She's a professor of pediatrics at the Warren Alpert Medical School, director of the Neonatal Follow-Up Program at Women & Infants Hospital, and medical director of the Rhode Island Hearing Assessment Program.

1997

Jonathan Gastel, MD, joined Care New England's Department of Orthopedic Surgery and Sports Medicine. After residency he completed his fellowship in sports medicine at the Cleveland Clinic Foundation and returned to Rhode Island, where he's worked as the Rhode Island College team physician and the orthopedic sports medicine team physician for Bryant University. He's a clinical instructor in orthopaedics at the Warren Alpert Medical School.

1998

Ilse Jenouri, MD, a clinical associate professor of emergency medicine at the Warren Alpert Medical School, was named the 2018 Charles C. J. Carpenter, MD, Outstanding Physician of the Year at The Miriam Hospital. She joined the staff in 2002 as an attending and served as the associate medical director of the emergency department for six years, becoming the medical director of the ED last year.

2003

Kara Pitt, MD, joined the Women's Health Center in Springfield, VT, where she practices obstetrics and gynecology. She earned a master's degree at Yale and worked as a registered nurse and nurse practitioner before earning her MD at the University of Illinois College of Medicine. After completing her residency at Women & Infants Hospital, she was an ob/gyn attending in Massachusetts until last spring, when she moved to Vermont.

2005

Ana Tuya Fulton, MD F'06, executive chief of geriatrics at Care New England and medical director of Integra Community Care Network, will be inducted into the 2019 class of American Geriatrics Society Fellows. A graduate of the George Washington University School of Medicine, Ana completed her residency in internal medicine, chief residency, and geriatric medicine fellowship at Brown, where she is a clinical associate professor of medicine and of psychiatry and human behavior.

2009

Ryan Shipe, MD, joined the Lung, Allergy, and Sleep Specialists of the Milford Regional Physician Group in Hopedale, MA. After medical school at Thomas Jefferson University, he completed his residency in internal medicine at Brown and a fellowship in pulmonary and critical care medicine at the University of Virginia Medical Center. Previously he served as the medical director for respiratory care at UMass Medical Center.

2013

Kavita Mishra, MD '04 F'16 is an assistant professor in the Department of Obstetrics, Gynecology, and Reproductive Sciences at UC San Francisco. A urogynecologist who specializes in pelvic floor disorders, she was a neuroscience concentrator at Brown. She earned her MD at UCSF before returning to Providence to complete her ob/gyn residency and a fellowship in female pelvic medicine and reconstructive surgery at Women & Infants Hospital.

2014

Sean Fine, MD F'17 is the director of the new Inflammatory Bowel Disease Center in East Providence. An assistant professor of medicine, clinician educator, at the Warren Alpert Medical School, he completed his MD at George Washington University and additional training related to IBD at UC San Francisco and Beth Israel Deaconess.

2017

Jason Rafferty, MD, MPH, EdM, is an attending psychiatrist and pediatrician at Thundermist Health Center, Hasbro Children's Hospital, and Bradley Hospital in Rhode Island. He's interested in complex issues surrounding adolescent development, including addiction and LGBTQ experiences, and sits on several committees concerned with youth mental health. He completed his MD, MPH, and EdM at Harvard and the triple board residency at Brown.

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2018

Kristen Woodward, MD, is a pediatrician at Edgewood Pediatric Services in Hamilton, Bermuda. A native of the island, she graduated from Jefferson Medical College and completed her pediatric residency at Brown. A certified lactation counselor, her clinical interests include nutrition and infant care.

2019

Pallavi Patil, MD, was selected by the American Society of Clinical Pathologists as a 40 Under Forty honoree. A pathology resident and resident director of the observership program, she mentors and teaches Warren Alpert medical students. Next year she will begin a gastrointestinal and liver pathology fellowship at Yale.

FELLOWS

2013

Rebecca Reece, MD F'13, an infectious disease physician in the Lifespan Lyme Disease Center at The Miriam Hospital Immunology Center, was named to the 40 Under Forty Program for 2018 by *Providence Business News*.

2017

Anze Urh, MD, joined Huntington Hospital in New York as a gynecologic oncologist. He completed his MD at the University of Miami Miller School of Medicine; his ob/gyn residency at Baylor College of Medicine; and his fellowship in the Program in Women's Oncology at Women & Infants Hospital.

OBITUARIES

ALUMNI

GARY B. WITMAN, MD RES'78

Gary B. Witman, 68, of Providence, died April 30. A graduate of Rutgers University, Dr. Witman received his medical degree from SUNY Downstate College of Medicine. He continued his training at the Mayo Clinic, followed by internship and residency in internal medicine at Brown/The Miriam Hospital. He completed a fellowship at Yale as the American Cancer Society scholar in medical oncology; he then became a National Cancer Institute program director as the head of all 12 comprehensive cancer centers throughout North and South America.

During his accomplished career in oncology research and internal medicine, Dr. Witman never put aside his hands-on work treating patients. He ran several Boston-area emergency rooms where he thrived in what he called "battlefield" conditions. With an uncanny talent to counsel, comfort, and diagnose, he demonstrated his great love for all around him with warmth, humor, confidence, and a depth of great humanity. His was the first and second medical opinion of countless friends and relatives, and was regarded within the medical community as a "physician's physician." He was an Eagle Scout, a lover of sports, an avid traveler, and an accomplished skier on the US Ski team.

In 2010 Dr. Witman suffered a life-altering accident, rendering him a quadriplegic. Despite his injury, his brilliance and passion for others only grew stronger; he relished his expanding family, and continued to work as a full-time physician.

He is survived by his wife, Dee Dee (Zarum) Witman, three children, and three grandchildren. Gifts in his memory may be made to Temple Emanu-El in Providence, teprov.org, or the United Spinal Association, unitedspinal.org.

KAREN B. VANIVER, MD RES'92

Karen Vaniver, 56, of Pasco, WA, died June 1. She graduated with honors from Temple University and earned her medical degree at the University of Pennsylvania School of Medicine in 1986. She completed the general surgery residency at Brown—where she received the Resident Teaching Award—and a plastic surgery fellowship at the University of Florida.

Dr. Vaniver maintained a private solo practice in Missouri from 1994 to 2005. She served on the Heartland Regional Medical Center Wound Care Program, and as president of the Buchanan County Medical Society and the Missouri Association of Plastic and Reconstructive Surgeons. She spent the latter part of her career at Lourdes Health in Pasco, where she was the chief of plastic and reconstructive surgery. Her practice focused on breast reconstruction and cosmetic surgery of

Karen B. Vaniver

COURTESY MARLENE CUTITAR

the face, breasts, and body, including reconstruction of complex cosmetic breast surgery problems. She also consulted on the management of complex wounds.

She held several American Society for Plastic Surgery leadership positions during her career, including membership on the society's Public Education, Instructional Course, Marketing, and Women Plastic Surgeons Steering committees; the Council on State Affairs; and the Young Plastic Surgeons Forum.

Marlene Cutitar '82 MD'86 RES'92, who was "the closest of friends" with Dr. Vaniver from the first day of their surgical residency together, says she was a true Renaissance woman who did outreach work in Ecuador and Honduras and was also a talented artist, musician, and writer. "Those of us who knew her were so very fortunate; those who did not will wish they did," she says.

Dr. Vaniver is survived by her mother, Phyllis; a sister and brother-in-law; and one niece and one nephew. Donations in her name can be made to the National Breast Cancer Foundation at nationalbreastcancer.org.

FACULTY

MICHAEL G. EHRLICH, MD

Michael Ehrlich, 79, former chair of the Department of Orthopaedics and pioneering orthopedic surgeon, died July 21, in Providence.

Born and raised in the Bronx, NY, he was a graduate of Dartmouth College and the Columbia University College of Physicians and Surgeons, where he was inducted into Alpha Omega Alpha. He completed an orthopedics residency and fellowship at the Hospital for Special Surgery. At the age of 32, Dr. Ehrlich joined Massachusetts General Hospital as chief of its new pediatric orthopaedic service and a member of the Harvard Medical School faculty. In 1990, he was recruited to Providence as the Vincent Zecchino, MD, Professor of Orthopaedic Surgery and chair at Brown as well as Rhode Island and The Miriam hospitals. Dr. Ehrlich worked doggedly to build a world-class academic department, creating a division of research and shaping its residency program into one of the most selective in the country (see *Brown Medicine*, Spring 2011).


Michael G. Ehrlich

He was known for his tireless work ethic, signature bow ties, wry sense of humor, and love of sailing. His legacy will live on through countless medical students, residents, and fellows.

Over the course of his long and distinguished career, he received countless honors and awards including the Kappa Delta Award, the highest research award given by the American Academy of Orthopaedic Surgeons. He also received the Huene Award, the highest honor given by the Pediatric Orthopaedic Society of North America. He was elected to several national positions, including the presidency of the Academic Orthopaedic Society as well as the Orthopaedic Research Society. He recently became an Inaugural Fellow of the Orthopaedic Research Society. Locally he received the Milton W. Hamolsky, MD, Outstanding Physician Award from Rhode Island Hospital and the W. W. Keen Award from the Brown Medical Alumni Association.

He was known for his tireless work ethic, signature bow ties, wry sense of humor, and love of sailing. His legacy will live on through the countless medical students, residents, and fellows he mentored; the success of the Department of Orthopaedics and University Orthopedics, its clinical practice; and the Michael G. Ehrlich, MD, Professorship in Orthopedic Research. He will also be remembered by the thousands of patients whose lives he touched as their physician.

Dr. Ehrlich is survived by his sons, Christopher and Timothy; their wives, Sara and Isabella; and five grandchildren. He was predeceased by his wife, Nancy Band Ehrlich.

The Michael G. Ehrlich, MD, Fund for Orthopedic Research has been established to support his lifelong passion and commitment to medicine. Contributions to the fund can be made via the Rhode Island Foundation, rifoundation.org.

DAVID DELPOIO

MOMENTUM

A Very Good Year

Dear Brown medical community,


Madeline Johns

Thanks to the generosity of alumni, parents, faculty, and friends, the BrownTogether campaign had an outstanding year.

The groundswell of support from the Brown community to increase investment in research, faculty support, and medical education has been truly inspirational. These areas are at the core of the Warren Alpert Medical School's strategic plan and will help to ensure that Brown continues to be at the forefront of discoveries in medicine and science.

Specifically, more than:

+ $70 million was raised this fiscal year to bolster our strategic plan. This is an extraordinary vote of confidence for our efforts, and it has helped us immensely.

+ $1.5 million was raised to support our medical students and education programs through the Brown Medical Annual Fund. Thanks to a record-breaking year, these gifts allowed us to award scholarships to 23 students, fund 50 summer research stipends, and much more.

With $151 million now raised toward our $300 million campaign goal, I am energized for the year ahead and our continued work together. These many gifts have provided support for the Brown Institute for Translational Science and Brown Biomedical Innovations Inc., which are paving the path from basic science discovery to commercialization and patient care. We are continuing to develop new areas of strength and to invest in existing ones, including Alzheimer's, malaria, and cancer.

I am proud to serve Brown and the Medical School as we move toward unprecedented levels of success. I look forward to the year ahead and to what we will accomplish as we embark on the second half of the campaign.

Thank you all,
Bethany Solomon
Associate Dean for Biomedical Advancement

Progress to Goal

BROWN TOGETHER

Courtesy St. Boniface Hospital

INVESTING IN RESEARCH

A Homegrown Medical Record System

At St. Boniface Hospital, a facility serving an especially resource-challenged region of Haiti, staff often use paper to keep track of patient information. But they wanted a coordinated digital system for medical records, and now with funding from an anonymous donor, the Brown Center for Biomedical Informatics (BCBI) plans to help them build one.

"We think that this would really transform something that we take for granted in this country," says BCBI Director Neil Sarkar, PhD, MLIS, an associate professor of medical science and of health services, policy, and practice. With a computerized system, the hospital could streamline processes and make sure thorough patient data is accessible for health care providers.

Undergraduate researchers have analyzed dozens of case studies to inform plans for the computerized system, which will be built using OpenMRS, an open source electronic health record system, cofounded by Hamish Fraser, MBChB, associate professor of medical science, that has been used to support projects in lower-middle-income settings. The team will "focus on getting one thing right, instead of getting a million things kind of right," Sai Allu '21 MD'25 says.

The system will be installed in a year or two, and the team plans to visit St. Boniface before and after deployment to observe the way the hospital functions. "To develop a proper medical records system, you need to be in tune with the environment and you need a system that is specific to the needs of the people there," Vedraman Narayan '21 MD'25 says.

Beyond the immediate benefits of consistency and efficiency in tracking patient information, the system will provide a wealth of patient data that can inform new initiatives at St. Boniface and advance studies in maternal and child health, an area of particular interest to the hospital.

"In order to go from the anecdotes to really impacting communities, we have to have real facts," Sarkar says. "If we have a population that's managed through an electronic health record system, we might be able to better identify these kinds of pain points."

—Elena Renken '19

INVESTING IN FACULTY

Immune System Priorities

Medical researchers tend to study one attack on the body at a time, observing the way a disease or injury progresses in isolation. But in reality, ailments often coincide.

Examining mice with a wound on the tail and a lung infection, Brown researchers found that the immune system prioritized healing the lung infection over the tail injury. "It's sort of this tug-of-war between the two," says Meredith Crane PhD'12, an investigator in molecular microbiology and immunology, who was co-first author on the study published in *PLOS Pathogens* in August.

The collaboration between the two lead researchers—Amanda Jamieson, PhD, assistant professor of molecular microbiology and immunology; and Jorge Albina, MD F'84, professor of surgery—was the result of seed funds provided by the Dean's Emerging Areas of New Science.

Dean Jack A. Elias, MD, established these grants to encourage campus and clinical researchers to collaborate. Jamieson brought her background in respiratory infection, while Albina contributed experience with wound healing.

The results were a little surprising at first, Crane says. Previous studies suggested that physical trauma might actually suppress the immune system's action on an infection. But as vital organs, infected lungs might send stronger signals to the immune system than the skin does as it strives to heal wounds far from the body's core.

The study calls for further research in the understudied area the researchers call immune triage—how the immune system sets its healing priorities. "It really has opened a lot of questions," Jamieson says, "questions that I think can best be addressed by looking at what's going on in the patients themselves."

Jamieson's lab already has begun other collaborations with doctors that stem from this study, including one examining wound fluid samples from orthopedics patients. "There are so many situations where the immune system is going to be pulled in two different directions," Crane says. Knowing how the immune system prioritizes may help doctors understand how patients will heal, and provide better care for their specific situations. —*Elena Renken '19*

INVESTING IN STUDENTS

Honoring Levi Adams

ROWN TOG

As Brown celebrates diversity and inclusion across the University, it is important to recognize the people who carried out foundational work—people like Levi C. Adams, whose role in this history has had significant and lasting impacts.

Adams' long and distinguished career at Brown as an educator, mentor, and administrator focused on ensuring the success of Brown students—especially underrepresented minorities training in science and medicine. His 21 years of dedicated service included planning and administrative roles and culminated in an appointment as associate vice president of biology and medicine, where he was a driving force in the development of the Medical School. His resilience, vision, and strength were grounded in his belief in the potential of the students he mentored to succeed.

Alpert Medical School Archives

In recognition of the role Adams played in the lives of so many students, Jeffrey F. Hines '83 MD'86 and Sivan Hines '84 MD'87 are co-chairing a committee to establish the Levi C. Adams Scholarship to support the training of African-American medical students.

A key priority of the BrownTogether campaign is to enhance financial aid and ensure that a stellar Brown education is available to the best and the brightest regardless of their financial circumstances.

"Brown is committed to increasing the diversity of our medical school student body, but the overwhelming costs of medical education are a barrier for many students of color," says Joseph Diaz MD'96 MPH'09, associate dean for diversity and multicultural affairs. "There is solid evidence that African-American male medical students have been under-represented in the profession for 30 years, and a scholarship in Levi's name would be a fitting way to help to address this disparity."

Many alumni have already come forward with gifts to help reach the $100,000 goal. The scholarship will be a lasting tribute to Adams, who helped a generation of Brown students fulfill their dreams to become physicians and leaders in their field.

INVESTING IN INNOVATION

Boosting the Knowledge Economy

After a year-long series of discussions and focus groups with community leaders and experts, Brown has released a strategic plan outlining how the University can best contribute to innovation and the growth of stable, well-paying jobs in Rhode Island. *Brown and the Innovation Economy* identifies key economic areas in which Brown could make an immediate impact and describes five actions it can take.

These action items are: incentivizing entrepreneurs to build ventures in Rhode Island; translating medical discoveries into products and companies; increasing the University's engagement with private industry; building new innovation infrastructure; and helping Brown faculty to turn research ideas into commercial ventures.

Each of these steps builds on existing academic strengths and priorities in Brown's research and scholarship, Provost Richard M. Locke says: "As we make additional investments that strengthen academic excellence at Brown and address pressing real-world issues through teaching, research, and public engagement, we seek to do so in ways that have wide-ranging benefits to our city and state. This initiative bolsters Brown's connections with public, private, and nonprofit partners and helps to focus our resources toward economic growth and job creation."

Brown and the Innovation Economy details a plan to expand Brown Biomedical Innovations Inc. BBII helps biomedical researchers bridge the "valley of death"—the gap between when the NIH stops funding research and when private investors are willing to step up—in order to launch new products and companies based on their findings. To date, BBII has been supported by gifts totaling more than $8 million. Its first managing director, Karen Bulock, PhD, started in August. •

Kris Cambra

Tell Me About Your Hair

"From an early age I understood that hair had power," Rohina Gandhi-Hoffman '90 MD'94 says. "At the age of 7, my own two ponytails were chopped off very unceremoniously and for a good part of my childhood I sported a boy's haircut. ... The trauma of losing control of my identity has stayed with me my entire life." Gandhi-Hoffman explores women's relationships with their hair in her "Hair Stories" project. She photographed and interviewed almost three dozen women of varying ethnicities and ages about their hair. She discovered that "hair is a language, a shield, and a trophy," she says. "Hair is a construct reflecting our identity, history, femininity, personality, our innermost feelings of self-doubt, aging, vanity, and self-esteem." A neurologist in California, Gandhi-Hoffman took her first photography class at the Rhode Island School of Design while a student in the Program in Liberal Medical Education at Brown. Her photography will come full circle in January 2019 when "Hair Stories," Hoffman's first solo exhibition, will be mounted at the Warren Alpert Medical School. You can see her work and read her subjects' stories at womenshairstories.com.

—Kris Cambra


XXL

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—SOUMITRI BARUA '17 MD'21

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BROWN TOGETHER