BROWN MEDICINE

Volume 20 | Number 3 | Fall 2014

Whistleblower

PLUS:

MD/MFA
Page 26

BREATHE EASIER
Page 38

An alumna risked her career to speak out about malpractice at the VA.
Page 30

LETTER FROM THE DEAN

Lasting Impact

For a teacher or mentor, one of the most gratifying things in our careers is seeing our students succeed. As an alumni magazine, *Brown Medicine* gives us the opportunity to celebrate the success of our graduates, and this issue offers that in spades.

Sadly, our community has lost two of its most revered teachers and mentors. Associate Dean of Biological Sciences Marjorie Thompson spent 40 years at Brown, first as a student, then on the faculty and as a dean, overseeing curriculum development and advising for our undergraduate concentrators. This is an amazing feat when you consider that biology (including neuroscience) is the largest concentration at Brown and that her job entailed advising some 300 students. While our programs in biology are excellent, I have to wonder if biology's popularity as a concentration wasn't partly due to "Dean T's" enthusiasm and ability to shepherd students through a challenging course of study. Her "other life," as a mother of seven and an accomplished musician, also made it clear to the students that biology, medicine, and life can be wonderfully integrated. We've heard from numerous alumni since her passing, and it's clear that she had a tremendous impact on them. We have lost someone who can never be replaced and a role model whom all can emulate.

Just a few days later, we lost Ruth Sauber, the Medical School's first student affairs officer. Dean Stanley Aronson told me that Mrs. Sauber was a "surrogate mother" to the first classes of medical students. You can imagine that as the very first students in a brand-new school—an experiment, really—they needed the guidance and support that a mother figure would provide. Fond remembrances have poured in from alumni who consider Mrs. Sauber as one of the great influences in their lives.

One of the ways to deal with issues such as these is to wonder what Dean T and Ruth Sauber would want to see at Brown right now. All who knew them are certain that they would want to see the training of the next generation of health care providers and scientists continue with full force. On campus, that is exactly what is happening. Our students and faculty are back in the rhythm of the school year. Ten, 20 years from now, we'll be reading about our current students' accomplishments on these pages.

Sincerely,

Jack A Elias M.D.

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

SCOTT KINGSLEY

JODIE GOODNOUGH; KAREN PHILIPPI; SCOTT KINGSLEY

> ***"Hepatitis C is the poster child for health disparities."***
> —***Lynn E. Taylor, MD*** *Page 16*

INSIDE

26 A Doctor Poet?

BY CHRISTINE MONTROSS MD'06 MMS'07 RES'10

Brown values a background in poetry as much as a mastery of physics when selecting its future doctors, with lyrical results.

30 COVER STORY Truth to Power

BY PHOEBE HALL

When she stood up for America's warriors, VA physician Phyllis Hollenbeck had to become a warrior, too.

38 Branching Out

BY SUMMER E. ALLEN PHD'12

Birds of a feather ... respiratory disease researchers flock together under the leadership of Dean Jack A. Elias.

DEPARTMENTS

Cover: Phyllis Hollenbeck '73 MD'77, photographed at the War Memorial Building in Jackson, MS, by Tom Roster.

LETTER FROM THE EDITOR

BROWN MEDICINE

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Take Care of the Veteran

At a family party recently, my sister-in-law told a story she'd heard from a Vietnam veteran. When his tour of duty was over, the man tried to board a plane back to the East Coast, but there were no seats available. The flight attendant walked the aisle, asking each person if he or she would take another flight to allow the soldier to get home a little sooner. Not one person would get off the plane.

"That would never happen today," a 23-year-old friend said. "People would fight over who gets to give up their seat."

Thinking of media stories I'd heard of celebrities who gave their first-class seats to veterans flying coach, I had to agree. No matter which political side of the Iraq and Afghanistan wars they were on, Americans came to embrace and show appreciation for the servicemen and -women who were sent to fight them. To disrespect a veteran is socially unacceptable, the worst kind of indecorum.

Why is it then that our veterans' health system continues to fail them? The recent whistleblower allegations at VA hospitals across the country have revealed long wait times, inappropriate treatment, and even deaths caused by lack of proper care. All of the "support our troops" bumper stickers in the world are meaningless when people who were promised high-quality health care for life are left to die while waiting for a doctor's appointment.

To know Phyllis Hollenbeck—and I have, for years—is to know the sense of duty she feels to her patients. It was no surprise to me that she put everything on the line for them.

Kris Cambra

LETTERS WANTED

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

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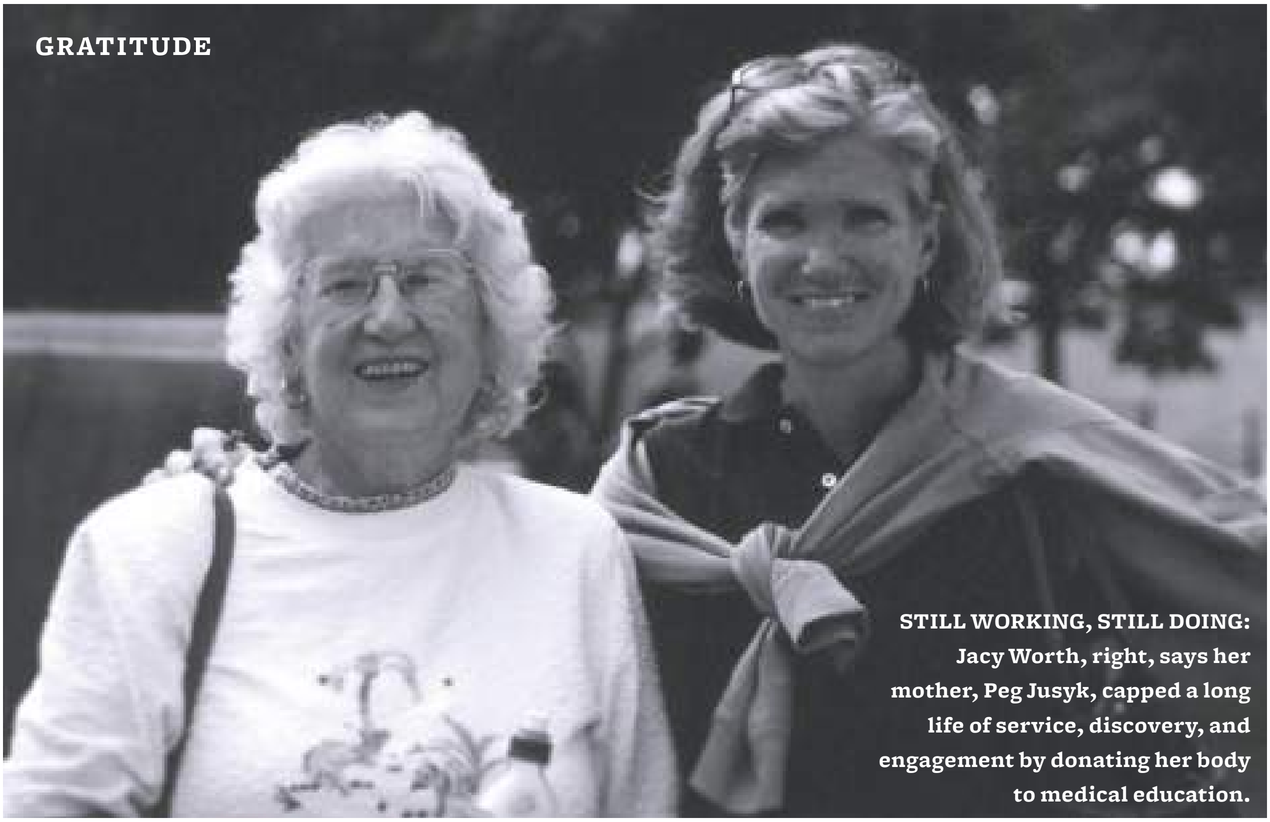
The BEAT

WHAT'S NEW IN THE CLASSROOMS, ON THE WARDS, AND IN THE LABS

GRATITUDE



COURTESY WORTH FAMILY

STILL WORKING, STILL DOING: Jacy Worth, right, says her mother, Peg Jusyk, capped a long life of service, discovery, and engagement by donating her body to medical education.

The Givers

Students celebrate the lives of anatomical gift donors.

Jacy Worth PMD'11 waited almost two years to receive the ashes of her mother, Margaret Larkin Jusyk GPMD'11, but she took pride and comfort knowing that even after death her mother was still teaching and contributing to discovery.

Before she donated her body to Alpert Medical School's Anatomical Gift Program, Peg Jusyk enjoyed a long and fruitful life. In World War II she served in the Navy, flying on planes as a WAVES aerographer to provide weather data and to instruct colleagues. The Connecticut native earned bachelor's and master's degrees at the University of Bridgeport and Fairfield University, worked as a teacher and a school psychologist, and assisted in pediatrics research at Yale. Between her degrees she worked on statistics for Dun & Bradstreet and mapping for Pan Am Airways.

Jusyk was a pastel artist, an avid golfer, and a church, museum, and community volunteer whose services included protecting endangered piping plovers and visiting the homebound elderly. She participated in the famed Women's Health Initiative medical study. After retirement, she earned a real estate license and continued working.

"She had a quest for knowledge her entire life," Worth says. "She was always very interested in science and the progress of science."

To Worth, it didn't seem surprising when Jusyk said she wanted to be an anatomy donor.

"I was sort of happy she was still

working, still doing something," Worth says. "I'm so proud of her. She was still useful. That's how she always was."

Worth and her husband, Jim, were among more than 40 family members of anatomical donors who gathered at Brown on an August evening at the invitation of the Alpert Medical School Class of 2017. These were the students who in the last year, because of the contributions of the donors, gained the rigorous and intimate knowledge of the human body's structure and complexity that a medical education requires.

"Our group thought it was important to include the families because they made a sacrifice in their loved one donating their body," says Samantha Roche MD'17, one of the organizers of the ceremony.

GIVING THANKS: Top, Ignacio Santana '11 MD'17 places an alstroemeria during the floral procession. After the ceremony, students and families learned more about some of the donors at the memory table, above.

This is the first year that students, who had previously reflected on their anatomy lab experiences in private, decided to invite the families. "It's important for us to thank them, too. As much as the donors donated their bodies, these families have been waiting for their remains for quite some time," Roche says.

Worth, whose son Patrick graduated from the Medical School in 2011, says she'd often think of her mother during the two years her body was at Brown. She got her mother's ashes back last spring—and soon after, an invitation to attend the ceremony.

Gratitude to the donors and their families was the theme of the evening, made possible by support from the Brown Medical Alumni Assocation. The lessons the students learn from the donated bodies are fundamental to their training as doctors and will forever influence the care they give to every patient they treat.

"Each medical student in this room will see thousands, if not tens of thousands, of patients in his or her medical career," Allan Joseph MD'17 told the audience. "No matter what field we choose to pursue, we will rely on our anatomical knowledge in treating all of them. We would not have that knowledge without the Anatomical Gift Program. We medical students cannot thank the donors who gave such a gift to us, but we can thank their families and their friends for supporting them in that decision."

Worth says *Body of Work*, a book by Christine Montross MD'06 MMS'07 RES'10 about her experiences in the anatomy lab, likely provided some of the inspiration for Jusyk to donate her body. Montross, now an assistant professor of psychiatry and human behavior, spoke at the ceremony and read from her book.

Norin Ansari '12 MD'17, a co-organizer, says she reflected on the extraordinary gift of the donors when she viewed the "memory table" just outside the De Ciccio Family Auditorium in the Salomon Center for Teaching, where family members placed pictures and articles about the donors.

"To see a man smiling proudly in uniform, to read about a centenarian reaching her milestone birthday, and to see a proud grandmother with her grandson—all of these really put into perspective that these people were just like you and me. But they must have also been very generous and kind souls to want to continue to be so helpful even after death," Ansari says. "Prior to this, we had only known their ages, occupations, and cause of death."

At the end of the ceremony, which also included student musical performances and a blessing and poetry reading from University Chaplain Janet Cooper Nelson, students crossed the stage as Roche read the first name and last initial of each donor. As the students crossed, they placed a white alstroemeria in a vase for each name.

Among those 43 names was "Margaret J.," who, like all the donors, had provided a gift of education for the good of thousands. ***—David Orenstein***

MATT FRANCIS (2)

Dispatch

Professor of Medicine Timothy Flanigan, MD, has his temperature taken by an infrared "no touch" thermometer, which prevents transmission of the Ebola virus. Flanigan and Adam Levine, MD, assistant professor of emergency medicine, are in Liberia to not only fight the epidemic, but sustain the country's crippled health system. "Since general medical care is not currently available, the average person is more likely to die of malaria, dysentery, pneumonia, heart attack, or other infections as opposed to Ebola," Flanigan writes. —*Kris Cambra*

COURTESY TIMOTHY FLANIGAN

Ask THE EXPERT

Hijacked

Ebola viruses are masters of their attack.

Why is Ebola so dangerous?

As the death toll soars in the massive Ebola outbreak, Brown's science news officer, David Orenstein, asks infectious disease researcher **Ian Michelow**, MD, assistant professor of pediatrics, about the virus's biology and what makes it so pernicious.

The implicated virus is related to *Zaire ebolavirus*, which is the most virulent of the five known Ebola virus species. Like many other pathogens, Ebola viruses have developed and perfected strategies to evade, suppress, or manipulate the host's immune response. To subvert humans' armamentarium, the enveloped Ebola viruses must deposit their genetic material within a cell to survive and propagate without interference. They hijack macrophages and dendritic cells to spread infection to nearly every organ of the body, especially the liver, spleen, and lymph nodes.

Ebola viruses strike rapidly to immobilize humans' early innate immune responses. The viruses ensconce themselves in a cloak of glycans in an attempt to shield themselves from neutralizing antibodies and to direct the production of antibodies to highly variable or dispensable regions on the viral surface. Ebola viruses also produce free glycoproteins that are thought to cause production of nonneutralizing antibodies, thereby preventing effective neutralization of the virus.

In a desperate attempt to counter the viruses, human cells produce large amounts of signaling proteins called cytokines and chemokines, but the response is highly deregulated because the virus disrupts the immune system. The consequent "cytokine storm" leads to systemic inflammatory response syndrome and the death or dysfunction of many immune system cells. As the disease progresses, it leads to problems such as clots and extensive tissue death, hemorrhage in a third of patients, and possible multiorgan failure and death within seven to 10 days in up to 90 percent of cases caused by the most virulent strains.

The overwhelming viral onslaught in conjunction with fragile socioeconomic environments and under-resourced health care infrastructures in Africa is conspiring to make the latest outbreak in Guinea, Liberia, Sierra Leone, and Nigeria devastating.

DOCTOR TO DOCTOR

The Man Behind the Malaria Vaccine

A new tactic might take down the greatest killer of women and children.

Jonathan "Jake" Kurtis '89 MD'96 PhD'96, professor of pathology and laboratory medicine and director of the Center for International Health Research at Rhode Island Hospital, has studied malaria for more than two decades. The disease infects 200 million people and kills 600,000 each year; 90 percent of cases occur in Africa. Kurtis is creating a malaria vaccine based on his understanding of specific immune responses in endemic populations. A paper proving the effectiveness of his latest vaccine in mice was published in *Science* last May, and provides new hope for stemming deaths from one of the globe's greatest health burdens.

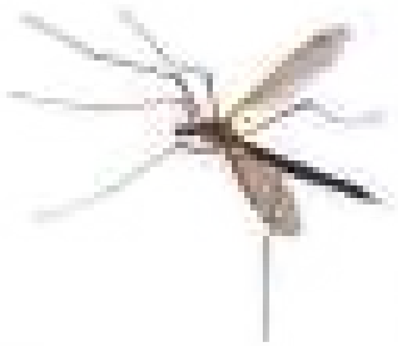
Is it true that you actually contracted malaria before you decided to study it?

Yes. It was a bit of an epiphany. I was an undergraduate at Brown University doing a semester abroad in Kenya and two very significant things happened to me: I ended up doing my first independent scientific research project there on coral reef ecology and I contracted cerebral malaria. Suddenly, I realized I had the same disease killing 25 percent of the children under 5 in that country, and it had an enormous impact on me.

Why aren't prevention and treatment of malaria more effective?

Malaria can kill you in 24 hours. And in remote sub-Saharan countries, where most of the hundreds of millions of patients are, there is no access to effective treatments. Only prevention, including a vaccine, will make a difference. While effective care is great, it is not always possible to deliver.

> From a global health point of view, **there is nothing even close to the importance of finding a vaccine.**



This prehistoric disease poses a formidable challenge for the human immune system and the ultimate development of a vaccine. Why?

Malaria has a complex lifecycle and it changes its antigens all the time. The proteins it attaches to red blood cells can change weekly. Because of that it can circumvent, evolve, and co-opt our immune systems.

So your immune system is constantly making antibodies against something that has moved on. Conceptually it is the same as HIV—your immune system is too late to the ball game to be effective.

Your vaccine is based on what you learned studying some of the children in Tanzania who are resistant to malaria. Can you describe this?

Six percent of children at the age of 2 in endemic areas are immune to malaria. They make an antibody as an adaptive response (similar to some adults) from being infected over and over. We did the genomic gymnastics and figured out what these antibodies look like. I want to make the same antibody so 94 percent of children can look like these special 6 percent of children and never get fatal disease—and that is our vaccine.

Your vaccine's unique approach slows the parasite by blocking it from exiting the human red blood cell. But this is not the type of vaccine that will prevent infection, so how will it help?

We hope it will prevent fatalities. This vaccine will attenuate the progression of the disease. Malaria parasites will still get inside the body but they won't be able to multiply like they do now. We can reduce parasitemia and reduce the number of deaths with this vaccine. The patients will still feel sick and will need to be treated, but they won't die.

How do you keep your passion for your work?

I encourage myself to keep my eye on the prize. It's a race and it is not a race for fame or fortune—it's a race for kids' lives because it is literally once every 15 to 30 seconds you have a fatality from a treatable disease. Working in endemic areas and coming face to face with this reality is a remarkable motivator.

From a global health point of view, there is nothing even close to the importance of finding a vaccine.

—Teresa L. Schraeder, MD, Director, Physician as Communicator Scholarly Concentration

iSTOCK PHOTO

STAT SHEET

Fresh Faces

Meet the newest members of the med school community.

The 125 members of the MD Class of 2018 were selected from the largest and most talented applicant pool in Alpert Medical School's history. The class's 61 women and 64 men demonstrate breadth of intellectual interests in the scope of undergraduate concentrations and postgraduate pursuits. They have earned degrees in more than 30 different majors, from anthropology to cognitive neuroscience and biomedical engineering to theater arts, at 49 different US or Canadian colleges and universities. Two students hail from Canada, the rest from 27 different states and the District of Columbia. Ten students have advanced degrees, with graduate work in education, biomedical engineering, computer science, sociology, narrative medicine, and biological/life sciences.

MD'18 sets a new standard for numbers of performers and musicians in one class: pianists, violinists, cellists, guitarists, saxophonists, and percussionists join classmates who have theater arts training. Along with several a cappella and classically trained singers, improvisational comedians, satiric humorists, and a sprinkling of radio DJs and documentary producers, the class contains a White House speechwriter and a Department of Health and Human Services special consultant. Several Howard Hughes Medical Institute and National Institutes of Health-trained researchers join EMTs, entrepreneurs, and medical device creators in a unique blend of experiences and perspectives.

Below are more clues as to what the Class of 2018 is made of.

TOTAL APPLICANTS (All four routes)	**8,240**

TOTAL MATRICULANTS	**125**
Female (49%)	**61**
Male (51%)	**64**
AMCAS (Standard route of admission)	**72**
Program in Liberal Medical Education	**44**
Postbaccalaureate	**6**
Early Identification Program	**3**

WELCOME TO BROWN: MD'18 students gather for a photo at Opening Convocation.

DONNA ARRUDA

AGE RANGE	**20-35**

ADVANCED DEGREES (MPH, MA, MS, PhD)	**10**

UNDERGRADUATE INSTITUTIONS	**49**
Public	**14**
Private	**35**

UNDERGRADUATE MAJORS	
Humanities	**36%**
Physical and Life Sciences	**53%**
Mathematics, Computer Science, Biomedical Engineering	**6%**
Independent majors	**5%**

ANNIVERSARY

Charity Begins at Home

The Rhode Island Free Clinic marks 15 years.

GIVING BACK: Sanchita Singal '13 MD'17, left, speaks to Caroline Troise, MD, volunteer medical director of the Rhode Island Free Clinic.

MIKE COHEA

Fifteen years ago, internist Caroline Troise, MD, began her first shift as a volunteer at a new Providence clinic whose aim was to provide free primary care for any uninsured Rhode Islanders who came to its door.

"I'll never forget the first night I walked into the clinic," recalls Troise, clinical assistant professor of medicine. "There were people in folding chairs, lined up against the wall. … We were able to perform physical exams and order basic blood work, but were limited in prescribing medications and ordering more sophisticated testing."

In 1999, the Rhode Island Free Clinic took its first patients in a 500-square-foot donated office on Broad Street, reliant on medical equipment cobbled from gifts and a tiny startup budget, a fickle stock of pharmaceutical samples, and volunteer time—lots of volunteer time.

The clinic was the vision of Stephanie Chafee, BSN, now the state's first lady; and Bruce Becker, MPH '78 MD'81, professor of emergency medicine. They believed everyone, regardless of income or insurance, should have access to health care.

From that "storefront operation," says CEO Marie Ghazal, RN, the clinic has grown to a modern, fully equipped outpatient facility with a $1 million budget and more than 700 volunteers, serving more than 2,000 uninsured, low-income adults.

"We're a primary care home, open 50 hours a week. We really try to provide all services the patient needs," Ghazal says. "There are community health centers to serve the uninsured, but usually with sliding scales; they're not free. … We're a safety net for a safety net."

Alpert Medical School has retained a close relationship with the clinic since its founding. Herbert Rakatansky, MD, clinical professor emeritus of medicine, a volunteer gastroenterologist, and a clinic board member, says it's a natural extension of Brown's mission.

"Brown has always had a commitment to underserved populations, but in other countries," Rakatansky says. "But people need help here, too. You don't have to go to Kenya. Now Brown does both."

"A spirit of aid pervades the Medical School," agrees Geoffrey McCrossan MD'17, a member of the Brown Student Community Clinic, which two nights a month offers students supervised, hands-on clinical experience. "We help underserved populations here in Rhode Island, and we help new students find a 'home.' Right away they can give back."

Allied health students from other local schools also volunteer and train at the free clinic; many stay on after graduation, to share their experience and expertise with today's students. Such lasting relationships will be the centerpiece of the clinic's 15th anniversary celebration this fall.

"We're celebrating the clinic's success story and promising future with the volunteers who have made it possible," Director of Development Julia Karahalis says. She hopes the October 22 event can be a "mini reunion" for past and present Brown volunteers, two days before Medical Family Weekend.

Judy Diaz, RN, MPH, who was the clinic's first nurse clinic coordinator and now serves on the board, says Brown medical alumni deserve special kudos. "We didn't really have a staff [at first]—it was the director and myself," she recalls. "Yet when I looked around I saw Brown med students saying, what do you need? what can I do? …

"They were the foundation that helped the clinic go in the beginning. It does take a village." ***—Phoebe Hall***

The 15th anniversary celebration will take place 6-8 p.m., October 22, at the Providence Biltmore. For information and to buy tickets, visit rifreeclinic.org.

COOL TOOL

Something Old, Something New

A plastic surgery success makes, and embraces, medical history.

If a certain young Providence woman tucks her hair behind her ear today, it's a medical triumph. A year ago, it seemed unlikely she'd ever do that again.

In July 2013, when the woman was 19, a dog bit and completely severed her left ear. The amputated organ was intact, but the jagged tear that separated it from her head presented a substantial challenge for the Rhode Island Hospital surgeons who sought to replace it.

"The ideal goal of plastic surgery is to put things back where they belong," says Helena Taylor, MD, PhD, cosection chief of the Division of Craniofacial Surgery at Alpert Medical School. In a case like this, where the wound was highly visible, restoring the ear was the best way to restore the patient's quality of life; other options, like elevating the remaining cartilage or making a new ear from a rib, "never look as good," Taylor says.

With such extensive damage to hundreds of tiny blood vessels, however, full restoration of the ear was an ambitious goal. The patient "understood that the chance of success was quite low," says Stephen Sullivan, MD, MPH, cosection chief with Taylor. Thanks to high-powered microscopes and special sutures smaller than a human hair, he says, surgeons can reattach ever-smaller vessels—but first, they have to find the vessels, and verify they can be reattached at all.

When the patient arrived at Rhode Island Hospital, Sullivan and Michael Guo, MD RES'15, chief resident in plastic surgery, placed her detached ear under a microscope to find an artery; then Sullivan and Taylor located the corresponding vessel on the patient. After temporarily stitching the ear in place, they worked under the scope to hook the artery, just 0.3 mm in diameter, back up.

Sullivan still seems awestruck as he recalls the moment a year later. "Within seconds, this cold, blue, shrunken ear turned pink," he says, "before your eyes, in a minute, from shrunken to full."

But it wasn't yet time to celebrate. With no attached veins—the thinner-walled vessels are far more difficult to suture than sturdier arteries—the surgeons had to find another way to drain the blood, now pumping freely into the ear, to restore circulation and prevent clotting. So they switched gears, from the forefront of microvascular surgery to the ancient practice of hirudotherapy.

"You anticipate needing leeches in a case like this," Taylor says. "Congestion is the most common reason for failure: blood is going in but it can't get out."

"So the leech comes along and sucks that out," Sullivan adds. "We have no medical way to do this as well as a leech can."

Leech therapy, or hirudotherapy, has been practiced for millennia, but the FDA approved its use in replantation surgery just 10 years ago. Sullivan says medicinal leeches are "on call" in a hygienic aquarium in their hospital pharmacy, ready for duty a couple of times a year.

> "The leeches are the **least novel thing about this case.** That we put the ear on at all … **is news."**

"Leeches are not uncommonly used in finger reattachment," says Taylor, who as a resident at Harvard used them to reattach a boy's lip. But it remains a novel, and somewhat ghastly, notion to the general public. "It's not a small com-

RESTORED: Five months after the surgery, the patient's ear looked as good as new.

123RF; STEPHEN SULLIVAN

mitment on the part of the patient, because the patient has to be amenable to sitting still with leeches on," she says—in this case, several times a day for more than two weeks. The leeches stay in place for up to 10 minutes, until they're full of blood; then they're removed and, due to risk of infection, submersed in alcohol and killed. ("In nature they only feed once and then they die," Sullivan says.) After an hour or more, depending on how quickly arterial blood is filling the wound bed, more recruits are sent to the front line.

As healing progresses, the surgical team tapers the number of leeches used, and how often they're placed. "You want to stress the body a bit so the body regrows veins," Sullivan says. "You can't have leeches do all the work or [the veins] won't regenerate."

After 17 days, and 170 leeches, the patient's regenerated veins were pumping deoxygenated blood out of her ear, and the surgeons permanently reattached the organ. Within months, the devastating injury was barely visible. Sullivan and Taylor, who also codirect the Cleft and Craniofacial Center at Hasbro Children's Hospital as well as a household of three children (they're married), reported their feat in the April 17, 2014, issue of the *New England Journal of Medicine*; the article captured worldwide media attention—though not for the most medically interesting reason.

"The leeches are the least novel thing about this case," Taylor says. "That we put the ear on at all, due to the nature and size of the injury, is news." And that, despite the media's focus, is all that matters. "The goal of plastic surgery is that the patient forgets about the bad things that have happened in their life," she says.

"With an ear amputation [a patient] can't ever put her hair back without exposing the deformity," Sullivan adds. "Now she can put it back without even a pause. We're told no one can tell." ***—P.H.***

ANATOMY OF A NURSE

Behind the Scenes

After more than three decades as a critical care nurse, it might seem that Dana Zink, RN, has traded in the fast-paced life of the ER for a more staid existence in academia. But her work these days, as director of clinical skills assessment for Alpert Medical School's Doctoring course, is anything but laid back. "I hire standardized patients and I train them," she says, referring to the actors who portray case studies for the course. "I work individually with students to help them feel comfortable going to their clerkships. I also run fourth-year OSCEs, in preparation for the Step 2 boards." Not in her job description, but a key part of her role, is familiarizing students with the knowledge and skills of a nurse. "When students become doctors they'll have collegial relationships with other MDs, but they'll be part of a team that includes nurses, pharmacists, physical therapists, and social workers," Zink says. "They learn to appreciate the value of other members of the team." Her home team includes her husband, Brian Zink, MD, chair of the emergency medicine department, and their three adult children—among them a second-year med student—so she understands the future doctor's perspective, too. Her door is always open for one-on-one advising or a friendly chat. "The best thing about my job is working with students in any way," she says. But, she adds, "I see myself first and foremost as a critical care nurse." ***—P.H.***

GO BLUE

"I'm all about sports," says Zink—especially Michigan teams. But she admits she loves Eli and Peyton Manning, of the Giants and the Broncos. "My children hate me for saying that."

CALM IN THE STORM

Zink still practices meditation and yoga, which she taught as part of her personal training business in Michigan.

GRAND CENTRAL STATION

Zink recruits, trains, and schedules a small army of standardized patients to work with students in the Doctoring program.

ADAM MASTOON

SWEET TALK

"Students find their way to my office for the bowl of candy and chitchat."

WALKING TALL

From hiking and kayaking to skiing and horseback riding, Zink takes every opportunity to get outdoors.

HOOFIN' IT

Zink had horse farms for years, where she kept pygmy goats as well. Now she boards her two horses, and her only goats are of the decorative variety.

SHE REALLY CAN SAY ...

"I have a black belt in karate."

CLOSE ENCOUNTERS

In the Tetons years ago, growling black bears circled the Zinks' campsite all night. The new bear bell on her backpack is "awesome," she says.

LAKESIDE RETREAT

Every summer the Zinks rent a house in Lake Leelanau, where they hike, bike, swim, and relax in Michigan's great outdoors.

ONCE A NURSE

Zink keeps her scrubs, hospital ID, stethoscope, and other gear as "symbols" of her first career, and her identity.

FINDINGS

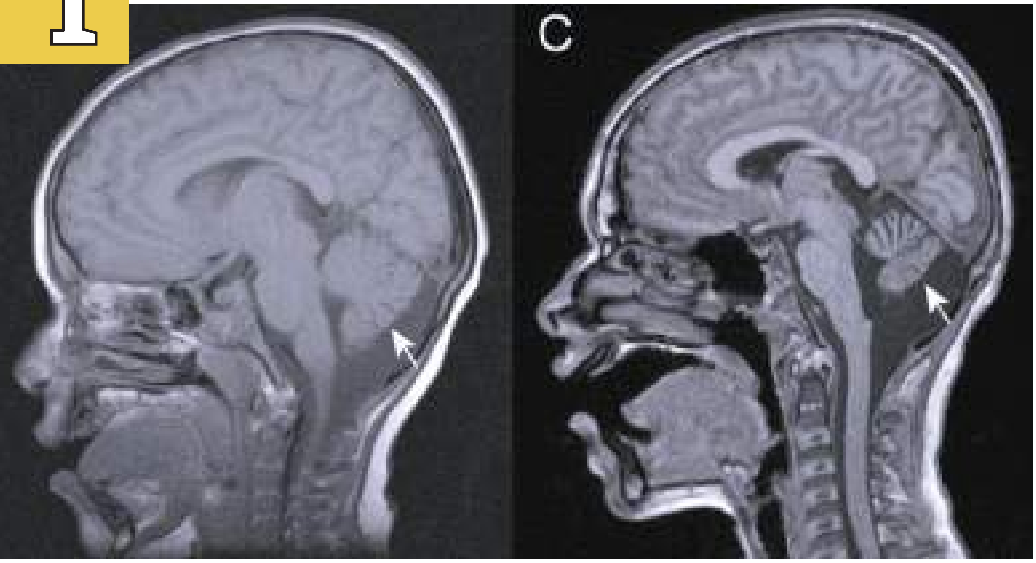
A Clearer Picture

New data provide a better way to diagnose a developmental disorder.

New diagnostic criteria for Christianson syndrome might double the number of cases of the autism-like condition and provide the most definitive characterization of CS to date. A study in *Annals of Neurology*, which includes detailed behavioral, medical, and genetic observations of 14 boys with CS, quantifies its most frequent symptoms, such as moderate to severe intellectual disability, epilepsy, inability to walk and talk or difficulty doing so, and hyperactivity.

Senior author Eric Morrow, MD, PhD, assistant professor of biology and psychiatry and human behavior, says all boys in the study have a mutation on the SLC9A6 gene on the X chromosome that disables production of the protein NHE6, which is important for neurological development. The researchers found that girls can carry CS mutations on their X chromosomes, but they appear to be affected less severely or not at all. Morrow says SLC9A6 mutations—and therefore CS—may be a relatively common source of X-linked intellectual disability, with a potential frequency worldwide of more than 70,000 cases.

Studying the regression of walking and verbal skills among Christianson boys could help researchers learn more about regressions in autism, says Morrow, who treats patients with autism at the E.P. Bradley Hospital in East Providence. “If we could understand the biological mechanism that leads to that loss, and we can prevent it by developing a treatment, then these kids will remain further ahead,” he says. The new CS study, by uncovering mutations that lead to the disease, promotes that effort. “We can now study these different mutations and learn how this protein works by how it gets inactivated,” Morrow says. “All the different ways it gets inactivated can actually inform us about the different components of the protein that have an important function.” ***—D.O.***



IT’S A SIGN: Brain scans show atrophy of the cerebellum in a boy with Christianson syndrome. Researchers observed this symptom in several boys with the autism-like condition.

ERIC MORROW

OVER HEARD

“There’s a host of consequences [for teens] of not getting enough sleep. Grades are a problem. Mood is a problem. Indeed, in susceptible individuals who don’t get enough sleep, it can even turn to suicide or attempts at suicide.”

—**MARY A. CARSKADON,** PhD, professor of psychiatry and human behavior, in a *Wall Street Journal* video on August 25. Carskadon coauthored an American Association of Pediatrics policy statement recommending that middle and high schools start no earlier than 8:30 a.m.

OPINION

BY HERBERT RAKATANSKY, MD

Legal vs. Moral

Should doctors participate in capital punishment?

News reports indicate that a doctor (unidentified) was in charge of the recent tragic botched execution in Oklahoma.

Some people, including many doctors (according to surveys), believe that since a court has determined guilt and sentenced the guilty person to death that a doctor's skills can make the process less painful. The argument is that, just as patients with terminal, untreatable disease have the right to medical assistance for relief of excruciating pain, even if sedation and death are the price of such relief, so do persons sentenced to death. But capital punishment is not a disease. It is a conscious choice by society and by the persons administering the justice system. And there is a "treatment"—commutation to life imprisonment.

Capital punishment may be legal but it may not be morally acceptable for doctors to participate in it. In Nazi Germany from 1933 to 1945, doctors performed "experiments" that were nothing more than torture. Doctors killed people under the guise of looking for "treatments" and in the quest for racial purity. All of these actions were legal. The Nazi government approved and sponsored these horrors.

The old adage "first do no harm" is ancient, dating to the time of Hippocrates (c. 400 BCE). Obviously none of the subjects of the Nazi doctors gave consent for what was done to them. The notion of a rigorous doctrine of informed consent and the right of a competent adult to refuse any or all medical treatment is relatively new. In fact, it derives from the Nazi atrocities. In 1947, after the trials of the Nazi war criminals, a statement, the Nuremberg Doctrine, delineated the right of patients to refuse medical interventions. This has evolved to our current standard of patient autonomy.

These moral principles—"Do not intentionally inflict harm" and "Recognize and enforce patient autonomy"—are basic to our medical care system.

The American Medical Association's Code of Medical Ethics, recognized by most states and courts as the authoritative standard of professional behavior, prohibits physician participation in execution in any fashion.

Some of the states that employ capital punishment require that a doctor be present, though a state cannot force a specific doctor to be there. Several guarantee the participants anonymity. Courts have said that laws requiring a doctor to be in attendance trump the guidelines of the AMA Code. Although doctors routinely are disciplined by state licensing boards for various ethical transgressions, no doctor has been disciplined for participation in an execution.

Anesthesiologists have special skills in sedation and would be the logical choice to facilitate an execution. The American Board of Anesthesiology has formally adopted the AMA position. It is ABA policy that participation in an execution may result in revocation of board certification. This would effectively end the career of the anesthesiologist.

Doctors treat all in need of care when able to do so. We condemn the government of Myanmar for forcibly denying medical care to its Muslim population and the Syrian government for forcibly denying medical care to the rebels. Is actively doing harm to a person at the behest of the government different than the (forcible) denial of care by the government?

Doctors can, and usually do, refuse to participate in unethical activities, even if they are legal. Whether capital punishment, without the involvement of the medical system, is desirable is a separate question.

Public policy should not request or require that doctors violate their basic ethical tenets by participating in executions, torture, etc. The law should not interfere with state licensing boards' ability to review participation in executions in their consideration of a doctor's adherence to standards of professional behavior. The identity of persons working in our legal system should not be hidden.

As members of a free society, we all should advocate for, and would benefit from, laws supporting this approach. It does not serve our society well if its legal system contravenes the ethical duties of physicians to "do no harm" and to respect autonomy.

Herbert Rakatansky *is a clinical professor emeritus of medicine. This op-ed originally appeared in* The Providence Journal *on May 8, 2014.*

RESIDENTEXPERT

BY ALEXIS DRUTCHAS, MD RES'


BLAIR THORNLEY

The Healing Hand

When is it right to share our personal struggles with patients?

I remember the day like it was yesterday. I was 10 years old, dressed in kid pajamas with sleep still in my eyes. I walked upstairs with a sense of purpose. "I can't take it anymore," I told my parents. At that point it had been a year since we found the surgeon who was finally able to offer the chance for relief from my painful congenital malformation, a mass of extra veins, an error of transcription. Yet the surgery he offered was risky and inevitably my decision. For the rest of the year I had wrestled with this choice, pitting the dangers against my pain. That morning when I spoke, my voice had a new tone of resolution. It was the start of my new story. The day I knew the risk of losing my left hand—or worse, my life—was worth the possibility of living without pain, like a normal kid.

Common pedagogy in medical training teaches us that what we offer patients is our knowledge; this skillset is generally encouraged through professional distancing. Yet many physicians, as I did, go into medicine because of personal or family experiences with illness. Nevertheless, these narratives often remain untold to patients. But my own ongoing experience on both sides of the medical field leaves me wondering: are there instances when our therapeutic relationship would benefit from bending convention for the sake of healing? What place should our own stories have at the bedside?

When I was young with little ability to cope, I would tell new friends who asked about my purple hand that I'd been in a shark attack or a car wreck—white lies to cover my pain. During my childhood my parents were relentless in their pursuit to find someone who could help. It took 10 years of searching (long before the Internet) to finally find Dr. Upton, a surgeon in Boston who inspired hope. Like most things of worth in life, the surgery he offered came with great risk. "This decision has to be yours," my parents had said as I sat staring back and forth at my hands in his office. A year later I came to a breaking point of pain, and marched up to my parents with my declaration.

The next summer I underwent a 13-hour surgery at Boston Children's Hospital—an operation I went through again two years later. The next few months I spent relearning how to use my hand, willing every muscle to tie my shoes, hold a cup, and give a thumbs-up. My parents were right there with me the entire time, pacing the halls while I was in surgery, taking shifts so I would not be alone at night. At the end of the summer, my life was inexpressibly changed. Yes, I was still in pain, but it was a manageable level. I had taken a chance that impacted the course of my life. Now, as a resident, these memories and my continued challenges shed precious perspective on my work, giving new meaning when I least expect it.

PAYING IT BACK

It was after midnight during my week of night shifts at Hasbro Children's Hospital. There was a patient who had been under my team's care for weeks. No lab or test was left undone, and still there was no answer for her unending fevers and pain. I went to visit her during a lull and found her mom sitting on the side of her bed, a lamp dimly lit in the corner. She had been there without fail every morning and night, her devotion unwavering. I sat down next to her. "How are you doing?" I asked. Small tears streamed down her face as she sat there stroking her daughter's arm. "I am worried and exhausted, and I want to bring my baby home," she whispered.

I told her I understood and that we wanted nothing more than to see that as well. I was going to stop there, but in that moment of vigil with this mother I thought of how worried my parents must have been as they paced the halls and slept in hospital cots by my bed for weeks. I usually never talk about my personal experiences with patients, but in that moment, witnessing her grief, I felt she needed more from me. "I could not say this to my parents when I was in the hospital for weeks as a child," I began. "I was too young and in too much pain—but I still remember how much it meant to have them there with me. So since she cannot say this to you, I will: thank you. It means everything that you are here with her." She sighed; a calm fell in the room amid the clicks of IV bags emptying, and our eyes met. "Thank you," she said. "I have really needed that."

There are times in medicine when we cannot cure a patient's pain, whether it be physical or emotional. Yes, there are great joys and successes, but there are also times when no diagnosis is found, and there is incurable illness and tragedy. If our job as physicians is merely offering expertise and diagnostic prowess, where does this leave us during these times? The holistic medicine pioneer Rachel Naomi Remen, MD, has suggested that it is through our own wounds and suffering that we learn the greatest compassion and begin to recognize in ourselves and others "the strengths that may develop in times of weakness and despair."

The pain my hand generates is at times debilitating. While growing up, this pain had no meaning to me—only empty struggle and resentment. Yet over the years, the risks I've faced because of it, the adaptation it necessitates, and living with pain itself have all shaped me. It has been with time, and moments such as with that concerned mother, that I have come to realize not only the strength and meaning I have gained from my pain, but also the incredible love from my family I was able to witness. The professional distance we hold as physicians is at times essential; it enables both objective assessment and emotional boundaries. But this partition can elevate the physician to a person above illness, to someone whole, "unwounded." This convention of separation can work against the human connection that medicine holds at its core.

> Many physicians go into medicine **because of personal or family experiences** with illness.

Like all things in life, it seems a balance is best. In my experience, I have learned there are rare and beautiful occasions when personal experience can and should be shared for the sake of healing, strength, and connection. My story begins with a purple-hued hand. Some of my patients will point with surprise and ask, "What happened?" But when I have worked with patients fighting their own chronic pain or facing daunting lifestyle changes due to decreased functionality, I have offered parts of my story—not to influence decision, but to let them know they are not alone. I find afterward that many look at me differently, not just as their physician, but as a person who understands and lives with her own pain. I joke now that I see my purple hand as my own personal sunset. It is a story of transformation; one that, in striking shared moments, not only continues to save me, but just might help to heal another.

Alexis Drutchas *is a third-year family medicine resident. Originally from Detroit, she studied environmental health and biology at the University of Wisconsin–Madison and completed medical school at Wayne State University.*

ZOOM

GRAB 'N GO: Lynn Taylor at Providence's needle exchange center, where she helps screen people for hep C.

Front and Center

Lynn Taylor moves hepatitis C from the sidelines to the mainstream.

At the bus stop, in the supermarket, on the playground, strangers whisper their closely held secrets to Lynn E. Taylor, MD RES'00 F'05: "My husband has hepatitis C. My sister died of it. I have it."

These impromptu confessions do more than illustrate the stigma that still surrounds the virus. They prove that Taylor has become a powerful voice for awareness, screening, and treatment in Rhode Island. An assistant professor of medicine (infectious diseases) and director of the HIV/Viral Hepatitis Coinfection Program at The Miriam Hospital, Taylor has pushed her work into the community as director of Rhode Island Defeats Hep C. Informed by more than a decade of research and clinical care in hepatitis C, Taylor's mission is to find, treat, and cure the virus in the thousands of people in the state who may not even know they have it, establishing for people with hep C the same kind of health care infrastructure that exists for people with HIV.

SERVING THE UNDERSERVED

A New Yorker from a family of organized labor leaders and teachers, Taylor was drawn to medicine because it was a means to social justice. She worked as a victims' advocate on rape and domestic violence cases and as an occupational accident research investigator before deciding to go to medical school, where she could learn skills that would directly help people. Fiercely intelligent, Taylor pulls no punches, especially when it comes to fighting for her patients.

Those patients are the ones classified in academic parlance as "marginalized" or "disenfranchised." But in real terms, they are the people whom few doctors want to treat. Taylor's patients are often current or former drug addicts and most are coinfected with HIV and hepatitis C. With degrees from Harvard and Pitt and residency and fellowship training at Brown, Taylor could work anywhere. But you'll find her at the HIV/hepatitis C primary care center, the methadone clinic, the needle exchange program.

Taylor first visited Rhode Island's needle exchange program with Associate Professor of Medicine Josiah Rich, MD, MPH, during her residency at Brown in the late 1990s. "Jody had funding for a study where the hypothesis was that if physicians prescribe syringes to someone who injects drugs in the context of a patient-doctor relationship, you could curb the spread of bloodborne pathogens," Taylor says. The researchers began to see a pattern: the patients tested negative for HIV, but positive for hepatitis C, which is easier to transmit via injection drug use.

In 2001, she asked then-chief of the Division of Infectious Diseases Timothy

BY KRIS CAMBRA

PHOTOGRAPH BY KAREN PHILIPPI

P. Flanigan, MD, if she could run the viral hepatitis clinic. Though she was soon caring for hundreds of patients, none of them was receiving treatment directly for hepatitis C. “At that time, you were not supposed to treat hep C in people who used drugs and alcohol or who had mental illness—and that was almost all of my patients,” Taylor says.

Flanigan pressed her to think differently. “That’s what they used to say about HIV,” he said. “You can’t treat those people.” The thinking about HIV early on had been that people with addiction would not be responsible enough to take their medication correctly, causing the virus to mutate and become resistant to antiretrovirals. If they spread a version of that virus, they could spur a new epidemic that could be harder to treat. Taylor says Flanigan told her: “If we’ve learned anything in this [HIV] epidemic, it's that there's no evidence to support that. If people aren't taking their meds, the onus is on us to help people adhere."

That was a game changer. Taylor says she had to abandon everything she had been taught and find ways to administer the standard of care for hep C—interferon plus ribavirin—in her patient population. The guidelines had been developed not just because of patient behavior, but because of interferon's devastating side effects.

"Interferon can make people depressed, suicidal, and homicidal," Taylor says. The physical side effects may include hair loss, skin rashes, and death. "The fear was tremendous. I didn't want to cause harm to a patient," she says.

Taylor decided the only way she could treat her patients would be to watch them closely, monitoring side effects and titrating doses up or down at the slightest sign of distress. She moved the first patient into the only assisted-living facility in the state for adults with HIV/AIDS, which was across the street from her clinic. "I decided to go every single day to see her," Taylor says, despite the fact that with a population of patients on publicly funded health insurance, it was hardly economically efficient. But, she says, "We were doctors in those days, not business people."

The patient suffered serious but manageable side effects, and was cured of her hepatitis C. And so Taylor repeated the cycle and built a team of nurses, case managers, and social workers who saw the patients through treatment—a year in most cases. Her compulsive watching became a joke. "My patients always say, 'Even though interferon was bad, you were worse … watching me, calling me, on top of me,'" she says.

Diana Sylvestre, MD, assistant clinical professor of medicine at University of California, San Francisco and executive director of Oakland's OASIS Clinic, which also treats people with both addictions and hep C, says Taylor was a pioneer in this work. "She was not a naysayer. She said, let's figure out how to make it happen, and that's what it takes in the field we're in," Sylvestre says. Taylor's patients, she adds, are even more challenging since most are coinfected with HIV.

A CURE WITH A CATCH

Interferon, for all its harrowing side effects, is not that effective. Overall, 50 percent of people are not cured (and 75 percent are not cured when coinfected with HIV), even if they complete the entire course of treatment.

And then last year, there was what Taylor calls "an extreme revolution" in how to cure hep C.

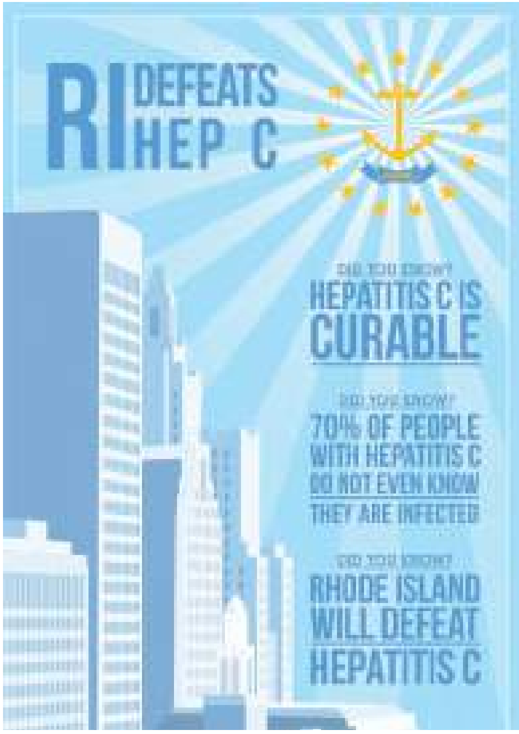
> **"We were doctors** in those days, **not business people."**

New drugs called direct-acting antiviral agents (DAAs) came to market. One, Sofosbuvir, inhibits the virus's polymerase enzyme, which builds new genomes out of RNA so the virus can replicate. Sofosbuvir looks like a building block of RNA, but once it is incorporated into the RNA chain, the chain cannot grow and the virus cannot reproduce. Even better, DAAs can be used without interferon.

Taylor had her patients prioritized by severity of liver disease to get the drugs as soon as the FDA approved them in December 2013. "I don't text, and I don't typically interact directly with pharmaceutical companies, but I made an exception for this," she says. "I told Gilead [Pharmaceuticals], you text me the day the FDA approval comes through, because these patients are waiting and waiting, and people are going to die waiting."

On the new drugs, patients feel better. After two weeks, their hepatitis C viral load is zero. Though Taylor cautions that the drugs are new and it will be years before we know if there are long-term complications, they seem to be extremely safe, with virtually no side effects. A year (or more) of interferon has turned into a 12-week course of therapy. And the cure rate? Nearly 100 percent.

But there's a catch. The pills are expensive—at least $84,000 (more for patients requiring longer-duration therapy) for the full course of treatment. Private insurance companies usually cover the drugs, but only after a few denials. Taylor says she's always writing letters and calling insurance companies explaining why patients need the newer drugs instead of interferon. Until September 2014, Rhode Island's Medicaid program would not pay for the drugs at all—one of only three states that refused to do so. The state finally issued a policy requiring pre-authorization, which documents why



GRAPHIC CONTENT: Hayward H. Gatch IV won RI Defeats Hep C's poster design competition with this illustration.

the drug is needed, how advanced the patient's liver disease is, and the fact that the patient cannot tolerate other treatments.

Medicaid decision makers say they are trying to make prudent policies for drugs that are still very new and expensive. Their arguments are familiar: will people with addiction take the pills faithfully, important since strict adherence to the regimen is necessary to effect a cure? And if they continue to inject drugs, will they get reinfected?

Most of Taylor's patients are on Medicaid, and the math seems painfully obvious to her given that hep C is now the leading cause of liver transplants and a leading cause of liver cancer. Total billed charges in 2011 for a liver transplant were $577,100. If Medicaid is burdened now and can't pay $84,000 for pills, she asks, how can it sustain an increasing incidence of end-stage liver disease and the exorbitant expenses of end-of-life care?

The problem is not just Medicaid's. It's soon to be Medicare's, too.

"The enemy of this virus is time. You're not going to feel anything the first week you got it; you have no idea that you have it. Many people infected in the past are now developing full liver scarring and liver cancer, and our liver cancer rates are soaring," Taylor says.

Most vulnerable are the baby boomers, people born between 1945 and 1965. Screening the blood supply for hep C only began in 1992, so people may have been infected through blood transfusions or iatrogenically in health care settings. According to the Centers for Disease Control and Prevention, 75 percent of the estimated 3.2 million people with hep C in the US are baby boomers. That fact led the CDC to issue new guidelines for screening for hep C in all people born in that era, regardless of risk factors.

JUST THE BEGINNING

Taylor constantly draws comparisons between hepatitis C and HIV, but for all their similarities in population and transmission, the public health response has been entirely different. She cites the federal government's Ryan White HIV/AIDS Program that ensures treatment for patients. No such funding program exists for hep C. On the research side, no single institute in the National Institutes of Health is responsible for funding hepatitis research. Only 2 percent of the CDC's budget is earmarked for hep C.

Since the majority of her patients are coinfected with hep C and HIV, Taylor has been able to fund her research mostly through grants designated for HIV research. Hepatitis C is much more aggressive in coinfected people and they see its consequences earlier than people who do not have HIV. For more than a decade, she has studied the best ways to treat both viruses in people with addiction, and with concomitant mental illness.

Last year, funded by a private grant through the Rhode Island Foundation, she launched RI Defeats Hep C. She describes it as a service grant "to implement planning to help our state." It's a comprehensive program, encompassing health care delivery; raising awareness; getting more people screened and diagnosed, then treated and cured; building infrastructure for a sustainable model for all of this; and creating the best business case for doing it.

Her efforts have not gone unnoticed. Earlier this year she was named the Rhode Island Woman Physician of the Year, and received the Excellence in Medicine Award from the state Department of Health. But there's still much work to be done.

So much has happened just in the last year: the CDC sounded the alarm and recommended screening, new drugs have made this a curable illness. It's all just so new, Taylor says. "How do you take an issue from the margins to the center?"

She'll likely do it with the mix of warmth and tenacity she's known for. Sylvestre, who has become Taylor's colleague and friend, says she watched Taylor pick up bagels and leftover breakfast foods at the end of an American Association for the Study of Liver Diseases meeting last year. "She put them in her AASLD bag, walked outside, and gave them to the homeless people out on the street," she says. "That's just so emblematic of Lynn."

BY EDGAR WOZNICA ’09 MD’15

JESSICA DEANE ROSNER

The Legacy of Nazi Physicians

A medical student faces hard truths.

To understand how we value some lives more than others, I would argue that there are few experiences more powerful than being inside a gas chamber. The space itself is rather dull and gray, nothing more than an empty room with drab concrete walls and slits in the ceiling for ventilation. But, for me, it made a world of suffering and death real and tangible. Here is where Nazism and its eugenics and racial hygiene theories manifested themselves in the mass murder of human beings. According to Nazi ideology, Jewish people unable to work were worth nothing more than the valuable commodities stolen from them and their bodies. Jews were systematically robbed, undressed, shaved, murdered, and incinerated. The Auschwitz museum displays their stolen possessions, including 40,000 shoes, suitcases with names and hometowns desperately scrawled in chalk, and piles and piles of slowly graying human hair.

Upon leaving this place of murder, I sat and reflected on the grassy knoll outside. Physically and mentally shaken, I made a solemn vow to counteract in my life and career this kind of violence. The question for me, a future physician and budding humanist, was how?

I explored this question last summer as I spent two weeks in the Fellowship at Auschwitz for the Study of Professional

Ethics with 11 other medical students, a neonatologist, a biomedical research ethicist, and a Holocaust historian. The fellowship seeks to educate the next generation of leaders on the role of their profession in the Holocaust through experiential learning. We toured the center of Nazi power in Berlin, held seminars in the villa where the "Final Solution" was planned, and celebrated the Sabbath with the remaining Jewish community in Krakow. As a group we discussed tough issues. What exactly did Nazi physicians do; how are their actions a part of Western medicine's legacy; and what can we do as a profession to prevent a repeat? I learned much that troubled me.

I made a solemn vow to counteract in my life and career **this kind of violence.**

In the 1930s, German medicine was not an abhorrent aberration but instead the peak of science. Physicians from all over the world came to Germany to study at its famous medical institutes. Highly trained German physicians, in order to advance their careers, joined the Nazi party in disproportionate numbers: 50 percent of physicians were Nazis, compared with around 15 percent of the general population; and 7 percent were in the infamous Schutzstaffel (SS), compared with 1 percent of all German citizens. The most ideological physicians then implemented Social Darwinist ideas, while the physician community did not raise its voice in condemnation. In the program nicknamed T4, a group of psychiatrists selected 70,000 Germans deemed "incurably ill" from hospitals across the country to be systematically murdered. Psychiatrists participated by staying silent and writing the transfer orders, knowing that no one ever came back. Nazi mass murder thus began with physicians.

It continued from there. The Nazi physicians then used their expertise to scale up to the mass murder of Jews and other unwanted populations. They and their support staff and nurses dispersed across Eastern Europe to set up gas chambers in the extermination camps. While there, the physicians used "valueless" humans to conduct cruel experiments, where often all the participants died. In the case of Dr. Mengele's research at Auschwitz, a pathologist dissected the murdered corpses and sent samples of brains, hearts, eyes, and other body parts to the Kaiser Wilhelm Institute of Anthropology, Human Heredity, and Eugenics, to use science to prove Aryan racial superiority. Finally, it was a physician at Auschwitz who decided who should go to the work camp and who should be gassed immediately, as if the mass murder of a population were a medical decision.

The actions of these Nazi physicians represent what scientifically trained doctors can do when our power to influence life and death loses its moral compass. Yet their crimes represent an integral period in the course of modern medicine. In reaction to their deeds and to safeguard our patients, physicians developed Institutional Review Boards to ensure ethical research and espoused individual patient autonomy as an utmost ethical concern. However, systematic devaluation of human life continues. Put simply, we value some lives more highly than others. Consider how we accept as legitimate the refusal to see patients simply because they do not have the proper insurance, or how we reimburse mental health care at lower rates. Or consider the devaluation of those living with opioid addiction—Rob Schaaf, MD, a Missouri state senator and family physician, shared this opinion after voting down a prescription drug monitoring system: "If [opioid addicts] overdose and kill themselves, it just removes them from the gene pool."

In response to the everyday ways in which we devalue others I have devised a question that I hope will continually calibrate my moral compass. When interacting with difficult or marginalized patients, I will ask myself, "Am I treating this patient as less human than others?" If so, then I need to consciously focus on changing my thoughts and actions so as to respect the rights of all of us to be treated equally and without discrimination. This question, I believe, will help rid us of the bit of Nazism and Social Darwinism residing in all of us.

Edgar Woznica *is in the Program in Liberal Medical Education and graduated from Brown University with an AB in development studies in 2009. He will graduate from Alpert Medical School in May 2015 and pursue a residency in psychiatry.*

ESSAY

BY MARGRET CHANG MD’10 RES’14

A Life Fulfilled

To die with dignity, a patient lives with purpose.

“The cancer … they say it’s all over my body.”

I was sitting on the edge of a stretcher when my friend Michaella shared this news with me. It was 10 o’clock at night, and I had run over to meet her at the ER after a grueling day on the oncology service. Michaella had been there for many hours by that point, with family flanking her sides. I stared at her blankly, not quite comprehending what she was saying, not knowing exactly what to say.

Earlier that day, she was complaining of vision changes and had gone to the doctor to have her symptoms checked out. That led to a trip to an outpatient MRI center, where an initial scan revealed findings in her brain suggestive of advanced metastatic cancer. She was then sent to the ER, where she received even worse news: evidence of cancer in her liver and lungs, as well as multiple blood clots in her lungs.

> “Once I know how much time I have left, **I’m going to** figure out how I can **live each moment to the fullest.”**

I looked at her. An expression of terror had overtaken her face. Gone was the immaculately dressed woman I was used to seeing in the office. In her hospital gown, she looked frail and vulnerable. Before I knew it, I was crying openly.

Michaella’s face softened at that point, as she held my hand.

“Such a pretty girl …” she said. “I’m going to be OK … you’ll see. Once I know how much time I have left, I’m going to figure out how I can live each moment to the fullest.” She paused, looking at the clock on the wall. “But it’s late … and you should get home.”

Michaella Griffin was no ordinary friend. She was, in fact, the program coordinator for the Brown University Combined Internal Medicine/Pediatrics Residency. Always smiling, she was a woman who had a reputation for caring far more about others than she did herself. We often referred to her as a “clinic mom,” as she always had a knack for listening to and solving personal problems.

Michaella was admitted to a room on the oncology ward where my team was stationed. It was the middle of winter—a particularly depressing time, as there was already a census full of sick cancer patients. I was unsure how the negative ambience would affect Michaella, and thus made a vow to check on her every evening before leaving the hospital.

Mornings for Michaella were a flurry of activity. She was seen by doctors, whisked to MRIs, CT scans, and biopsies, and then taken back to her room where a large crowd of visitors awaited her. Never would she fail to have her hair combed and to greet her guests with a kind smile. At night, however, I saw a different side. Michaella’s voice often shook as she told me about the metastases that had been confirmed—in her brain, spinal cord, liver, and adrenal glands. The night before her first radiation therapy, I found her looking more despondent than usual.

“What’s going to happen to me?” Michaella asked, trembling slightly, as I sat down next to her bed.

I looked at her closely.

“That’s not a fair question, is it,” she sighed heavily. “I know I don’t have much time left. I guess I’m just keyed up because no one has been able to tell me exactly how much time that is.”

She smiled slowly as she picked up my hand. “But you’ll be so proud of me. I finally decided it wasn’t worth it, to just sit here worrying about that. When I go, I want to know that I’ve led a life fulfilled. You see, I’ve started making a list of things I’m going to do when I get out of here. And … I put your wedding on my list, too.”

IN THE MOMENT

Michaella was eventually discharged, just in time for Christmas. She went back to work at our clinic part time while continuing her cancer treatments. Whatever free time she had was devoted to community service and painting. For a few months, she did well. She was not only present at her son’s wedding, but she made it to mine. There is a picture of Michaella

COURTESY MARGRET CHANG

CLINIC FAMILY: Left to right, Alexander Diaz deVillalvilla, Brian Alverson, Laura Cetelia, Martin Spielmann, Suzanne McLaughlin, Rachel Epstein, Robert Velasco MD'10, the author, Sybil Cineas, Elizabeth Toll, Michaella Griffin, James Favreau, and Stephanie Tecun MD'09 at Margret and Robert's wedding on July 13, 2013, in East Providence, RI.

at our wedding reception that I will always treasure. In it are many members of our clinic. It was the middle of summer, and a perfect sunny day on the East Bay Bike Path served as our backdrop. We look like we are all one big family, and Michaella is standing toward the front—her hair perfectly coiffed.

In the early fall, it became clear that the treatments were not working. After talking with her doctors, Michaella decided to remain at home with hospice. She met with friends, painted, and wrote poetry. She planned her funeral and memorial service down to the last detail so that her children wouldn't have to worry about it. Gradually she grew weak, her waking moments becoming fewer and fewer. She passed away at home, in the early dawn of a cold autumn day, surrounded by her family.

In medical training, we are exposed to many deaths that end badly. These are the ones that we remember—whether it is a patient who spends every last minute of life withering away in the hospital, or the family that wants everything done for a loved one whose will to live is already shattered. The crux of it is that few people are ready to hear that their life may be coming to an end. Michaella was that rare person who embraced her disease and challenged herself to make every remaining day count. I had been taught to talk to patients and their families about the concept of a "dignified death." Michaella taught me that I should focus not on the dying, but on helping my patients to live the remainder of their lives well.

Michaella's memorial ceremony took place on a sunny day. The church was filled with many people from our clinic and community. An inscription on the program caught my eye. It was a poem that a friend had written in her honor:

We all must die
Her life is now fulfilled
Let us look heavenward.
There may well be a newly
risen star, which sings of
resurrection, and of
everlasting love.

Reading those lines, I thought back to my conversation with Michaella in the hospital that winter night. I remember the eagerness in her face when she made the decision to live her life to the fullest. Inside, I smiled—knowing that it would have made her proud to be remembered as having lived a life fulfilled.

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FROMTHECOLLECTIONS

BY PHOEBE HALL

Lost and Found

A museum comes back to life, if only for a year.

The final resting place of Brown's first, and last, natural history museum was the banks of the Seekonk River, where its collections were unceremoniously dumped in 1945. The Museum of Natural History and Anthropology was not a long-lived or well-loved institution. John Whipple Potter Jenks, Class of 1838, persuaded the University to establish the museum in Rhode Island Hall in 1871; he almost singlehandedly populated the display cases with zoological and anthropological specimens from around the world, including thousands of animals he'd stuffed (and, in many cases, hunted) himself.

Jenks also taught taxidermy to Brown students in the building's basement, and it was likely his regular contact with arsenic, the common preservative of the day, that precipitated his death, at age 75, on the steps of the museum. Without its champion, the museum quickly faded—its specimens divvied up, packed away, and ultimately carted off, in 92 truckloads, to the University dump.

This year a group of Brown and RISD students and faculty, calling themselves the Jenks Society for Lost Museums, revived their namesake's legacy. Their exhibition, "The Lost Museum," in Rhode Island Hall through May 2015, comprises three installations: a long case displaying a few original artifacts (only about 10 percent of the collection survived the museum's diaspora and destruction); a re-imagining of Jenks's office, based on primary texts; and a storeroom of objects, created by more than 80 artists, all in white, to represent the "ghosts" of the long-lost museum.

Steven Lubar, PhD, professor of American studies and the project's faculty supervisor, writes in the society's blog (jenksmuseum.org): "Museums promise artifacts eternal life. This installation calls attention to that promise, and calls it a lie, or at least, too simple. … Only art can revive, can re-imagine the lost museum."

BROWN UNIVERSITY ARCHIVES; JODIE GOODNOUGH

JODIE GOODNOUGH; HOWARD CHU; BROWN UNIVERSITY ARCHIVES; JODIE GOODNOUGH

BACK TO LIFE: Facing page: Top, the museum circa 1890. Bottom, some of the surviving artifacts now on display. This page, clockwise from top: Jenks's office, recreated from sources including a 1935 *Atlantic Monthly* article by his student Dallas Lore Sharp, Class of 1895. Jenks with his taxidermy students in 1875. Members of the Jenks Society for Lost Museums on the steps of Rhode Island Hall with "ghost objects" that symbolize the collection's lost artifacts. One of the "ghosts," by RISD student Raina Belleau.

A Docto

She hoped to get accepted to medical school in spite of being a writer. Brown wanted her because she was one.

I would not be a doctor were it not for Brown. I don't mean that with hyperbolic nostalgia, as in: *Brown made me what I am today.* Nor do I mean it concretely, as in: *I went to medical school at Brown, ergo Brown transformed me into a doctor.* What I mean is that I can't imagine I would ever have gotten into medical school were it not for Brown.

After majoring in French in college I went to graduate school for creative writing and then took a job teaching high school English to support my entirely nonlucrative life as a poet. I was one of four faculty members in the first year of a new charter school in California. Which is also to say that at 24 years old, I was a high school's entire English department. To fill the student body, the school's founders had accepted a large number of students who had been expelled from other public schools. Many had spent time in juvenile detention centers. Many were on legal probation. I had never taught high schoolers before. It was, perhaps, not the arrangement most likely to foster a love of teaching.

Nonetheless, it did give me insight into the weighty and numerous issues that the 14- and 15-year-olds in my classroom were juggling as they tried to read the books I had assigned them.

"Ms. Machine," they would call out to me, because my last name reminded them of the Spanish word *motor*, "if Holden Caulfield has two parents and a fancy school and all this money, then why does he spend so much time bitching about his life?"

"Yeah, or at least why do we have to *read* all his snively, pansy-ass bitching?" another would chime in.

"If I met him near my *casa* I'd give his spoiled white ass something to bitch about!" a third would shout out, at which point the class devolved into laughter, clapping, and congratulatory fist bumps.

"Let's watch the language," I'd say, reflexively, as I did a hundred times a day. But all the while I'd be thinking how

or Poet?

BY CHRISTINE MONTROSS MD'06 MMS'07 RES'10

perfectly right it was for them to be impatient with Holden Caulfield. How little I'd understood about the students I would have, and their lives, when I had taken the job. How irrelevant my reading list had turned out to be, carefully culled from the books I had taught to the eager students of a prestigious university just the year before. How inaccurately I had imagined these children, who turned out to be all full of bravado and street smarts and dressed in rival gang colors, but who were inarguably *children* all the same.

The stresses of my students' lives sometimes seeped into school time and sometimes poured in. Our school had no money for a guidance counselor. We four teachers filled in where we could. That meant that I went to the hospital with a 14-year-old freshman who needed a rape kit done after a friend of her father's had gotten drunk and come into her room the night before. It meant I took assignments to the juvenile detention facility where my 15-year-old student was held after she beat a neighbor girl so badly that the girl fell into a coma. It meant that I talked with the psychiatrists who had questions about my students' school performance, and who prescribed them medication upon medication upon medication.

One of my students was so sedated by antipsychotics prescribed for aggression that his words slurred, and he fell asleep in class. Another began an antidepressant, and before long started doing her homework and stopped carving DIE MOTHERFUCKER into her forearms with a razor.

It struck me that medicine had the potential to both ameliorate and impair. At the time, I tended to be mistrustful of psychopharmacology. Yet over and over again I saw that it was often the first-line treatment for psychic distress in this group of disadvantaged kids. They did not have health care that would pay for them to be in twice-a-month psychotherapy, but they did have coverage that paid for their daily doses of new, expensive psychiatric medications whose effects had only minimally been researched in children. Sometimes the medicines helped my students, and other times they didn't. I wondered wherein the difference lay.

In the midst of these questions and observations (and in the midst of my undeniable failure as a high school teacher) I found myself thinking more deeply about the territory of the mind. For years, I had written poems that flirted with madness. A yearning love poem had in it the figure of a cryptic madwoman:

> … down the hill the old widow has laced her river
> birch with bottles, some clear, some green, all clouded.
> They stay without string or fixative, each thin neck

encircling a sturdy twig. *Pieces of wind inside*
she croons at me one day. *A piano for the rain*
she confides the next, grinning, and just yesterday,
solemn, *You see, I'm making a deal with God.*

Another poem explored the fractured logic and linguistic associations of madness:

the woman comes to your door and knocks.
Nothing about her looks wrong but something
does not look right. *Do you have*
the padlock's key? she asks and points
to your coat closet.
I have to get upstairs

delusion, illumine,
lumière, solution,
illusion, lunacy,
luz; there's light
in all of it.
Light at the end
of the tunnel,
lights are on
but no one's home.

The social worker is new. The man speaks
steadily without crying. *Mother left*
first. Father stuffed my rolled
socks into the tailpipe of a rented car. She smiles
her best empathic look, writing
absent parents, childhood trauma thinking
four more minutes he says *so I'm a bird*
and I've come to you for help
because my brother just won't bring seed

sedate, seduce, sequester,
kestrel, guillemot, tern.

My struggling high schoolers helped me begin to understand that this poetic and intellectualized view of madness was removed, romantic, and simple. Just as, for them, Holden Caulfield failed to reflect a realistic picture of adolescent angst, so my own poetic musings about the mind's failings largely missed the point. I was beginning to learn that real-life fractures of the mind were fascinating, and at times poignant, but they were not lovely. Instead of providing a window to an elusive realm of wisdom, mental illness more often was a flagrant display of confusion and fear, of misery made plain.

Increasingly I felt drawn to a career investigating the mind. I considered training as a social worker, or as a psychologist, but my students demonstrated what I already knew from talking to a range of therapists and doctors: the current of mental health treatment was increasingly running toward medication. If I wanted to be an educated voice that could speak to the complexities of the brain's neurochemistry and make a cogent argument for or against medication when I believed a patient did or didn't need it, I'd first need to learn anatomy and pharmacology. I'd have to go to medical school.

My partner, Deborah, looks back on the years prior to that decision and jokingly calls them "the years of false advertising." It is a story she loves to tell at a dinner party when new friends ask how we met or whether I had always known I wanted to be a doctor. "Keep in mind," she'll say as a teasing accusation, "that when I met Christine in graduate school, she was a *poet*. Poets don't have *pagers*," she'll continue. "Poets are never on overnight call."

When I finally decided that—despite being a poet—I wanted to go to medical school, I uprooted our lives from the twenty-something dreamland of San Francisco to the somewhat less entrancing suburbs of Philadelphia in order to take a year of premed courses at Bryn Mawr College. I was met with a rude awakening and a dose of self-doubt.

The awakening came in the form of my first physics exam. In college and graduate school I had studied little, breezing through a scintillating range of humanities courses with passion, great enthusiasm, and a minimal expenditure of energy. Nonetheless, I knew my year at Bryn Mawr would pose a different set of challenges, a kind of learning with which I was unfamiliar. So I studied. Hard. And when my first physics exam was handed back to me, a large *28* was scrawled across the top. I hadn't remembered that there had been as many as 30 questions. I flipped to the final page. There hadn't been. I was puzzled. I tried to determine the point allocation per question and how it would add up to 28/30 or perhaps even 28/35. Then the professor projected the range of scores on the screen in the front of the room, and I saw that my lone 28—on the far left side of the bell curve—was, in fact, a 28 percent. Failure was 60 percent. I hadn't just failed the test, I had bombed it.

This does not become a story of redemption and physics success. I did pass the course in the end, but just barely. I say without hesitation that if I were asked today to explain even the simplest relationship between force and velocity, or the concept of vectors, or whatever the hell else is in physics, I couldn't attempt to tell you without breaking into a fit of uncontrollable laughter at my own ineptitude.

And yet, despite my physics failures, I am, today, a practicing physician. I'm a psychiatrist and a writer. I love my job, and I think I'm good at it. I speak with some frequency at medical schools across the country, and as deans and faculty members brag to me about the staggeringly high MCAT scores of their matriculated students, I think only of how poorly I would have fared on the MCAT and how certain my rejection would have been from any medical school that required it.

> **"A doctor poet? Of *course* you were admitted! That's just the Brown way."**

Thankfully, Brown did not. Instead, the admissions committee asked me about my poetry and seemed to ignore my dismal physics performance. When I wrote about my high school teaching experience and how it had led me to want to practice psychiatry, they trusted my curiosity and commitment. They wanted to know more.

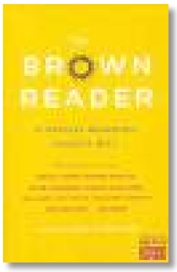
When I learned that I had been admitted and expressed shock to a friend of mine who had done her undergraduate work at Brown, she grinned widely and shrugged. "A doctor poet? Of *course* you were admitted! That's just the Brown way."

I began writing *Body of Work*—a memoir about the experience of dissecting a cadaver—as a first-year medical student at Brown. In the summer after that first year, when students could apply for competitive funding to support bench or clinical research, Dean Donald Marsh created and granted me a Summer Fellowship in the Arts and Humanities. While my peers worked with cell cultures and pipettes in basic science labs and crunched data for clinical trials, I used my funding to tramp around Italy researching anatomical theaters, underground crypts, saintly relics, and creepy wax museums.

In my second year, I scurried from pathophysiology lectures over to the literary arts building, where I was permitted to take an independent study writing elective with literary arts professor Carole Maso. Though our buildings were less than a block from each other, the talks I had with Carole about dissection were otherworldly and provided a necessary contrast to the medical lens of anatomical science. Those conversations allowed for more poetic and dreamlike intrusions to be woven into *Body of Work* in a way that mirrored the weird and unsettling mortal dreamscape of cadaveric dissection.

In my clinical years, I received medical school credit—just as I would have for a dermatology or neurosurgery elective—for researching and writing about the wild history of anatomy with its body snatching, grave robbing, and defiance of church and law. The pages I wrote during those electives formed the central historical component of my book manuscript.

In the years that followed, Brown has continued to be an academic home that has supported my own individual career priorities rather than forcing me to rigidly adhere to traditional expectations and pathways. I have now written a second book—*Falling Into the Fire*—about my most compelling clinical encounters as a psychiatrist. My earliest inclinations to explore mental illness through both literature and science have been allowed to take root and indeed nurtured here. I think back to that high school classroom confluence of psychopharmacology and Holden Caulfield, and the progression from there to my current faculty position in Brown's department of psychiatry seems almost linear, if not conventional. The shape of it has something to do with momentum, with trajectory. It's beginning to feel like some kind of a vector.



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LINCOLN'S PROMISE: When explaining her decision to speak out, Hollenbeck invokes the VA's mission statement: "To care for him who shall have borne the battle."

Truth to Power

BY PHOEBE HALL
PHOTOGRAPH BY TOM ROSTER

Blowing the whistle on her VA superiors wasn't an easy choice for Phyllis Hollenbeck. **It was her only choice.**

On her way to her 35th medical reunion at Brown, in May 2012, Phyllis Hollenbeck '73 MD'77 got a call from a nurse on her primary care team at the G.V. (Sonny) Montgomery VA Medical Center in Jackson, MS. The US Drug Enforcement Administration had just arrested one of the hospital's top administrators on narcotics fraud.

"You're making this up," Hollenbeck said to her colleague.

But Hollenbeck had long known that something was rotten in Jackson—indeed, had been wary since day one, in September 2008, when another physician welcomed her with, "I hope you don't quit like all the others."

It didn't take Hollenbeck long to understand why. The primary care department was routinely overbooked, as the clinician ratio dwindled to six nurse practitioners for each physician; patients were scheduled with unsupervised nurse practitioners, or double booked and never seen. Unlicensed nurses prescribed medications, while physicians were asked to order narcotics for patients they'd never treated—which Hollenbeck refused to do, despite pressure from her superiors.

It was a pattern that was repeating itself at Veterans Affairs health care facilities across the country: long and falsified wait times, delays in medical care, illegal prescribing practices, and missed diagnoses, all so commonplace, and so callously ignored or concealed by leadership, that in the wake of the revelations last spring the VA secretary, Eric Shinseki, resigned. Rep. Jeff Miller, R-FL, chair of the US House Committee on Veterans Affairs, which has held multiple hearings to investigate the endless stream of wrongdoings, wrote of the "unprecedented specter of corruption" that "surpasses anything in the history of American government."

She assumed the problems she witnessed were isolated to one dysfunctional department in one hospital.

In the summer of 2012, though, Hollenbeck didn't know she was poised to play a key role in exposing a nationwide scandal; that she would receive federal whistleblower status from the US Office of Special Counsel; that she would testify, twice, before Miller's House committee; that she would appear on national television and on the front page of *The New York Times*.

She assumed the problems she witnessed were isolated to one dysfunctional department in one hospital of a sprawling medical system that cares for more than 6 million patients. And she thought she was standing alone when, at last, she approached the office of her US congressman, Gregg Harper, R-MS, to tell his staff of the impossible workload, its consequences for clinicians and patients, and her supervisors' failure to act.

"They told me they were already hearing from veterans about primary care" at the Jackson hospital, Hollenbeck says. It was her first inkling that what she'd reported could have implications beyond her own day-to-day concerns, that this was bigger than her job and her patient population.

"I didn't look for this fight—it came to me," she says. "There is a firestorm now across the country. It's wonderful."

Hollenbeck is 63, with long, auburn hair pulled into a ponytail that falls over her left shoulder. She's 5 foot 3, gaining an inch or two in her ubiquitous heels. She's fond of bright colors and bold patterns, fishnet tights, and lots of jewelry. She wears a stud in the cartilage of her right ear and gold bangles on her wrists, and the pendant of one of her necklaces is a 1930s Tiffany charm in the shape of a whistle—a gift from her husband, Richard Sun. Their cozy brick home, nestled in Jackson's genteel Belhaven neighborhood, is around the corner from Eudora Welty's house and several filming locations of *The Help*. It's a world away from Canton, MA, where Hollenbeck grew up, but the lifelong Northerner settled in quickly. "I felt very at home right away," she says, a touch of Mississippi taking the place of the Boston accent she lost long ago. "I tease, I must have been a Southern belle in a former life."

She credits her "Irish humanity and sense of humor," her Catholic underpinning, her supportive parents, and her Brown education for starting her down the path to outspoken veterans' advocate. "She has a strong sense of morality, from her family, her religion, and her vows as a physician," Sun says. "She could do the right thing or the wrong thing. … It was almost a non-choice."

As a child, Hollenbeck dreamed of becoming a writer. But one human physiology class in high school and she was hooked. So, "I decided I wanted to be a doctor who writes." At Brown she concentrated in literatures, choosing to take the full eight years to complete her degrees, rather than the accelerated AB/MD program, because "it was my last chance to write a thesis on George Eliot's work," she says.

After Commencement, Hollenbeck moved to upstate New York, to begin her residency in family medicine at St. Joseph's Hospital in Syracuse. "Patient-centered care is now fashionable, a buzzword," she says. "But that's how I got trained." She learned to ask questions and to listen and look for the answers, spoken and unspoken. She loved the "dance of connection" with her patients, and the "wonderful intellectual puzzle" of diagnosis and treatment. "You can't be too lazy to ask questions," she says. "Sometimes that one question is the only one that matters." After residency, marriage, and a stint in the Public Health Service, Hollenbeck returned to Massachusetts to help care for her father, who had been diagnosed with prostate cancer. When he died, she opened a solo private practice and "got swamped." She felt duty bound to her patients—"The last person of the day needs as much out of you as the first person of the day," she says—but it was a brutal introduction to the real world of primary care: the long hours, the paperwork, the tight scheduling. After the birth of her second child she switched gears to become associate director of the family medicine residency at the University of Massachusetts Medical School, "which I loved immediately," she says.

Sexism in medicine was a regular theme; she was the first or only woman to hold many of the posts on her CV. "I got spoiled at Brown," where 20 of the 60 members of her class and some of the faculty were women, she says. "I got to residency and it was a shock." In 1979, she was the first female family medicine resident delegate to the Annual Congress of the American Academy of Family Physicians (of which she is now a fellow). While running her practice she was the only woman on the local hospital staff; later, at a clinic in Worcester, MA, where she started their family medicine department, she was the only female department head. Attitudes were slow to change; a hospital president once informed her that he didn't like married women who kept their last names. With three young children at home, she struggled to find work-life balance—a challenge, she laments, that continues for female physicians to this day.

> **"She has a strong sense of morality, from her family, her religion, and her vows as a physician."**

But Hollenbeck persevered. "You can hang in there," she says. "You can laugh or go crazy." She divorced and, with her children and her mother, moved across the country, to Seattle, where she worked for community health centers and group practices, as well as at the naval hospital in Bremerton, WA, where she taught residents. At home she found herself again caring for an aging parent, when her mother developed Alzheimer's. But taking such responsibility is "in my bone marrow," says Hollenbeck, who in 2001 flew her mother's body home to Boston, to bury her. "There has to be someone who takes care of what needs to be done." A few years later her second son enlisted in the Army and went to Iraq. "He wanted to do something bigger than himself, to do something that counts," she says, "the way he saw I felt about medicine."

Helping patients brought Hollenbeck fulfillment and fed her passion for her work. "People are endlessly fascinating," she says. She tried to make them comfortable with honesty and clarity, delivering hard truths with a smile when she could. "There is no law against laughing in the doctor's office," she says. She loved to break the ice with her mother's Irish sayings and her father's German jokes. But she didn't lose sight of the gravity and responsibility of her charge. "People know whether a doctor gives a damn," Hollenbeck says. "Seeing a new doctor is like going on a blind date. … If the patient isn't comfortable in that room with you, then he or she won't tell you their story."

> "Phyllis is such a wonderful patient advocate, so compassionate, that you expect her to be a bit more passive."

Her resolve turned out to be another requisite for the job. She has strong opinions on doctoring, and what she expects from herself and from other physicians as both their colleague and their patient. In the first chapter of her 2005 book, *Sacred Trust: The Ten Rules of Life, Death, and Medicine*, she writes: "I do not like doctors. Most of them, anyway. The two nicest sentences that have been uttered to me in my career are 'You don't look like a doctor' and 'You don't act like a doctor.'" She recalls the many times a patient has told her, "You are so nice." "Everybody should be nice," she says. "Isn't that just good manners? … It's heartbreaking that people are so thankful to be treated with respect."

Standing up for her patients, herself, and her staff to right wrongs was a matter of course throughout her career. "I have crossed swords with people," Hollenbeck says. "I'm old enough that I'm not afraid to speak up." In *Sacred Trust* she describes her mother as "five-foot-two, 115 pounds … [and] 75 percent of that weight was due to her spine of steel." Hollenbeck gained an inch on her mom, but she has that same backbone. "I'm bigger than I look," she likes to say. "When people tell me I'm little, I always think they need their eyes examined."

Administrators at the Jackson VA were hardly the first to underestimate Hollenbeck in her 37-year medical career, but they may have been the most hubristic. "They didn't count on somebody as stubborn, as organized, who kept records," she says. Siobhan Bradley, an attorney with the Disclosure Unit of the Office of Special Counsel (OSC), who has worked with many VA whistleblowers, says Hollenbeck's meticulous recordkeeping assisted her case tremendously. "She had a lot of great information and supporting documentation. She's very bright and very thorough," Bradley says. "It was extremely helpful in organizing her allegations."

From Seattle, Hollenbeck moved to northern Virginia to be with Sun, whom she married in 2008. His work, in private equity, brought them to Jackson later that year; the coincident primary care opening at the VA seemed serendipitous. Hollenbeck, of course, couldn't have known the job was a revolving door. Nor could her superiors have known she wasn't one more doctor they could push around. "Phyllis is such a wonderful patient advocate, so compassionate, that you expect her to be a bit more passive, a bit more willing to work within the system," says Charles Sherwood, MD, a fellow whistleblower from the Jackson VA. "But when she perceived that things were wrong, that there was no sincerity on the part of leadership officials to rectify the situation, she became a force to be reckoned with."

The imbalance among clinicians in

NATIONAL NEWS: After Hollenbeck agreed to go public as a whistleblower, she appeared on MSNBC (shown here), CBS, and in the CNBC investigative report "Death & Dishonor: Crisis at the VA."

MSNBC

> "They signed up to put their lives on the line. And they're supposed to come home and fight again?"

the department was immediately evident to Hollenbeck; she soon was one of only three physicians, while up to 18 nurse practitioners were seeing most of the patients, unsupervised and incorrectly designated as licensed independent practitioners, and without identification tags indicating their professional title—contrary to VA policy and state law. "Nurse practitioners ran the place," she says. "The nurse practitioner-physician ratio [in Jackson] is the inverse of other VAs. Most are three physicians to one nurse practitioner." In her testimony before the House Committee on Veterans Affairs, in September 2013, Hollenbeck explained this concern was not just a matter of "protecting turf," but of very different training and licensing requirements for physicians and nurses. "VA patients' symptoms are getting more complex, and they need a physician to oversee their care," she says. "You want the person who spent the most time being educated. Nursing is not where the buck stops."

Meanwhile Jackson's primary care physicians faced grueling schedules, with no control over the double booking and backlogs. "The more patients you see, the more orders, the more results to check and act on and notify people about—you had your heart in your mouth, praying not to miss something vital," Hollenbeck says. She told the House committee that when she asked why she was always overbooked, she was told she saw her patients "too often." Other patients were never seen at all; they'd been scheduled at "ghost clinics," which had no assigned provider, and most would give up and leave, hours after their appointment time, and never receive treatment. "This is not fair to the veterans," she says. "They signed up to put their lives on the line. And they're supposed to come home and fight again?"

Even more egregious behavior was to come. After the hospital's associate director of patient care services was charged with narcotics fraud, in May 2012 (the charges were later dropped), the DEA found that some nurse practitioners were improperly, and illegally, prescribing controlled substances, and stopped the practice. In response to what quickly became a crisis—Hollenbeck says leadership reported that 75 percent of veterans weren't getting their narcotics renewed—hospital administrators began asking physicians to write prescriptions for patients they hadn't treated. Hollenbeck refused. "You learn in the third year of medical school that you need to see the patient in order to prescribe narcotics," she says. Both federal and state laws bar the practice, and Hollenbeck reported it to a local DEA agent. Yet the pressure to comply continued, under the guise of helping veterans and being a "team player."

Though Hollenbeck's supervisors sometimes verbally asked primary care physicians to order narcotics for patients they hadn't seen, they also wrote the requests in emails, which she carefully saved, along with reams of other communications that documented the hospital's many problems—the understaffing, the overbooking, the unsupervised nurse practitioners, the illegal prescribing practices—and years' worth of messages she'd sent up the chain of command, voicing her concerns. By this time, she had visited her congressman's office, where staff referred her to the OSC. The written requests to sign prescriptions were the last straw, she says. "I remember looking at the emails and thinking, 'You stupid sons of bitches. I have you now.'"

B**efore** veterans' groups and the media became aware of the case, Sherwood says, the VA leadership "treated Phyllis and I and probably all the other whistleblowers as a disgruntled employee lunatic fringe. … They said we were well meaning, but we don't have the big picture, it's not as bad as we think. … But the OSC had other sources of information coming to them besides ours."

Sherwood, who retired from the Jackson VA in 2011 as chief of ophthalmology, went to the OSC last year with his allegations—regarding improper review of radiology images—at Hollenbeck's suggestion. "She's fearless," he says of his former colleague. "She was running the gauntlet, still having to go to work every day and interface with these people in leadership. … She's to be credited with taking great personal risk to see it through."

Sherwood had witnessed retaliation at the hospital several years earlier, when he testified in the case of three female radiologists who had reported a colleague's misconduct. In addition to pay discrimination, Sherwood says, supervisors made the women's lives "a living hell for years." But he believes Hollenbeck won't suffer the same fate. "The size of the scandal made it possible for Phyllis to survive," he says. "Whistleblowers are protected in ways they were never protected before, simply because of public awareness."

Jose Mathews, MD, was not so fortunate. The former chief of psychiatry at the John Cochran Medical Center, in St. Louis, was removed from his position last year when he filed his complaints about scheduling problems, long wait times, and falsified data. After reading about Hollenbeck in *The New York Times*, last year, he contacted her; they speak regularly. "I knew that I was not alone and I got the encouragement to soldier on," he wrote in an email. She put him in touch with the House VA committee, to whom Mathews testified in July about the need for more protections for whistleblowers. Until the OSC closes its investigation into his claims, however, it can't help him regain his post. Meanwhile, the retaliation against him continues, he says. "I believe in the mission of the VA," he wrote, but "the VA culture has NOT changed."

Though the OSC strives to protect whistleblowers, coming forward "can be a risky endeavor," says Nick Schwellenbach, the office's senior communications specialist. "It has a huge impact on their personal and professional life. Some whistleblowers are fortunate and are in supportive environments, but too often they are not." In July testimony to the House VA committee, Special Counsel Carolyn Lerner said her office was investigating 67 whistleblower retaliation complaints from VA staff.

Hollenbeck did not make the decision to go to the OSC lightly. She vividly remembers the moment when she finished writing and revising her statement and, on a Sunday night in July 2012, hit the "send" button. "I thought, it's done. It's too late to get it back," she says. So accustomed to being ignored, she wondered if she'd hear back at all. Unbeknownst to her—the OSC keeps whistleblower disclosures confidential; Hollen-

> **The VA leadership treated the whistleblowers "as a disgruntled employee lunatic fringe."**

beck and Sherwood chose to go public—three other whistleblowers from Jackson had already come forward. Bradley called her that Friday, wanting to talk right away. To date, there are seven whistleblowers from the hospital; nationally, the OSC's VA cases represent a quarter of its workload.

"I had sleepless nights. It took a lot out of me," Hollenbeck says. "My husband is hugely supportive. You can't do it alone. And without the two nurses and the clerk on my [primary care] team, I wouldn't have survived. Every day we looked at each other and said, we can do this."

When she testified before Congress, Hollenbeck spoke bluntly of the hospital leaders' inadequacies and misdeeds, and called for their removal—"with management sitting there," Sun points out. "So you know if they could find a way to retaliate against her, they would. … As long as she's at the VA, and as long as those people or their cohorts are there, she has to act as if they would like to retaliate against her."

Hollenbeck is still at the Jackson VA, though not in primary care. Shortly after her 35th reunion, she traveled to Houston for treatment of a serious illness. When she returned from medical leave, to the same crushing workload, she asked her supervisors—by then well aware, due to her copious messages, of the department's staffing problems—to transfer her, on her doctors' recommendation, to another office with a more predictable schedule. After getting no reply, she approached her congressman's office with her allegations.

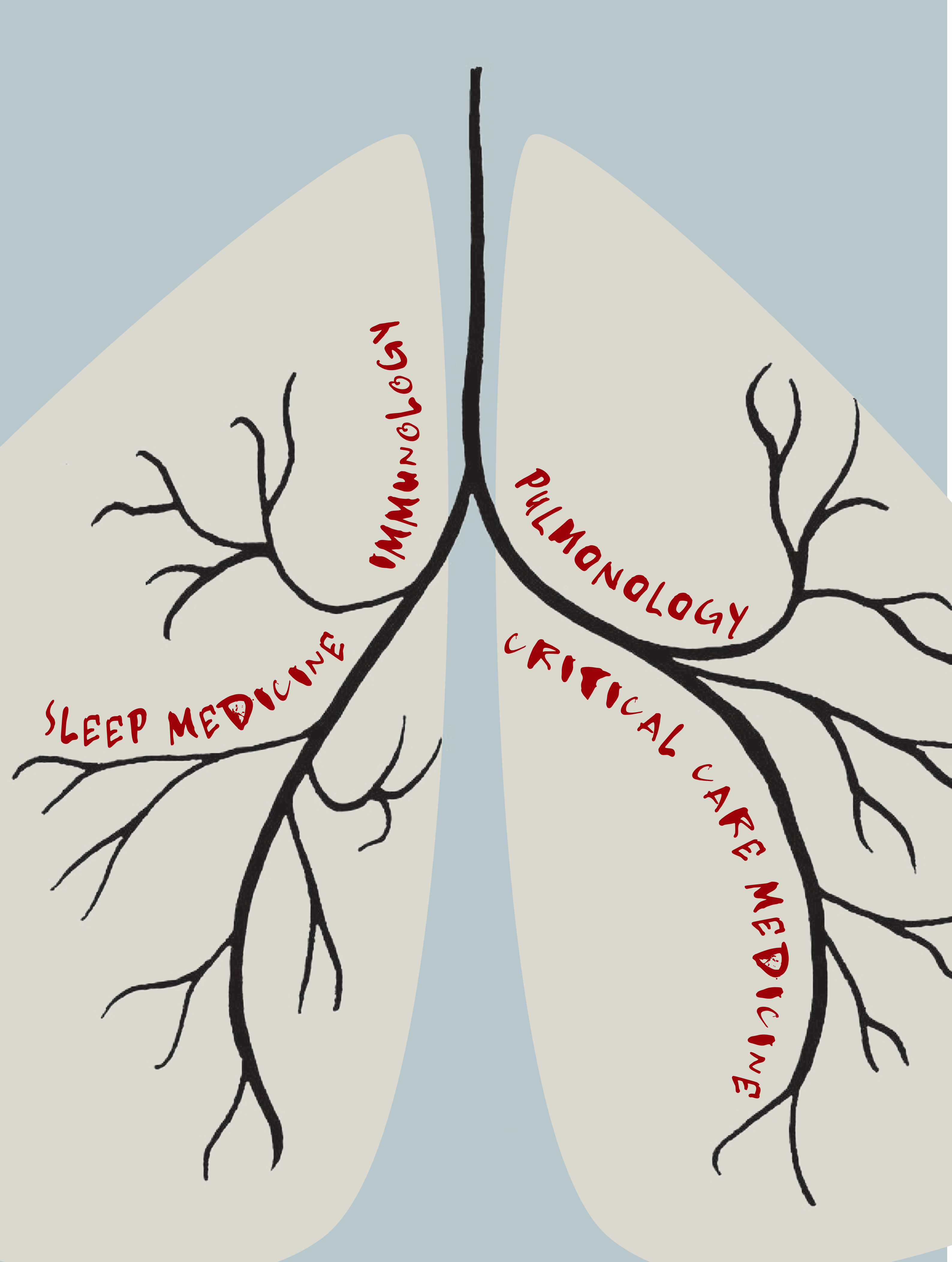
She got a new job—she now works in the compensation and pension office—but more gratifyingly, she helped expose a national scandal. Special Counsel Lerner cited Hollenbeck's disclosures in two letters to President Obama, writing in June, "Too frequently, the VA has failed to use information from whistleblowers to identify and address systemic concerns that impact patient care."

In response to that letter, the VA announced that it will restructure its Office of Medical Inspector, which Lerner criticized for downplaying or dismissing allegations that her office later confirmed. Medical facilities across the country are revamping their scheduling practices and reducing wait times. The new VA secretary, Robert McDonald, has vowed to overhaul the agency's power structure, hire more clinicians, and "rebuild trust" with veterans and the public. Ongoing investigations by the VA's Office of Inspector General into wrongdoings at dozens of medical facilities have confirmed that managers lied about scheduling problems and ghost clinics, and that such scheduling "schemes" were concocted to mask dangerous delays in care that may have led to patient deaths.

> "They're very self satisfied. They still figure they'll get away with it."

But problems continue in Jackson, Hollenbeck says, and she predicts more whistleblowers will come forward. "I believe we will eventually have such a tsunami of ethical physicians in the VA that the right culture change will happen—so many good and great people work in the system," she says. She continues to work with the OSC herself, and to communicate her concerns to the highest levels of VA leadership. She insists that McDonald must meet with doctors who have stuck out the crisis and, playing on his previous post, as CEO of Proctor & Gamble, that he "wipe the slate clean." She's still calling for the heads of the leaders in Jackson whom she alleges are responsible for the problems there: "They're very self satisfied. They still figure they'll get away with it." And she still goes to work every day, to help veterans, "the truest warriors"—to explain their benefits, hear their war stories, and comfort those who are dying.

It's all part of the physician job description: a caretaker, by Hollenbeck's definition, is a patient advocate. "A patient needs you to be able to say the things that need to be said. They count on you to stick your neck out," she says. "I had to say something because it's people's lives. How many times can I say it? It's a very simple mission: take care of the veteran."


IMMUNOLOGY
SLEEP MEDICINE
PULMONOLOGY
CRITICAL CARE MEDICINE

BY SUMMER E. ALLEN PHD'12

ILLUSTRATION BY MINDY OSWALD

BRANCHING OUT

A new respiratory disease research group unites investigators across disciplines with a common goal.

Tens of millions of people died in the influenza pandemic of 1918. People were dying so quickly that there was a shortage of coffins and grave diggers, and funerals had to be limited to 15 minutes.

But it wasn't the flu itself that killed most of those people. "In the 1918 flu, it's thought that more people died of bacterial infections following the flu than of the primary flu infection," says Amanda Jamieson, PhD, assistant professor of molecular microbiology and immunology.

Medicine has advanced since 1918, but the one-two punch of bacterial infection on top of a viral infection still kills. "It's still happening today," Jamieson says. "Bacterial pneumonia following flu is a really common complication."

Jamieson's research explores why this combo is so deadly. In a recent study, she infected mice with either the flu, a weakened strain of *legionella* bacteria, or the flu followed by *legionella* a few days later. The mice could successfully fight off either the flu or *legionella* alone. But *legionella* infection following the flu was a death sentence—all of the coinfected mice died within a week.

Surprisingly, Jamieson and her colleagues determined that the mice got sick from the secondary bacterial infection not because their immune systems were compromised by the flu infection but because their bodies couldn't repair the damaged lungs. When she gave the coinfected mice a growth factor that increased tissue repair and decreased inflammation, survival rates improved. Now Jamieson is working with her students to figure out why this happens at the molecular and cellular levels.

The basic research done in Jamieson's lab has direct clinical relevance. "It's pretty well known that there are all these bacteria resistant to antibiotics, and it's been shown recently that antivirals aren't really that useful for fighting flu," she says. "An anti-inflammatory or tissue repair treatment … could be an avenue of therapy for viral bacterial pneumonia."

This sort of groundbreaking translational research is precisely the goal of a new interdisciplinary group, Brown Investigators of Respiratory Diseases (affectionately called BIRDs). A closer look at some of the group's work shows that Jamieson is not alone in her success: BIRDs is really taking off.

THINK POSITIVE

"Think like a proton, always positive" reads a sign tacked to the bulletin board above Jamieson's desk. Jamieson arrived at Brown last summer. When asked what her first year has been like, she laughs and says, "busy."

Powered by her positive attitude and her love of coffee, she's hit the ground running. She applied for (and won) grants; set up the lab she shares with her husband, Christopher de Graffenried, PhD, assistant professor of molecular microbiology and immunology; and formed collaborations with multiple researchers and clinicians at Brown.

In fact, Jamieson's collaboration with Elizabeth Harrington, PhD, associate professor of medicine, was sparked before she was even hired, during her interview when Harrington asked what happens to endothelial cells during coinfections with *legionella* and the flu. Jamieson is now exploring that question, using systems set up by Harrington's lab.

Just as protons attract electrons, collaborations at Brown occur naturally when researchers are in close proximity. Jamieson credits BIRDs for creating a space where she could meet potential collaborators and learn about their research. It was at a BIRDs meeting where she met Sharon Rounds, MD, director of the CardioPulmonary Vascular Biology Center, an NIH Center of Biomedical Research Excellence (COBRE). Jamieson has since received a COBRE pilot project grant to study the effects of lung infection on endothelial cell function.

BIRDs was founded by Jack A. Elias, MD, dean of medicine and biological sciences, with the major goal of pushing forward translational research on pulmonary and respiratory diseases. To that end, BIRDs journal clubs encourage the comingling of basic scientists, like Jamieson, with clinicians. "It has been interesting to hear their different perspectives on what's important and what's not important," Jamieson says. She has plans to work with two clinicians: Elias, to look at changes in the lung in his "smoking mice"; and Jorge Albina, MD, professor of surgery, to study how flu infection affects surgical wound repair, as part of a DEANS (Dean's Emerging Areas of New Science) Award project.

Jamieson's enthusiasm for her research is clear when she gives a tour of her lab. She beams while showing off a specialized incubator called a "slide moat" and the brand-new Q-PCR machine ("my baby"), and puts on gloves to help a student cast an agarose gel. It has to be said: her enthusiasm is infectious.

SURVIVING SEPSIS

You must pass through a dimly lit, spooky basement hallway—passing a door with a sign that reads "Infectious Disease Storage Area"—to get to the office of Steven Opal, MD, professor of medicine. The office itself is cheery. There's a wall filled with diplomas and a desk stacked with scientific papers. Opal wears a warm smile and a lab coat with a pocket stuffed with pens and a large button that says, "Ask me if I washed my hands."

Opal has nothing but praise for BIRDs. "I'm involved in septic shock, and the lung is one of the organs that is involved in septic shock," he says. "It's good to see that there's a substantial number of people who are doing very useful basic research on lung injury. To me it's great."

Septic shock, or sepsis, occurs when a severe infection—generally caused by bacteria—attacks multiple organs. It is a serious condition that can cause dangerously low blood pressure and even death. As many as 70 percent of septic shock cases are initiated in the lung—often from pneumonia.

The recovery of lung function is key to surviving sepsis. Even if all the other organ systems improve, "if the lungs don't get better, the patient doesn't get better," Opal says. "The lung is an unforgiving organ."

Opal heads international multicenter trials for new sepsis drugs as part of the Ocean State Clinical Coordinating Center (OSCCC). Clinicians from across the globe call the OSCCC to see if their sepsis patients qualify to be part of a clinical trial. Opal and his colleagues must make sure that patients are sick enough to warrant being part of a placebo-controlled trial with an experimental drug, but not so sick that they are beyond hope. "That sometimes gets to be a difficult decision to make," Opal says. "That's part of the art of medicine."

Time is of the essence for patients with sepsis. "It's a 24/7 job, as you might imagine," he says. "Of course we have to respond right away because they're in the middle of some crisis at the other end of the phone."

Opal has been coordinating clinical trials for sepsis with the OSCCC for about 10 years and has studied several different types of drugs, from anticoagulants to anti-endotoxin drugs to new antibiotics. Studying the latter is particularly important given the rise in antibiotic-resistant bacteria. "We're very struck by how resistant bacteria are in some centers, particularly in some parts of the world," says Opal. "Greece and Italy along the Mediterranean have lots of resistance problems."

Besides running these clinical trials, Opal studies how microorganisms interact with their hosts to cause disease. He is particularly interested in regulatory enzymes called sirtuins. These proteins get turned on in times of stress, like during starvation or after injury. "They are designed to keep you alive," he

BIRDS HAS CREATED A SPACE WHERE POTENTIAL COLLABORATORS CAN MEET AND LEARN ABOUT EACH OTHER'S RESEARCH.

says. Sirtuins are prosurvival enzymes because they have the power to turn off other regulatory proteins by removing acetyl groups: "it's almost putting the cell to sleep or in hibernation while the acute injury is present." Opal is studying drugs that activate sirtuins to see if they can help animals fight early stages of infection. So far the data, particularly in an animal model of pneumonia, are encouraging.

SLEEP STUDY

"The strength of Brown is that it fosters collaboration," says Richard Millman, MD, professor of medicine and pediatrics. "What Jack [Elias] has done [with BIRDs] has seized on that." Millman is particularly enthusiastic about Elias's focus on translational research and collaboration. "He's really been pushing the bench-to-clinical thread," Millman says. "I think he's becoming the glue—he's pulling it together." And BIRDs has reunited Millman and Elias, who studied and worked together as med students, fellows, and junior faculty at the University of Pennsylvania.

During his fellowship, in the early 1980s, Millman was a pioneer in the mysterious field of sleep research. "We had a fledgling sleep lab where we did one study every two months in people who were near death," he says. "An attending or a fellow had to spend the night in the lab with the sleep tech because they thought the patient would die."

These patients had Pickwickian syndrome—named for a character in Charles Dickens's novel *The Pickwick Papers* and now often called obesity hypoventilation syndrome, in which severely overweight patients fail to breathe deeply enough during the day and often stop breathing for short periods during sleep.

Brown recruited Millman in 1985 to start a clinical sleep lab, and the research has ramped up since then. At its peak, the Brown clinical sleep lab was doing up to 15 studies a night. Now many studies are done in patients' homes.

Sleep problems affect people of all ages, and Millman has researched the whole range. He studied sleep in the elderly while at Penn and now spends 30 percent of his time working with pediatric patients at Hasbro Children's Hospital, where he has seen overweight children with severe sleep apnea.

Sleep apnea, in which the throat closes off during sleep, ties Millman's clinical and research work together and is the reason why he is a part of BIRDs. When people fall asleep the muscles in their throats relax, narrowing the throat opening. In a person with sleep apnea, inhaling creates a vacuum that is strong enough to suck the throat closed. "It's like vacuuming with a vacuum cleaner and getting a rug stuck in the vacuum cleaner," Millman says. Untreated sleep apnea can create a host of complications, including high blood pressure and heart problems.

The most common treatment for sleep apnea is positive pressure therapy with a CPAP (continuous positive airway pressure) machine. Millman is working with Katherine Sharkey, MD, PhD, assistant professor of medicine, on a BIRDs-inspired project to see whether people with untreated sleep apnea express inflammatory markers identified by the Elias lab. They will test whether these markers go away after positive pressure therapy.

Millman also has embarked on a much larger project: he is studying 150 patients with end-stage chronic kidney disease before they go on dialysis. "In this group there is a high incidence of cardiovascular morbidity and mortality," he says. "Our premise is that bad stuff happens at night, and this is probably affecting these chronic renal failure patients and increasing their risk of heart problems."

The collaborative project—which involves kidney specialists Katherine Richman, MD, and Lance Dworkin, MD, as well as Samuel Dudley, MD, the Ruth and Paul Levinger Professor of Cardiology—was funded by a large anonymous gift to Brown. The patients will undergo intense monitoring. Each will be checked for sleep apnea and will have 24-hour blood pressure monitoring and "some really fancy monitoring of vasoconstriction—how the vessels in the fingers are constricting," Millman says. Dudley's lab will also measure markers of sudden death and cardiac decay in blood samples from the patients, and the Elias group will look at markers of inflammation.

"This is the largest organized study that's been done in this population," Millman says. The researchers hope this massive collection of data will show if there is a link between "bad stuff" happening at night, like sleep apnea or an increase in blood pressure, and heart problems in these very sick kidney patients.

LEAKY LUNGS

What do visiting a smoky bar and cooking with a wok in a small kitchen have in common? Both could cause "leakiness" between the endothelial cells that line the blood vessels in the lungs.

"It's been shown that people who go to

> “IF THE LUNGS DON’T GET BETTER, THE PATIENT DOESN’T GET BETTER. THE LUNG IS AN UNFORGIVING ORGAN.”

a smoky bar who get into an automobile accident are more likely to develop adult respiratory distress syndrome (acute lung injury),” says Sharon Rounds, MD, professor of medicine and chief of medical service at the Providence VA Medical Center. She’s studying how cigarette smoke exposure increases the risk of lung injury.

She thinks the answer lies in a chemical called acrolein that is released in cigarette smoke as well as overheated cooking oils. Acrolein “alters the activity of the signaling molecules and causes the endothelial cells to no longer be as tight and impermeable a barrier to leakiness into the lung,” she says. Rounds is working with Qing Lu, DVM, PhD, to study how signaling molecules, including proteins called Rho GTPases and the enzyme focal adhesion kinase, change in lung endothelial cells after mice have inhaled cigarette smoke. The pair is also evaluating how activators of specific enzymes might be able to treat this leakiness and prevent further injury.

Rounds and Lu are part of the Vascular Research Laboratory, a group of clinicians and PhD researchers who study pulmonary circulation. Collectively, they run the gamut from basic cellular research to animal and human research to health services and epidemiology. “We publish together, and we’re pretty cohesive … but we are an island,” Rounds says. “The thing that’s great about BIRDs is that it’s brought us the opportunity to branch out.”

BIRDs has changed the research questions Rounds is asking in her lab, and she hopes that trainees will soon be able to join in. “I think they would benefit immensely from hearing what people have to say at the BIRDs meetings,” she says.

The group also fits nicely with the five-year, $10.1-million COBRE grant that Rounds administers. The grant supports cardiopulmonary vascular biology research projects underway in the labs of five junior investigators and three pilot investigators.

Rounds shares lab space with a COBRE core facility. The lab setting is lovely: in the summer, a large tree canopy fills the window; in the winter, the bright lights of downtown offer a different reward. Within the lab is equipment for isolating and characterizing cells and measuring lung and heart injury in small animals.

Lab manager Julie Newton, BS, shows off a sophisticated research toy: an instrument that takes pictures of thin pieces of lungs that have been fluorescently labeled. She flashes a beautiful, multihued image from a magnified mouse lung of glowing blue lung cell nuclei, green endothelial cells, and swaths of red, which are the dying cells. This particular lung came from a “smoking mouse,” she says—a mouse that had inhaled cigarette smoke in a special chamber. More cells are labeled in red in this lung, compared to a lung from a mouse that had not inhaled smoke, because cigarette smoke increases the number of lung endothelial cells that undergo programmed cell death (apoptosis).

Even setting aside the lab’s picturesque surrounds and sophisticated equipment, the VA is an ideal location for Rounds, who is dedicated to both clinical care and basic research—especially since cigarette smoking is common among veterans, as are lung cancer, emphysema, and bronchitis. “In the past,” she explains, “cigarettes were actually handed out to soldiers to calm their nerves, so to speak.”

Luckily, Rounds sees fewer young veterans addicted to nicotine than their counterparts from previous generations. But in this generation, addiction has been replaced by increased asthma and sinusitis—possibly caused during deployments where soldiers come into contact with dust storms and burn pits. “The burn pits were near all these big bases in Southwest Asia where they basically dispose of everything—human waste, ammunition, plastics,” she says.

Rounds is fond of her VA patients, and would love to take a discovery all the way from the bench to help them. “They are just wonderful patients, wonderful people,” she says. “Have I found a cure for a patient I saw in the clinic? No. I’d love to. … Maybe someday.”

BENCH TO BEDSIDE

Even before his efforts with BIRDs, Elias was a strong proponent of translational research. This is exemplified by the basic and clinical research that has been done in his lab and the focus of his group, which he calls “from mice to man and back again.” In conjunction with his research partner of almost 20 years, Professor of Molecular Microbiology and Immunology Chun Geun Lee, MD, PhD, the lab has done seminal work to decipher the molecular mechanisms that control injury and repair in healthy people and how these responses behave abnormally in patients with diseases. They have used mice and other experimental systems to figure out the basic mechanisms that mediate injury and repair and then focused on asthma, chronic obstructive lung disease (COPD), pulmonary fibrosis, and even lung cancer to define the importance of these pathways in these diseases. One of the approaches they frequently employ is the generation and characterization of genetically modified mice. According to Elias, Lee is a "master chromosome carpenter," an expert in making genetically modified mouse models of human respiratory diseases. "He can take any gene that you want—he can knock it out, overexpress it in the lung, and can make mice that allow an investigator to turn the gene on and off whenever he or she wants," Elias says. "I have been blessed to work with him."

From experiments with both mouse models and patients, Elias and Lee discovered that one protein—chitinase 3-like-1 (CHI3L1)—is implicated in a host of respiratory problems. In typical individuals, CHI3L1 is induced after injury, where it feeds back to decrease lung injury while augmenting lung repair. But they also found that this essential gene and its pathway are "monstrously abnormal" in many of their mouse models of respiratory diseases and the corresponding human disorders.

Asthma is one of the diseases where CHI3L1 is most abnormal. Their studies demonstrated that it is increased in the circulation of patients with severe asthma, where it contributes to the exaggeration of asthmatic inflammation. To see if mutations in this gene cause respiratory problems in humans, Elias and colleagues studied the CHI3L1 genes in members of a religious group called the Hudderites, who live together in an agrarian community and share property equally ("if one person gets a new wheat thresher, everybody gets a new wheat thresher," Elias says). They were chosen because their lifestyle minimizes "gene by environment interactions," allowing genetic effects to be readily appreciated. Consistent with the mouse models and other human studies, the researchers found that specific individual-to-individual variations in the CHI3L1 genes in the Hudderites correlated with the prevalence of asthma and abnormal lung function.

In additional studies, Elias, Lee, Chuan Hua He, PhD, assistant professor of molecular microbiology and immunology, and the team discovered receptors for CHI3L1 and, with Yang Zhou, PhD (also an assistant professor in that department), discovered a genetic form of pulmonary fibrosis that is caused by abnormal trafficking and activity of a receptor protein that interacts with CHI3L1. They also have early evidence from a collaboration with Juan Sanchez-Esteban, MD, professor of pediatrics, that CHI3L1 may be important for lung development in premature infants.

Lee says this protein is likely involved in additional biological processes. "We now understand that it is not just important in the lung. It also appears to be involved in systemic diseases, including some metabolic disorders," he says. "It is really a fundamental molecule with a long evolutionary history in diverse species."

"Our dream," Elias says, "is that we make basic discoveries, we then evaluate their importance in the pathogenesis of the diseases that affect our patients, and then, when appropriate, work with pharmaceutical companies and or venture capital investors to turn these discoveries into therapies."

Lee and Elias are well on their way to making this dream a reality in their CHI3L1 work. In conjunction with colleagues at Yale, they recently received one of 10 CADET (Centers for Advanced Diagnostics and Experimental Therapeutics in Lung Disease) grants awarded by the NIH. "We have an antibody against the human form of chitinase 3-like-1, and the grant provides funding that will allow us to make it into a drug for asthma," Elias says.

He hopes to develop such translational work via BIRDs. "We want to be a nationally and internationally recognized place where new concepts of disease pathogenesis are discovered and then turned into new therapies," he says.

The recruitment of new respiratory researchers and the formation of new BIRDs-inspired collaborations are already beginning to bear fruit. "A couple years ago there was very little research in terms of NIH dollars in respiratory diseases; now there's a multimillion-dollar research portfolio in respiratory diseases … and it's just beginning to grow. The synergies between people that have already occurred are just the tip of the iceberg," Elias says.

"The beauty of it is that we now have impressive strengths in asthma, pulmonary hypertension, pulmonary fibrosis, COPD, lung cancer, lung development and pediatric lung diseases, and sleep apnea. It's a really exciting time for all of us."

Summer E. Allen *is a freelance writer based in Rhode Island. Originally from Portland, OR, she studied biology at Carleton College and completed her doctorate in neuroscience at Brown. Read more of her work at sciencebysummer.com.*

ALUMNI ALBUM

CHECKING IN WITH BROWN MEDICAL ALUMNI

MARCH ON: Glenn Prescod ’83 MD’89 is ready for some pomp and circumstance on Commencement day.

SCOTT KINGSLEY

ANY NEWS?

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

CLASSNOTES

1975

Valerie Parisi, MPH, MBA ’72, dean of Wayne State University School of Medicine, was elected the 35th chair of the American Board of Medical Specialties board of directors. She had been vice chair since 2012. She is a national leader in medical education and in the evaluation and certification of physicians, and serves as coprincipal investigator for a federal grant to establish an Area Health Education Center program in Michigan. Valerie lives in Birmingham, MI.

NEXT GENERATION: Above, Rohina Gandhi-Hoffman '90 MD'94 and her husband, David Hoffman, MD, with their children, from left, Maya, JJ, and Dillon. Right, Edmond Paquette MD'94 enjoys the festivities with his daughter, Cecilia.

DAVID DELPOIO (2)

1977

Steven Feinsilver '74 was appointed professor of medicine at the Icahn School of Medicine at Mount Sinai, New York City, where he directs the Center for Sleep Medicine. Contact him at steven.feinsilver@mssm.edu.

1978

Nancy Campbell '74 practices osteopathic manual medicine in Pittsfield, MA. She and her husband, Matthew Lawrence, have two grandchildren.

John P. Keats '75, P'04 writes: "For the past two years I have been a market medical executive for Cigna, covering Arizona and Nevada and living in Phoenix. I still work clinically as an obstetrician in Ventura, CA, on weekends when I get home to visit my wife, Susan Schilling Keats PhD'82, who holds down the fort at our 'big' house there."

Morris Birnbaum '73 PhD'77 joined Pfizer as chief scientific officer for cardiovascular and metabolic disease research. Previously he was a professor of diabetes and metabolic diseases at the Perelman School of Medicine at the University of Pennsylvania and an investigator in the Howard Hughes Medical Institute.

1981

Patricia Arnold Buss, MBA '78 became medical and health care operations officer at Health Net Inc. in Woodland Hills, CA, last fall. The move was a promotion from her position as chief medical director for Health Net Federal Services in Arlington, VA. Previously, Pat served 21 years of active duty in the Navy as a plastic surgeon and medical executive.

1982

Richard S. Pieters Jr., MEd, is president of the Massachusetts Medical Society for the 2014-2015 year. The organization represents more than 24,000 physicians and medical students in the commonwealth. Richard has been a radiation oncologist at the UMass Memorial Medical Center for 10 years. Previously he was director of radiation oncology at Jordan Hospital in Plymouth, MA.

1985

Robin Gail Oshman, PhD, was re-elected president of the Fairfield County Medical Association. She is a board-certified dermatologist with offices in Westport and New Canaan, CT, and an assistant clinical professor in the Yale-New Haven Hospital Department of Dermatology. She received her PhD in microbiology from the City University of New York.

1986

Hon Lee '82 and **Emmie Fa** '86 MD'89 celebrated the graduation of their daughter Aubrie from Stanford in June. Their daughter Cadence is a member of Brown's Class of 2018, joining her brother, Blaze '17 MD'21, in Providence.

Robert W. Panton '83 MMSc'86 was re-elected a trustee of the Illinois State Medical Society, representing Chicago-area physicians. A fellow of both the American Academy of Ophthalmology and the American College of Surgeons, he serves on the society's Finance and

ALUMNIALBUM

Benevolence Committee and is president of the Chicago Medical Society. A board-certified specialist in ophthalmology, Bob works in private practice at the Panton Eye Center in Elmwood Park with his brother, Peter Panton '79 MD'82, PMD'15, and their sister and father.

1989

Emmie Fa '86. See 1986 note.

1992

Roger Waltzman, MBA '88 is the global program head for malaria at Novartis Pharmaceuticals Corp. He is responsible for global programmatic development of antimalarial compounds. Roger's husband, the stage and film director Michael Mayer, returned to Broadway this spring with the Tony Award-winning musical *Hedwig and the Angry Inch*, starring Neil Patrick Harris.

1995

William Boyd was named medical director of Harvard Vanguard Medical Associates' Peabody, MA, practice. He also serves as regional medical director for Harvard Vanguard's multiphysician practices in Beverly, Billerica, Burlington, Chelmsford, Concord, and Woburn.

John Pezzullo III RES'00 will serve as president of the board of directors of Rhode Island Medical Imaging, a network of private facilities. John, an assistant professor of diagnostic imaging at Alpert Medical School who specializes in body imaging with an emphasis on MRI, has been on the board since 2007.

1996

Joseph Diaz RES'99 F'01 MPH'09 was appointed interim physician-in-chief

IT'S AN HONOR: Above, from left, Stephen R. Ehrlich '55, P'85, Mary Ann Ehrlich P'85, and Roxanne Vrees '98 MD'03 RES'07. Right, Stephen Gilheeney '95 MMS'97 MD'99 with President Christina H. Paxson.

DAVID DELPOIO (2)

Job Well Done

At the Commencement/Reunion Weekend Opening Celebration, the Brown Medical Alumni Association (BMAA) presented the Artemis Joukowsky Award to Stephen R. Ehrlich '55, P'85 and Mary Ann Ehrlich P'85. The award recognizes nonphysicians who have consistently supported and been active with Alpert Medical School. The Ehrlichs have been involved at Brown since the mid-1970s; they contributed to the first named scholarship and continue to support undergraduate and medical students.

Stephen Gilheeney '95 MMS'97 MD'99 received the Early Achievement Award, given to a recent alum for service to Brown, local communities, or scientific and academic achievement. Gilheeney, a pediatric neuro-oncologist at Memorial Sloan-Kettering Cancer Center, works to develop national protocols for brain tumor treatment and is treasurer for his undergraduate class.

The W.W. Keen Award, which honors outstanding contributions to medicine, went to Peter J. Panton '79 MD'82, PMD'15. An ophthalmologist in suburban Chicago and a clinical assistant professor at Rush Medical College, he serves on numerous professional societies. His service to Brown includes past president of the BMAA, Brown Medical Annual Fund chair, and member of the President's Advisory Council on Biology and Medicine.

of medicine at Memorial Hospital of Rhode Island. An attending there since 2001, Joe is assistant director of the Internal Medicine Program and serves on the Internal Medicine Morbidity and Mortality and the Residency Credentials and Review committees. He is also an associate professor of medicine and co-director of the Department of Medicine Dominican Republic Exchange Program at Alpert Medical School.

Jonathan Kurtis '89 PhD'96 led a research team that identified a protein that could lead to the development of a vaccine for a virulent strain of malaria. The study, published in the May 23, 2014, issue of *Science*, reports that the protein blocks the malaria parasite from leaving the blood cells it infects, thus interrupting its life cycle. (See story, page 6.) Jake is a professor of pathology and laboratory medicine at Alpert Medical School and the director of the Center for International Health Research at Rhode Island Hospital.

1997

Jennifer Frost was named the first-ever medical director for the Health of the Public and Science division of the American Academy of Family Physicians. She previously worked in medical practice, most recently as associate program director and director of Women's Services

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SCOTT KINGSLEY; CAROLINE GOLLUB

PROUD MOMENT: Cameron Lang MD'14 with her nephew, Cormac Lang.

Joe Diaz was appointed **interim physician-in-chief of medicine.**

FUN AND GAMES: Robert Yanagisawa '90 MD'94 and his wife, Ikuyo.

ALUMNI ALBUM

at Research Family Medicine Residency in Kansas City, MO. At the AAFP, Jennifer will be the lead medical professional in the development of the organization's evidence-based clinical guidelines.

2000

Kathleen Hogan is an orthopedic surgeon, specializing in hip and knee replacement, in southern New Hampshire. In June she traveled to Arusha, Tanzania, as part of a medical team organized by Women Orthopaedist Global Outreach. In one week, they performed 50 joint replacements and cared for the patients after surgery. They also visited schools, an orphanage, and a pediatric rehab hospital.

2001

Alysia D. Turner Townsend '97 and her husband, Daniel Townsend, announce the October 2013 birth of Xavier. They have three other children: Ella, Isaac, and Reuben. The family lives in southern Wisconsin.

2002

David Poch '98 is an assistant clinical professor of medicine at the University of California, San Diego, School of Medicine, where he investigates novel therapies for the treatment of pulmonary vascular disease. He is part of a team that is pioneering a new procedure, now being tested in Japan, to treat pulmonary clots.

2003

Terrance Healey '98 RES'08 was elected secretary of the board of directors of Rhode Island Medical Imaging. Terrance, who lives in Cranston, RI, is an assistant professor at Alpert Medical School and is the director of thoracic radiology at Rhode Island Hospital.

2004

Liz Casiano '00 is a urogynecologist in her hometown of San Antonio, TX, at the University of Texas Health Science Center, where she cares for patients and loves teaching residents and medical students. She is getting married in October to Jerome Evans, an audiologist and avid runner. They met through their running club in San Antonio.

2005

Michael Poch '01 RES'10, a urologist at the Moffitt Cancer Center in Tampa, FL, spoke at the American Urological Association meeting in Cuzco, Peru, last summer. His research includes health-related quality-of-life outcomes after oncologic surgery and his clinical focus is on surgical robotics.

2008

David Ain '04 was a fellow in interventional cardiology last summer at Massachusetts General Hospital in Boston. His clinical interests involve the study and treatment of systemic vascular diseases. Last year, with friends from Brown and the Medical School in attendance, he married Andrew Fish in Washington, DC.

2010

Jonah Cohen '04 completed his internal medicine residency at Beth Israel Deaconess Medical Center and is staying on for a gastroenterology fellowship. His son, Noah, turned 1 year old last spring.

Elizabeth Niemiec completed her psychiatry residency at NewYork Presby-

THE BIG DAY: Class Marshal Rabih Geha MD'14 receives his hood.

SCOTT KINGSLEY

ALL SMILES: Clockwise from left, Christi Butler MD'14, Rachel Marano MD'14, and John Molina '08 MD'14 celebrate their Commencement before the ceremony.

terian Hospital/Weill Cornell Medical College and moved back to Rhode Island for a job at Newport Hospital, where she treats patients in the Adult Partial Hospitalization Program, Adult Outpatient Services, Salve Regina University's Counseling Services, and other settings.

Natalie Nokoff '06 and **Austin Larson** finished their pediatric residencies at Children's Hospital Colorado in 2013. Natalie is now completing a three-year fellowship in pediatric endocrinology; Austin is training in medical genetics and next year will begin a fellowship in inherited metabolic diseases. The couple lives in Denver and celebrated their fourth wedding anniversary this year.

2011

Rajiv Kumar '05, the CEO and founder of ShapeUp, a social media fitness program, was appointed to the strategic advisory board of HealthCrowd, a health care platform that optimizes multiple forms of communication, from text to web. Rajiv is also cofounder of Adopt A Doctor, a nonprofit that offers financial aid and other critical support for physicians in developing countries.

SCOTT KINGSLEY (2); CAROLINE GOLLUB

2013

Emily Amos Edwards completed her internal medicine prelim at Saint Joseph Hospital in Denver and began her radiology residency at the University of California, San Francisco, School of Medicine. She and her husband, Jonah, very much enjoyed their year in the beautiful state of Colorado, and look forward to all that life in the Bay Area has to offer.

Johnny Luo '09 founded Doctor's Choice, a benefits advisory firm that promotes affordable and transparent health care. He recently celebrated his one-year anniversary with his wife, Leah.

RESIDENTS

1996

Giulio G. Diamante, MD, received the Verrazzano "Man of the Year" Award, which honors prominent Italian-Americans of Rhode Island, in May. An ophthalmologist and the medical director of OPTX Rhode Island, he is also a clinical assistant professor of sur-

THE ARONSON FUND: Dean of Medicine Emeritus Stanley M. Aronson, MD, and his wife, Gale, at the reception celebrating a new $3-million endowed fund, given by Chancellor Thomas J. Tisch '76, P'18 and named in Stan's honor, to support strategic investments by the dean of medicine and biological sciences.

DEAN ARONSON TRIBUTE

ALUMNI ALBUM

gery at Alpert Medical School. He and his wife, Lynne, have a daughter, Giulia, and live in Scituate, RI.


SAUBER LECTURE

DISTINGUISHED ALUM: David Lyden, PhD MD'89, the Stavros S. Niarchos Chair and Professor of Pediatrics and Cell and Developmental Biology at Weill Cornell Medical Center, delivered the Ruth B. Sauber Distinguished Alumni Lectureship. He spoke about cancer metastasis and the potential development of therapies that could block it.

2003

Peter Evangelista, MD, of North Kingstown, RI, was elected treasurer of the board of directors of Rhode Island Medical Imaging. He is an assistant professor at Alpert Medical School and director of musculoskeletal radiology at Rhode Island Hospital.

2005

Amity Rubeor, DO, began Alpert Medical School's Primary Care Sports Medicine Fellowship in July. She was previously a clinical team leader for the Family Medicine Residency at Memorial Hospital of Rhode Island, where she coordinated the orthopedics/sports medicine curriculum and directed the Musculoskeletal Clinic and Sports Concussion Program.

2006

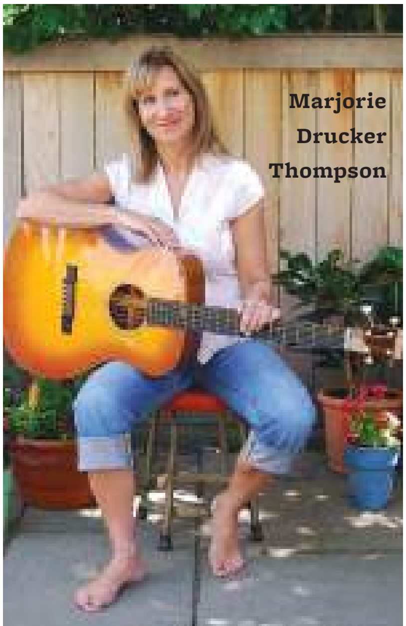
Beth Plante, MD, joined the Fertility Centers of New England in eastern Massachusetts as a reproductive endocrinology and infertility specialist. She previously had served as a clinical assistant professor at Alpert Medical School and Tufts School of Medicine in their combined program in reproductive endocrinology and infertility. Beth's clinical and research interests include infertility, IVF treatment, and polycystic ovarian syndrome.

OBITUARIES

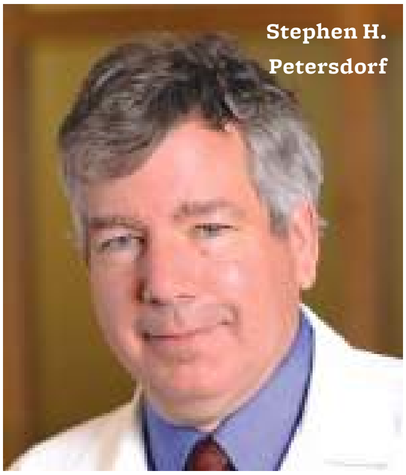
ALUMNI

MARJORIE DRUCKER THOMPSON '74 PHD'79, P'02, '07, '09, '12, '15, '16

Marjorie Thompson, 60, of Providence, died September 15 after a long illness. After receiving her ScB in biochemistry and PhD in biology from Brown, she returned to her alma mater in 1983 when she was appointed associate dean of biological sciences in the Division of Biology and Medicine. In that role, she directed the Office of Biology Undergraduate Education, which oversees academic advising, programs, resources, and curricular development for all biological science programs and students. She also taught embryology, histology, and biological illustration, and maintained close ties with former students. Earning the respect of colleagues for her energy, exper-


Marjorie Drucker Thompson

CAROLINE GOLLUB; COURTESY WWW.MARJORIETHOMPSON.COM tise, and sincere devotion to students, she was recognized numerous times for her unparalleled commitment to teaching and advising undergraduates. She received the Barrett Hazeltine Senior Class Citation in 1994 and 1996, and the 1998 Onyx Award. In 2009, she received the Dean's Award for Excellence in Undergraduate Teaching and Advising. Marjorie had many passions outside her work as an administrator and student advocate. She was a professional musician, songwriter, guitarist, and music educator who released six albums to international acclaim. She also created "biologically inspired" jewelry and was a member of the Guild of Natural Science Illustrators. She is survived by her husband of 36 years, Ian Thompson PhD'79; their seven children; her parents; and two grandchildren. Donations in Marjorie's memory may be made to Home and Hospice Care of RI, 1085 N. Main St., Providence, RI 02904.


Stephen H. Petersdorf

COURTESY EFFIE PETERSDORF; ALPERT MEDICAL SCHOOL ARCHIVES

STEPHEN H. PETERSDORF '80 MD'83, P'13

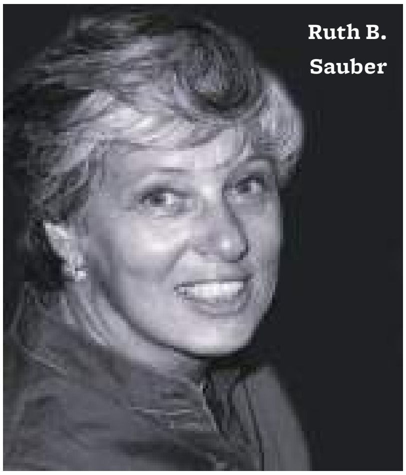
Stephen H. Petersdorf, 55, of Seattle, WA, died June 28 after a courageous fight against cancer. Born in Baltimore and raised in Seattle, he returned there after his undergraduate and medical education to complete his training in internal medicine and hematology-oncology at the University of Washington School of Medicine. Steve was associate professor of medicine in the Division of Medical Oncology and the school's first Endowed Chair in Cancer Care, and treated patients at the UW Medical Center and the Seattle Cancer Care Alliance. In 2012, he joined Seattle Genetics as senior medical director of medical affairs, where he worked to translate new cancer therapies for patients. Steve's passion for patient care extended nationally, as a member of the National Comprehensive Cancer Network, and *Seattle Magazine* named him a "Top Doc" from 2002 to 2012. He took his role as husband and father as seriously as he did his professional career. He balanced a two-career marriage with respect, love, and humor. A proud baseball, football, and lacrosse dad, he was ever-present for his boys, both in the classroom and on the sidelines. Steve was a passionate supporter of the Northwest Boychoir and Vocalpoint! Seattle, for which he served as president of the board of directors. He leaves his wife, Effie, and sons, Nick '13, Andrew, and Colin, of Seattle; and a brother.

FACULTY

RICHARD E. FRATES SR., MD P'81MD'85

Richard E. Frates Sr., 85, of Barrington, RI, died July 9. He was a graduate of Boston College and Tufts University School of Medicine. He was a radiologist for more than 50 years, founding the angiography division at Rhode Island Hospital in the early 1960s, and serving as radiologist-in-chief at Women & Infants Hospital and assistant professor of diagnostic imaging until his retirement in 1998. Richard had the unique distinction of election to fellowship in both the American College of Radiology and the American Academy of Pediatrics. He is survived by his five children, including Mary C. Frates '81 MD'85; 11 grandchildren; and one great-grandchild. His wife, Mary Louise Burns Frates, predeceased him.

STAFF


Ruth B. Sauber

RUTH B. SAUBER P'75

Ruth B. Sauber, 90, of Providence, died September 17. As medical student affairs officer at Brown, she worked with every medical student from the School's inception in 1972 until her retirement in 1994. In 1983 the graduating MD class awarded her the Medical Senior Citation, the highest award presented to a medical faculty member. In tribute to her years of service, the Brown Medical Alumni Association established the Ruth B. Sauber Distinguished Medical Alumni Lectureship, delivered at each Reunion by an individual who views medicine as a socially responsible human service profession. "Brown University has lost a woman who had lovingly nurtured this Medical School from its birth," the School's first dean, Stanley Aronson, MD, said. Ruth is survived by a daughter, Amy Sauber Quinlan '75; a son, Richard Sauber; and five grandchildren. Her husband, Robert Sauber, predeceased her. Donations in her memory may be made to Alpert Medical School, Box G-ADV, Providence, RI 02912.

MOMENTUM

A Towering Vision

A professorship helps diagnostic imaging build on its success.

IMAGINE: Elfriede Collis P'87 with John J. Cronan, MD, chair of the Department of Diagnostic Imaging at Alpert Medical School and radiologist-in-chief at Lifespan.

SCOTT KINGSLEY

From his third-floor office at Rhode Island Hospital, John J. Cronan, MD, can see the East Providence water tower that loomed over his morning walks to Sacred Heart Catholic School, over his afternoon paper route, over his childhood.

After three decades working to advance training, research, and patient care in radiology and in that tower's distant view, he has been honored as the inaugural Charles and Elfriede Collis-Frances Weeden Gibson Professor of Diagnostic Imaging.

The endowed professorship was given by the estate of Frances Weeden Gibson '45, P'58 and an equal gift to Rhode Island Hospital from Charles and Elfriede Collis P'87. The Collis family has for years supported patient care, research, and education at Brown and Lifespan hospitals. Their gifts include the Charles and Ellen Collis Medical Scholarship, which supports MD/PhD students, and the Andrew F. Anderson Emergency Center at Rhode Island Hospital, in memory of their son.

Elfriede Collis has served as a member of the Rhode Island Hospital board of trustees and chair of the Rhode Island Hospital Foundation board, providing leadership in support of patient and family needs. Gibson served as a Brown Trustee from 1967 to 1972 and was instrumental in the founding of the Medical School. Her estate also funded an endowed professorship in emergency medicine.

Cronan says he is honored to be the inaugural recipient of the professorship, and that it "is a testimony to the department's growth." A graduate of Providence College, he decided to pursue radiology during his second year at Albany Medical College of Union University: CT-scan technology was spreading to hospitals, and the "excitement was immeasurable," he says. He joined Brown's faculty in 1982 after completing his residency at Yale-New Haven Hospital and fellowship in abdominal imaging at Massachusetts General Hospital.

When he arrived at Brown, the then-fledgling Medical School had no department of radiology, the hospital's imaging facilities and equipment were substandard, and the residency had been threatened with probation. But Cronan saw "unlimited opportunity." In 1995, Dean of Medicine and Biological Sciences Donald J. Marsh, MD, asked him to develop a department. When the department was formally recognized three years later, Cronan was appointed its inaugural chair.

Since then, the department has grown to encompass 55 attending physicians, 28 residents, and five fellows. Residents perform at the highest level on their American Board of Radiology exams. Research in the department has also grown, attracting $2 million in funding a year. Technologies are cutting edge and widespread throughout the four hospitals the department serves.

But Cronan's greatest achievement, he says, is the faculty he has recruited: "Great people are most important." The professorship will advance this aim, helping to attract additional top faculty to the department, and bolstering training and research.

From his office, Cronan often glances at that water tower. Immutable, it reminds him of how much has changed, and how much there is to achieve. In philanthropy and radiology, in life and medicine, that kind of vision is vital.

—Kylah Goodfellow Klinge

Research in the department **attracts $2 million in funding** a year.