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The Bulletin

FALL/WINTER 2018

Sidney Kimmel Medical College
at Thomas Jefferson University



Big Data Making
Medicine Personal



◀ ON THE COVER: Illustration of the effects of big data and technology in medicine

▲ Monaural Stethoscopes from the Pinizzotto-Ammon Alumni Center archival display cases

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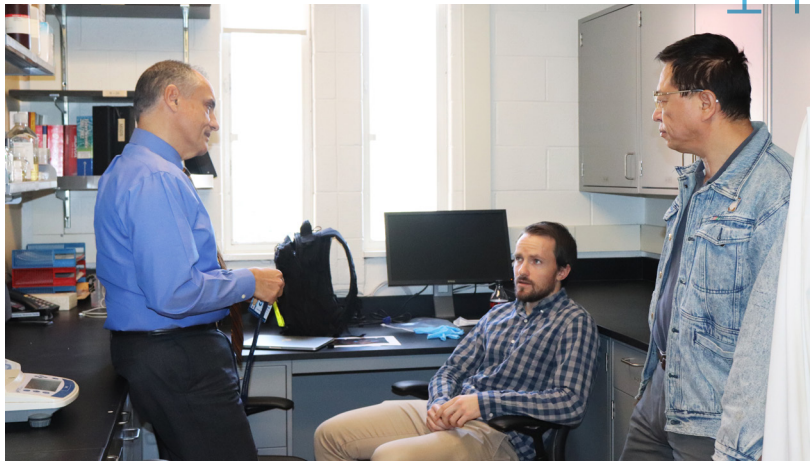
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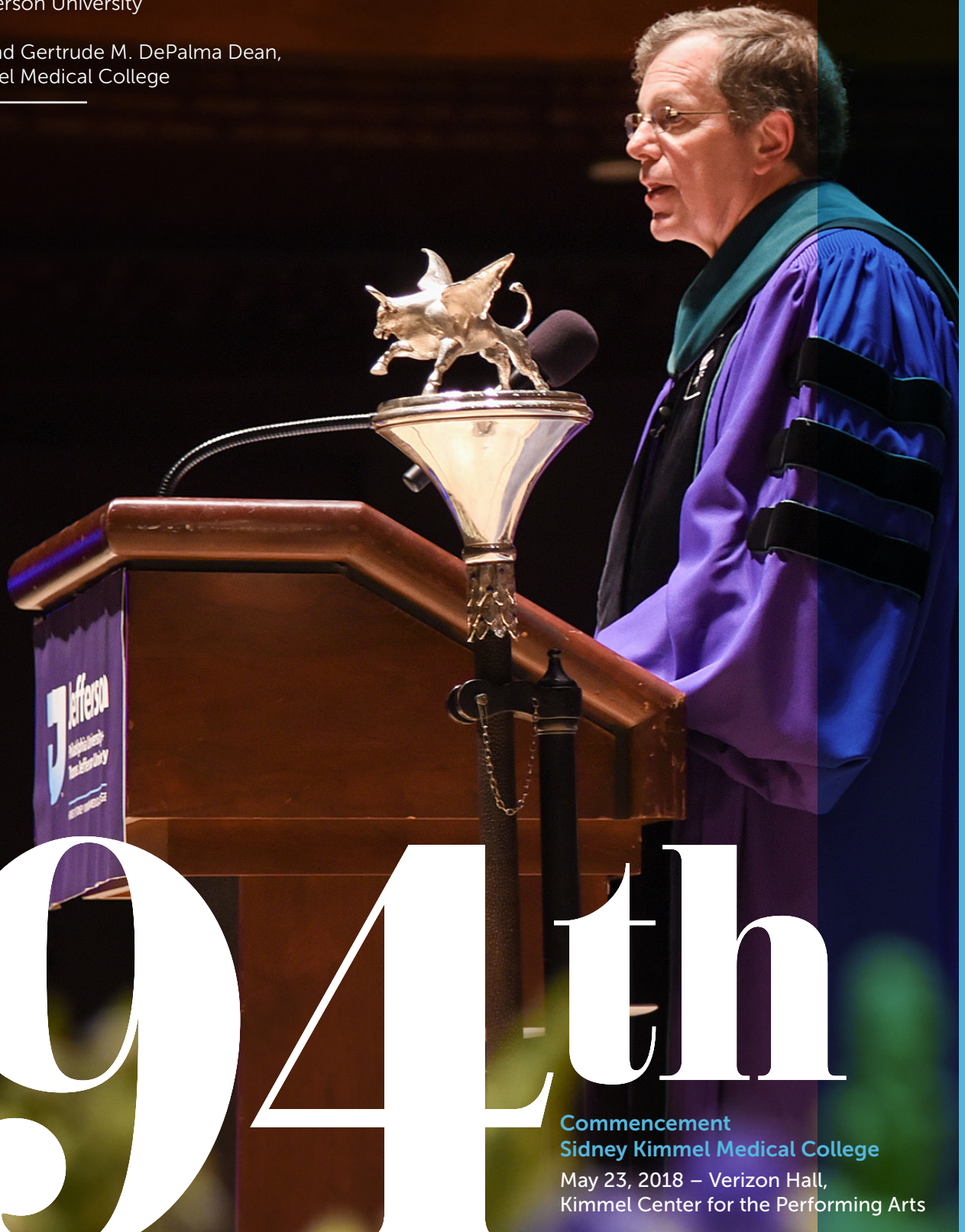
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Mark L. Tykocinski, MD

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Thomas Jefferson University

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Sidney Kimmel Medical College



Commencement
Sidney Kimmel Medical College
May 23, 2018 – Verizon Hall,
Kimmel Center for the Performing Arts

Class of 2018, on this milestone day—*your* day—my message to you is, “embrace the *unfamiliar*.”

You’re graduating into an age in which physicians will be called upon to reinvent themselves, routinely, every decade or two; for some specialties, an even *shorter* cycle. Surviving, let alone thriving, in this kind of hyperdynamic environment will call on you to cultivate certain traits within yourselves. An ability to reach beyond the familiar is one of these traits, and I’d like to examine it from three different perspectives.

Apropos to the hyperdynamic landscape you now face, let’s start with how we anticipate disruptive change. Doing so effectively means keeping our antennae up for the *unfamiliar*—detecting *that* transformational device, that disruptive process or service poised to unsettle our here and now.

Interestingly, the transformational element often coexists for a time, side-by-side, with the existing element that it is poised to displace—*admixed* if you will, in a sort of “transformed + existing mosaic.”

Early on, still surrounded by mostly *familiar*, it’s all too easy to psychologically wall off that which is unfamiliar, to ignore those transformed pieces that portend radical change. Slowly emergent, not particularly threatening to our routines of the *now*, the transformed creeps up on us, imperceptibly insinuating itself into the mosaic. With the looming disruption so masked, we don’t bother to prepare for a radically new reality. But soon enough, the mosaic becomes increasingly dominated by the transformed, until one day—*poof!*—there’s a tipping point, and the existing is gone, fully transformed. And then—well, it’s too late.

Not a *revolution*. One minute things are so; the next minute they are *not-so*. And not an *evolution*, where one sees intermediate hybrid forms emerging in stages. Think *mosaics*. If you ignore the unfamiliar creeping into the mosaic, the game is soon over—you’ve reached the “Kodak moment”—the moment the world’s largest maker of camera film realized that consumers had gone digital, and they were too far away to chase. It was too late.

Most revolutions slowly evolve under our very noses—subtly enough so as not to jar our steady-state, day-to-day rhythms. In the words of George Orwell, “To see what is in front of one’s nose needs a constant struggle.”

Best that we not make Kodak’s mistake. One glaring unfamiliar in the healthcare mosaic now before us is what amounts to a converging holy alliance among artificial intelligence, robotics, telepresence, handheld medical diagnostic devices, and nonphysician providers. If you went into medicine seeing yourself as an Oslerian, all-knowing master diagnostician—a real-life Dr. House—

you’re likely to be disappointed. Before too long, the subset of filtered patients making it through the gauntlet will appear before you already diagnosed—maybe at home, maybe in the front office—by AI-empowered nonphysician providers and an armamentarium of next-gen diagnostic tools. This AI-driven upheaval in healthcare delivery will be every bit as profound as Amazon’s decimation of Main Street stores.

AI will radically recast professions like ours. All this unfamiliar seems so obvious, right? Yet, we still get out of our cars each morning, engage in our familiar, daily routines, plod on as usual—without AI, without deep learning, without robotics.

You were here at Jefferson during a truly historic phase of this 200-year-old institution. You’ve witnessed firsthand the tripling of our clinical footprint through death-defying mergers; our rolling out the nation’s most ambitious academic telehealth program; the out-of-the-box union of a health sciences university with one known for textiles, fashion, design, and architecture; the literal blowing up and replacement of our lecture-based curriculum with a radically new JeffMD; the innovations reflected in our pioneering *Medicine+* co-curriculum, with a view towards training a new kind of 21st-century physician who can think across fields. This was *our* very purposeful journey to embrace the *unfamiliar*.

Look at it from a second angle: The unfamiliar can be right there in front of our eyes, but readily ignored when not viewed at proper scale. Scale is critical. We are too often insulated from looming disruption because things that are familiar on a small scale tend to be unfamiliar and ignorable, at large scale.

I’ve become obsessed of late with this mental trickery of scale—our utter lack of appreciation for proportion.

Last month, at a conference organized by the Jefferson-affiliated Transcending Trauma Project, I was on a panel with a survivor of the Rwandan butchery—an estimated 500,000 to 1 million Rwandans killed during the 100-day period from April to July 1994, close to 70 percent of the Tutsi population.

No need to go that far back. Overlapping your four years at our medical college, close to a half-million people were killed in Syria, not to mention the millions maimed and displaced. Connected to



my own family history, the million-and-a-half children extinguished in the Holocaust genocide—and disturbingly, we learn that 40 percent of millennials don't have a clue what the Holocaust is, with others saying that they are tiring of its mention.

And yet, what is the news covering? A deluge of the nonsensical, no matter the channel or political persuasion. Nonsensical. Notwithstanding the whirlwind of telecommunication advances, we are as disconnected as ever from past, present, and future—and a big part of that disconnect is the utter lack of a sense of proportion.

No doubt, the death of one is a tragedy. But why is the death of a *million* less so? Because we can relate to the one. The one is familiar, while the million is unfamiliar. Familiar will trump the unfamiliar every time. My plea: Consciously counter this mental trap. Think small, but force yourselves to also think big. Look outward. See the familiar *one*, but also see the unfamiliar *many*.

Clinging to the familiar has a third related impact: It confines our imaginations, it impedes us from looking beyond our narrow screens.

During World War II, American behaviorist B.F. Skinner attempted to develop a pigeon-controlled, guided bomb. Train pigeons, housed in the nose of the bomb, to act as "pilots." Three lenses mounted in the nose projected an image of the target on a screen. The pigeons, stationed in front of the screen, were trained to recognize the target—and by pecking on it, correct any deviations in the bomb's course and keep it on its glide path. Perhaps, fortunately for pigeons, electronic guidance systems spelled doom for their newly minted job.

But it's not just pigeons—it's us. Too often, we find ourselves pecking away at the screen, driven by algorithms, proceeding mechanically. I've always viewed Project Pigeon as a powerful metaphor for the *narrow perspective*, for being confined to familiar paths, pecking away at the limiting screens in front of us, tracking our own personal glide bomb, whatever it might be.

So what's the antidote? *Random walks*. Wander; stray beyond the familiar. Take leaps of imagination, let intelligence flow freely.

Abraham Flexner, who revolutionized 20th-century medical education, authored a small volume entitled *Usefulness of Useless Knowledge*, in which he makes a strong case for nonapplied research, free-wheeling, untethered discovery, or what he calls "exploratory blue-sky research." He argues eloquently for scientists having the freedom to wander into unfamiliar territories, even when there is no clear path to practical application. From such wandering have come revolutionary technologies. *Usefulness of Useless Knowledge* is an ode to the embrace of the unfamiliar.

This notion of random walking ties directly to another one: the

"adjacent possible." Last month, at the launch of the Jefferson Humanities Forum series, the topic was "Fusion"—creativity that emerges at the boundaries of unrelated disciplines. Steven Johnson, a luminary in our understanding of drivers of innovation, spoke about the concept of "the adjacent possible—a kind of shadow future, hovering on the edges of the present state of things, a map of all the ways in which the present can reinvent itself ... its boundaries grow as you explore them. Each new combination opens up the possibility of other new combinations." The adjacent possible, by definition, hovers in that weird and murky territory cohabited by familiar and unfamiliar.

So leverage the "adjacent possible." Let it catapult *your* imagination. From circus creator P.T. Barnum, "One's station is only limited by his imagination."

Class of 2018, time to sum up: I urge you to pay heed to the unfamiliar—use it to better intuit the future and anticipate disruptive change, to appreciate scale and put yourselves in perspective within a much larger world around you, to imagine creative solutions by randomly walking through adjacent possibilities. Break loose from your pigeon screens. As too many of our leaders skirt the pain of being awakened from their narrow visions, you be the ones to see what is right there in front of *your* noses.

From the lyrics of Queen in *The Show Must Go On*: "My soul is painted like the wings of butterflies, fairy tales of yesterday will grow but never die. I can fly, my friends."

Graduates, head out of Jefferson and *fly!* 🦋



JeffConnect: Leading the Way in Telehealth

More than 75,000 patients tap into Jefferson's cutting-edge virtual platform. Here's why.



Judd Hollander, MD, senior president of Healthcare Delivery Innovation at Thomas Jefferson University and associate dean for Strategic Health Initiatives at SKMC, is famously blunt about the innovative JeffConnect Telemedicine Program he oversees. “Telehealth isn’t a gimmick. And it’s not about the technology,” he said during a recent interview. “I really don’t even want to call it telehealth. It’s just healthcare, the way our patients want it.”

By any name, JeffConnect is attracting attention. Since its 2015 launch, more than 75,000 patients have called in for video medical visits, “and the numbers are growing exponentially,” says Hollander. Meanwhile, JeffConnect’s pioneering projects have won national recognition, including the 2018 Breaking Barriers Award from the Mid-Atlantic Telehealth Resource Center and the 2017 Life Sciences Pennsylvania Patient Impact Award. JeffConnect frequently is in the spotlight at national and international conferences on healthcare information technology—including the Healthcare Information and Management Systems Society’s upcoming 2019 conference.

What’s the buzz all about? Here are four ways JeffConnect is making headlines as it keeps patients healthier.

Urgent Care from Anywhere...Including IN the Emergency Room

JeffConnect’s On-Demand Video Visits give residents of the Philadelphia region 24/7 access to Jefferson-affiliated emergency medicine physicians—for a \$49 fee that’s often less expensive than a trip to an urgent care center or emergency room.

The 10-minute video visits cover everything from colds and flu to fevers, sprains, and headaches, and beyond. “At least 85 percent of the time, people’s concerns can be managed via video visit. We offer an objective perspective on what they should do next. We help patients by reassuring them, diagnosing them, helping to navigate the healthcare system, and by suggesting a treatment course.” says emergency physician and Associate Dean of Healthcare Delivery Brendan Carr. “The most common question we answer—framed in a thousand different ways—is ‘Should I be worried?’ We’ve worked hard to build barriers between patients and providers and this is the pendulum swing back—putting doctors on the front line to take care of patients.”

One JeffConnect innovation: The service is always staffed by a Jefferson physician. “Some services use out-of-network doctors after hours, who may not know the area or the health system,”



Hollander says. “Our doctors can help you set up a follow-up with your primary care doctor, order a test, and make sure a record of the visit is in your electronic medical record.”

Another innovation: For medical issues that are not life-threatening, patients who arrive at the emergency departments of Thomas Jefferson University Hospital in Center City and Jefferson Methodist Hospital on South Broad Street begin their ER visit via telehealth—right in the hospitals’ waiting area. The service began in October 2017 and is one of just a few in the United States.

“People sit at a terminal and have a video consultation with an emergency physician immediately,” Hollander says. “Their visit begins right away. Tests and treatments can be ordered and ready for when they are seen in person. I think patients feel reassured instead of just sitting in the waiting area and worrying. And the emergency department has the information they need for triaging the most urgent cases.”

Timesaving Virtual Follow-Up Appointments With Specialists

When Jefferson launched Scheduled Video Visits for follow-up appointments with its health-system specialists in 2015, it immediately became the largest specialist telehealth system in the Northeast, according to Stephen K. Klasko, MD, CEO of Jefferson Health. And it’s only gotten bigger since then, Hollander says. Today, every health-system specialty—ranging from general surgery, otolaryngology, urology, and dermatology to neurology, internal medicine, family medicine, medical oncology, and obstetrics and gynecology—offers the service. How it works: Patients who’ve seen their doctor at least once can schedule a

virtual return visit, which takes place using the JeffConnect mobile app on a smartphone or tablet or with a computer with a video camera.

Doctors are noticing a surprising benefit. "Patients are more relaxed and remember things better," Katherine Sherif, MD, director of Women's Primary Care and vice chair of the university's Department of Medicine, notes in a 2018 American Hospital Association Health Forum case study spotlighting this JeffConnect service. "They may just be more comfortable in their surroundings." The visits cover the same content as an in-person appointment, such as with reviews of lab tests, current health, and adherence to treatments. "But the patient doesn't have to spend two hours driving to and from Center City Philadelphia, pay \$29 for parking, and wait in a waiting room," Sherif notes.

In a recent Jefferson study of 3,018 video follow-up visits from 2015 and 2016, published in *Journal of Medical Internet Research Medical Informatics*, Rhea E. Powell, MD, MPH, and a team of Jefferson researchers found that 91 percent of patients were satisfied with their virtual visits. Eighty-three percent said the



Patients' family and friends...have a direct line of communication with the care team, receiving the most up-to-date medical information directly from the most reliable source.

telehealth appointment was on par with an in-person visit, and 41 percent said they saved three or more hours of travel and waiting time thanks to telehealth. More than half would recommend it to others, too.

Virtual Rounds for Far-Flung Family Members

Linked via videoconferencing software that works like logging in for a webinar, far-flung relatives of Jefferson inpatients can be present—virtually—at their loved one's bedside with healthcare teams during daily rounds.

"The largest number of family members we have engaged is four at once, all from different states, including relatives as far away as Hawaii, California, and Texas," Hollander says. It's one of the few—perhaps the only—virtual rounds service at a U.S. hospital, he adds.

Not every patient makes use of the service. "Telehealth is just another way to access healthcare, not the only way," Hollander says. In a 2016 study of 218 oncology patients offered virtual rounds at Jefferson, Kristin L. Rising, MD, MS, assistant professor, Department of Emergency Medicine and the National Academic Center for Telehealth, and her team found that about half were interested. Some patients said they didn't need the service (presumably because family members could visit in person), and about 10 percent of families lacked the equipment at home to participate. But half of those who did give it a try asked for a second virtual round.

Families and patients find comfort and empowerment through the service, noted Vanessa Christopher, MD '18, now a first-year resident in Otolaryngology at Jefferson, in a 2016 article about virtual rounds in the journal *Healthcare Transformation*.

Christopher volunteered with the virtual rounds program during

medical school and wrote about the experience. One of its benefits? “Patients’ family and friends...have a direct line of communication with the care team, receiving the most up-to-date medical information directly from the most reliable source,” instead of using a telephone chain to pass along information, she noted. For one woman undergoing cancer treatment and her husband, daily virtual rounds kept their son and daughter informed—and the routine seemed to provide “some form of peace and consistency amid daily chaos,” Christopher added.

Telehealth Training and Research

Providing virtual healthcare is both an art and a science, and Jefferson’s National Academic Center for Telehealth (NACT) is one of the few centers in the United States to train healthcare practitioners, research best practices, and even pioneer a new allied health specialty in telehealth: the telehealth facilitator. “We now include telehealth training for medical students and residents and offer a fellowship that has brought doctors out of retirement, at mid-career, and just starting their practice in for training,” Hollander says. “While telehealth is simply healthcare, it’s also unique. Providers have to be aware of making eye contact, learn how to perform exams when they cannot physically touch a patient, and know what to do or who to call if the connection gets

cut off during the visit.”

Meanwhile, over 100 people have undergone training at the center to receive certificates as telehealth facilitators. “These are nurses, administrators, and people just getting started in healthcare careers,” Hollander says. “You need people in hospitals and practices who know how telehealth works.”

The center is also pioneering research to learn what works best in clinical telehealth. “We can’t assume that something that sounds like a great idea is really going to work well for patients,” Hollander says. “We want to know what our patients really want—and what we’ve learned really surprises us sometimes. For example, we’ve learned that men often prefer virtual visits after a vasectomy and women often prefer a virtual visit after a mastectomy or breast surgery. Some people feel more comfortable being in the privacy of their own home, instead of sitting in a cold room in a hospital gown, with staff bustling in and out. We’ve also learned that some people prefer receiving difficult news, such as a cancer diagnosis, in a virtual visit instead of in-person. They can be at home with their family members—and not face a harrowing drive home, too. That’s not something we would have predicted. We are always learning from our patients. That’s what it’s all about.”

TELEHEALTH IN A DISASTER

Connecting with a doctor during a hurricane or other natural disaster can bring peace of mind, help you refill an important prescription, or even save your life. But as Brendan Carr, MD, associate dean of Healthcare Delivery Innovation at Jefferson, outlined in a recent article in the *Journal of the American Medical Association*, there are still many barriers to widespread use of telehealth in disaster preparedness in the United States.

“Telemedicine can provide important services during and after a disaster,” says Carr, who co-authored the opinion piece with Nicole Lurie, MD, of Massachusetts General Hospital in Boston. “Most of what people need in a time like that can be provided by telemedicine—such as help managing a chronic disease, getting medications refilled or replaced, and advice about getting treatment for superficial injuries and infections. Right now physicians volunteer through the National Disaster Medical System to go in person to disaster areas. And we need that. But many more would help out if they could volunteer eight or ten or 12 hours a week on a phone line during a disaster.”

What’s standing in the way? “Insurance companies don’t fully reimburse yet for telehealth,” says Carr, who is also director of the U.S. Department of Health and Human Services Emergency Care Coordination Center. “The federal government doesn’t have virtual teams and telehealth infrastructure ready in advance of a disaster. But it will happen in the future.”

Pediatrician Beth Shortridge, MD ‘88 Res, ‘90 Fel, a pediatric hospitalist with Jefferson-affiliated Nemours/Alfred I. duPont Hospital for Children, provided telehealth care for Florida families through Nemours CareConnect during Hurricane Irma in 2017.

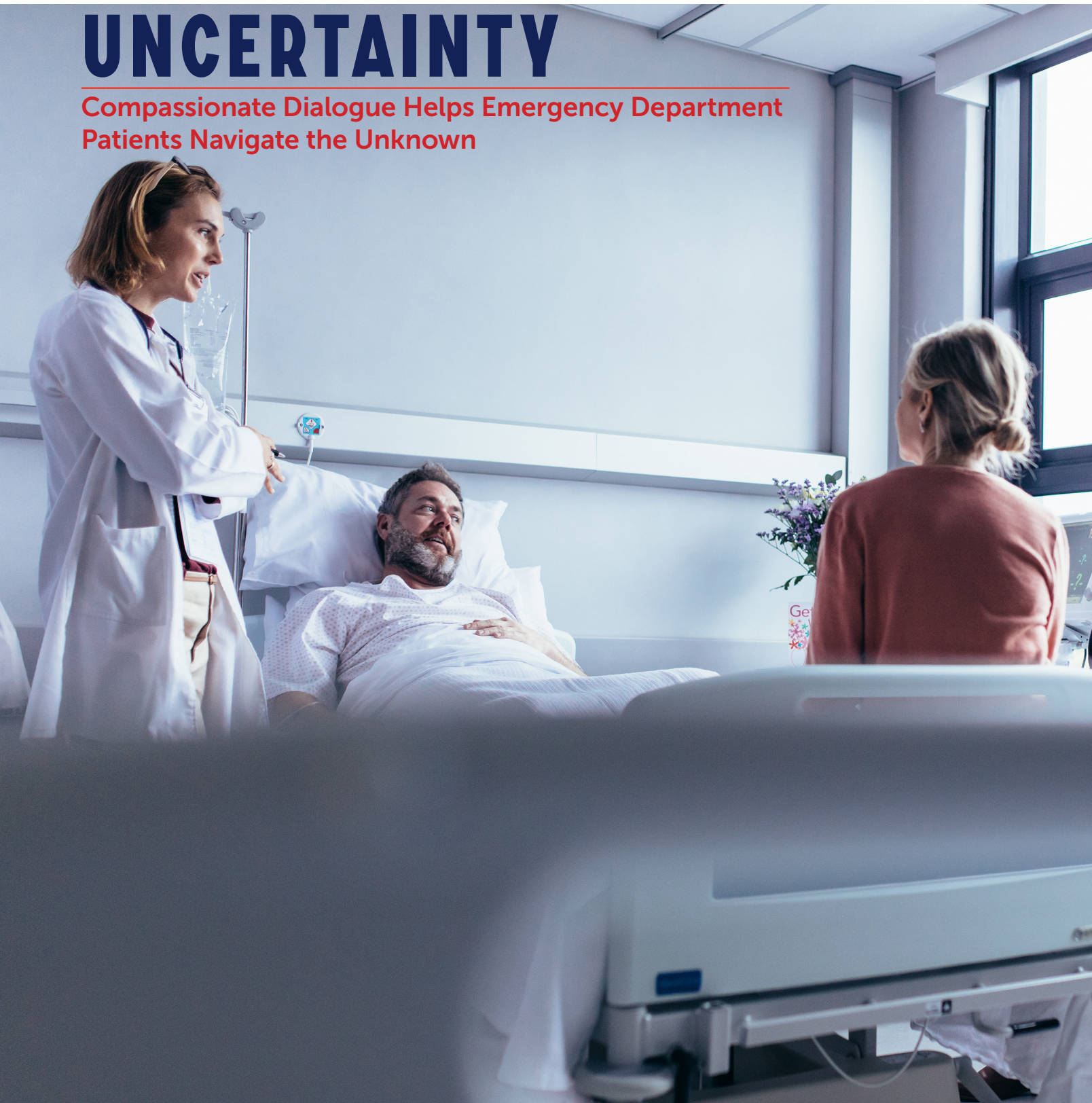
“One family with a 4-year-old having her first asthma attack reached out via telehealth video conferencing. They had no power, so they used battery-powered smartphones and flashlights so I could examine their daughter via my computer screen. Orlando was under a curfew, but we arranged a police escort to the ER,” recalls Shortridge, a volunteer clinical assistant professor in Pediatrics at SKMC.

Shortridge emphasizes that telemedicine eliminates geographical barriers so she can diagnose patients who are hundreds of miles away, and even review some patients’ electronic medical records online and connect with their caregivers. The powerful technology helps her provide lifesaving assistance when a family emergency occurs in the midst of a regional one.

“Another mother was about to evacuate to Georgia because her young infant had developed a fever. Her subspecialist management plan included in-person testing to prevent the baby from getting kidney damage; however, I was able to consult with her Nemours urologist to work out a plan with antibiotics the mother had on hand. Everyone was OK.”

EXPLAINING UNCERTAINTY

Compassionate Dialogue Helps Emergency Department Patients Navigate the Unknown



By Jessica Stein Diamond



Patients who are discharged from an emergency department without a definitive diagnosis all too often feel frightened, frustrated, confused, and anxious.

“Though to me it feels like the best news to tell a patient at discharge is that all the testing is negative, ruling out an initial possible set of diagnoses, many patients feel this is the worst news possible,” says Kristin Rising, MD, MSHP, director of Acute Care Transitions in the Department of Emergency Medicine at Jefferson. Dealing with uncertainty can be vexing for the one-third of patients discharged from the ED with a symptom-based diagnosis, such as chest pain or abdominal pain; this often happens due to negative or inconclusive test results, because their symptoms are likely to resolve on their own or with outpatient care, or because a definitive diagnosis requires more time and testing.

“Having no idea of what’s to come can be debilitating,” says Rising. “While we can’t take away uncertainty or give a diagnosis when there isn’t one, we can potentially help patients manage that uncertainty better.”

Her novel research focused on the perspectives and expectations of patients discharged with diagnostic uncertainty points toward ways to communicate more effectively with them to address their unmet needs. These findings are likewise shaping new methods for resident training, plus the development of new patient screening tools to improve communication in emergency medicine with relevance for other specialties likewise involving diagnostic uncertainty.

Returning for a Diagnosis

“Patients have repeatedly told me that their primary need and what drives them to return to the emergency department is to get a definitive diagnosis,” Rising says. “Otherwise, they wonder, ‘What do I do about my symptoms? Is it safe to travel? Can I return to work? Will I make my family members sick? Or does this mean I’ll be dead in two days?’”

Even when an ED doctor explains upon discharge that testing has ruled out serious issues—the chest pain isn’t a heart attack, the headache isn’t brain cancer—not having a diagnosis can spur patient dissatisfaction

and prompt unnecessary, costly, and time-consuming return ED visits.

Rising’s 2018 paper, “Patient-Identified Needs Related to Seeking a Diagnosis in the Emergency Department,” in the *Annals of Emergency Medicine*, offers thematic insights gleaned from a medical anthropologist’s in-depth qualitative interviews with 30 patients nine days after discharge without a definitive diagnosis from Thomas Jefferson University Hospital. The paper examines what patients specifically want, even when a diagnosis isn’t possible, so doctors can address unmet needs such as guidance on how to treat discomfort and steps to take in case of nonresolution.

Five Minutes or Less

“Too often there isn’t sufficient attention given to the discharge communication because of the belief that there’s nothing to really tell the patient other than that ‘everything looks fine.’ Yet patients without a clear diagnosis need as much if not more attention at discharge than patients with a clear diagnosis,” says Rising. “For most patients, this discharge conversation would only take five minutes or less. Patients need to understand that they have been clearly thought about and cared for, that appropriate testing has been done, and that they have a plan moving forward for how to care for themselves and how to pursue any further testing that might be needed.”

Rising is currently leading a team of researchers, clinicians, and education experts at Jefferson and Northwestern University who are evaluating components of effective discharge conversations. As part of a






three-year study funded by the Agency for Healthcare Research and Quality (AHRQ) in 2017, they have developed and validated a discharge communication checklist. Checklist items include validating symptoms, acknowledging there isn't a clear diagnosis, discussing next steps for self-care and testing, and defining what should prompt a return ED visit.

Jefferson's Center for Teaching and Learning is currently developing this checklist into educational tools and discharge simulation cases to train emergency medicine residents. And in 2019, 70 emergency medicine residents at Jefferson and Northwestern University will be trained to use the checklist for more effective discharge conversations.

Another paper, published by Rising in 2018 in the *Journal of Health Psychology*, features the 30-item "Uncertainty Scale" (U-Scale) she developed for patients discharged with symptom-based diagnoses. The scale can be used to quantify patient uncertainty levels and to define specific concerns related to symptom severity, treatment, and logistical impacts on family and work. So far, the scale has been tested with 200 patients at Jefferson. Rising hopes to refine this further with diverse population at other U.S. health systems.

While neither the discharge checklist nor U-Scale can be shared while they're being evaluated and refined, both promise to improve communication and symptom definitions so clinicians can better help patients cope with uncertainty.

"Our ultimate goal is to help patients have a more successful transition back home, and help them feel comfortable, safe, and adequately cared for," Rising says. "We're getting back to communicating with the person as a whole instead of as a symptom that's undergoing testing." 

The Jefferson Legacy

The last issue of *The Bulletin* featured a penetrating story about physician burnout. In it, Salvatore Mangione, MD, maintains, "It's the discipline's responsibility today to prepare the next generation to hazard their own answers to the riddles of the clinic and life."

The article got me thinking about the medical student experience—what it's like at Jefferson now and what it was like for alumni in the past.

At events like Alumni Weekend, I love seeing alumni talk to students. "So, how's second year treating you?" an elderly alumnus will ask. The answer's almost always, "I'm finding it harder than last year." The alum always nods.

Our society takes it for granted that becoming a doctor is hard work, but few understand just how challenging it can be, beyond the level of academic rigor.

Between the financial burden; having your heart broken by a patient who doesn't recover; and the time spent completing courses, residency, and training, the stress can be overwhelming.

As in so many other ways, when it comes to supporting the student experience, Jefferson historically has always been forward-thinking.

John Kearsley Mitchell, MD, Jefferson professor of the theory and practice of medicine from 1841 to 1858, urged a sound equilibrium between reflection and amusement, writing, "He who studies always, and plays never, will not make as much solid progress as if he were to occasionally and frequently unbend and refresh a fatigued mind by agreeable relaxations."

Today, programs like Jefferson Humanities and Health promote student balance and mindfulness through engagement in the arts and humanities, helping students gain essential skills related to healthcare, including close observation, critical thinking, communication, and empathy.

Another way the Jefferson family supports its own is through financial aid, which has been foundational to the school from the start. Article nine of Jefferson's 1824 charter states that "ten indigent young men of talents... shall be annually received into the medical school—receive its instructions and be entitled to its honors without any charge."

That philanthropic-minded tradition has carried on to this day, especially through gifts of endowed scholarships by alumni and benefactors.

At the 10th Annual Scholarship Dinner earlier this year, student speaker Lauren Coaxum, SKMC '20, and holder of a Baxter Family Scholarship, said, "What drew me to Jefferson was the community, how open, collaborative, and even happy the students were. I'm blessed to be a part of it."

The student experience is the Jefferson legacy. And that's about more than what students receive in terms of excellence in medical knowledge, clinical skill, and learning to provide care with caring. It's about what alumni give back. It's about looking ahead with optimism to design the future of medicine, one student at a time. It's about what you do right now.



Elizabeth A. Dale

Elizabeth A. Dale, EdD, MPA
Executive Vice President and
Chief Advancement Officer
Office of Institutional Advancement

An endowed scholarship at Jefferson is a lasting legacy. It changes the life of someone today, who will save lives tomorrow. Your legacy will be one of hope for the future of medicine.

Please contact me if you'd like to learn more about the doors you can open and lives you can change. I'd love to hear from you.

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A Series of **FORTUNATE EVENTS**

Isidore Rigoutsos, PhD, sees complexity not as a barrier to understanding the genome, but as an essential ingredient

BY ZACH NICHOLS

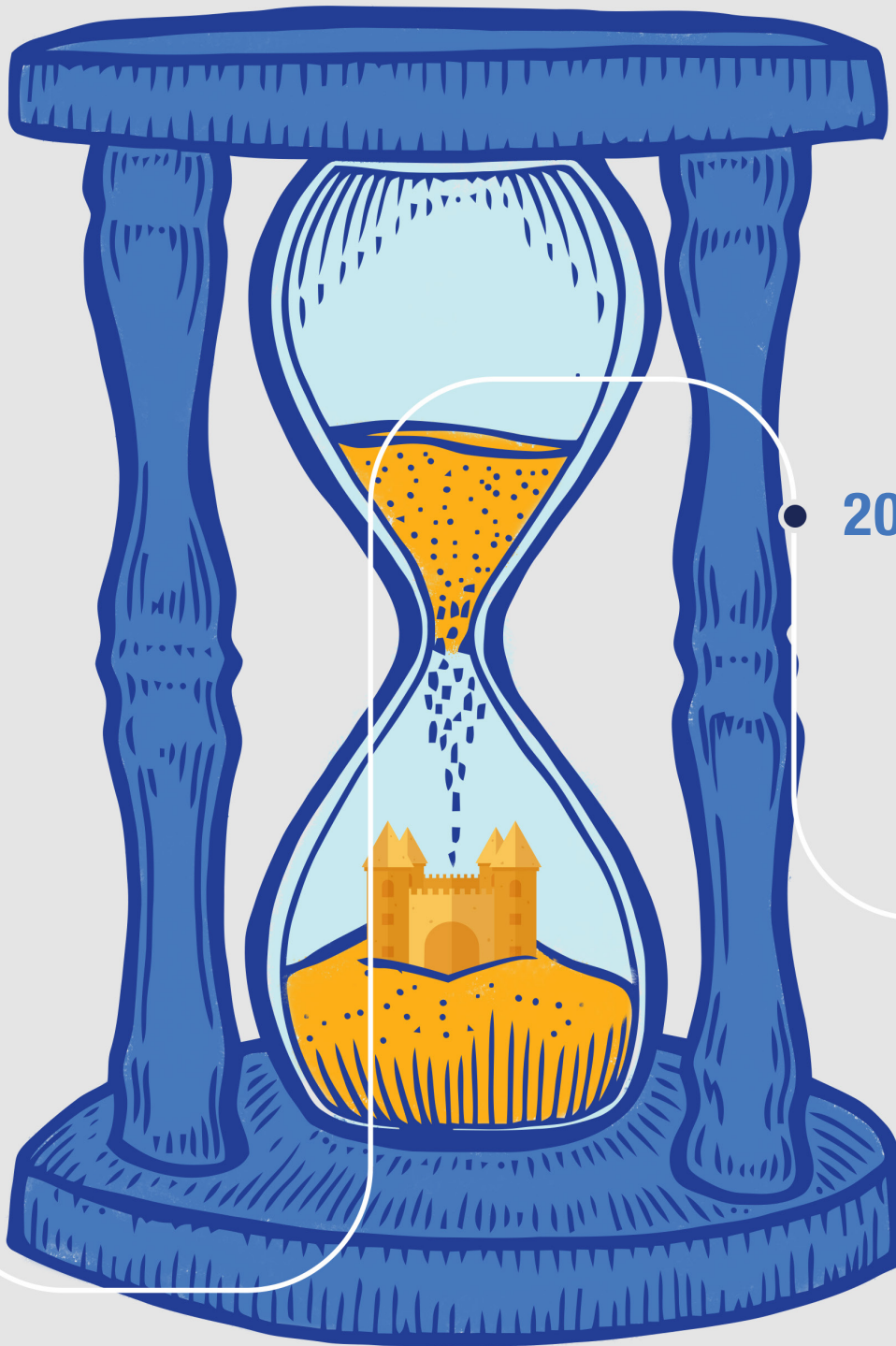
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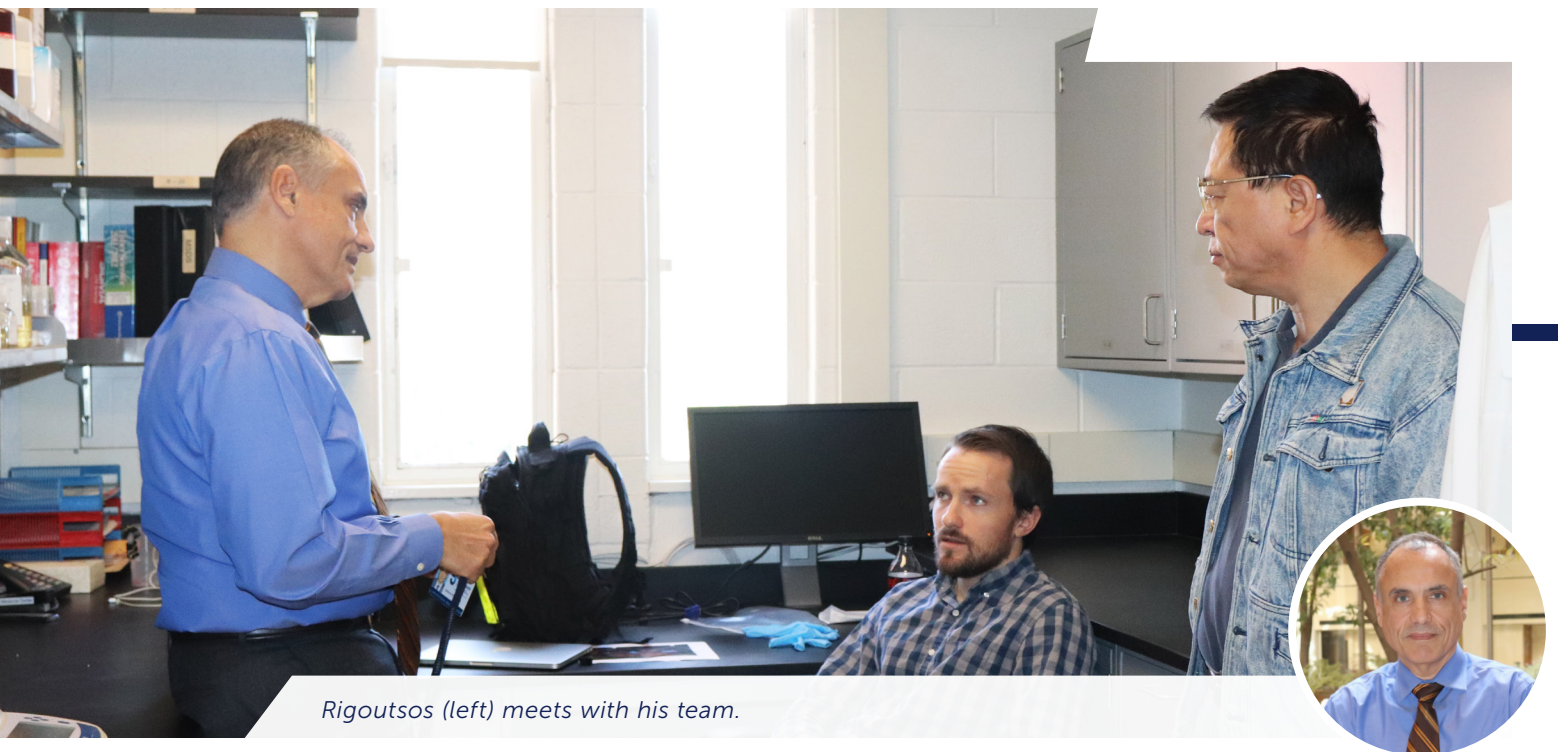


2017

1981

Isidore Rigoutsos is in Athens, sitting in a lecture hall waiting for a physics class to begin.

A man walks in and announces that their professor is ill and that he was asked to give a demonstration of a new technology he studied while completing his PhD in France. The substitute rolls in a cart covered in a tangle of wires and topped with a screen. “This is a computer that I built,” he says, and writes “Good morning” on the screen to the amazement of everyone present.



Rigoutsos (left) meets with his team.

Rigoutsos is so smitten that after finishing his physics degree, he decides to pursue graduate degrees in computer science in the United States.

TRASH/TREASURE

Deeply versed in the hidden potential of machines, Isidore Rigoutsos, PhD, the Richard W. Hevner Professor of Computational Medicine and founding director of the Jefferson Computational Medicine Center, has done work in everything from computer vision to simulating airflow over an airplane wing. In the '90s, he became involved with the emerging field of computational biology and co-founded IBM's Computational Biology Center.

Among his important contributions to the field is Teiresias, named for the blind seer of Greek myth, an algorithm he and one of his PhD students created in 1996 to help spot recurring patterns in

long strings of letters. It did this, ingeniously, by breaking the motifs down into component patterns, greatly reducing the amount of time needed to complete a task.

Today, he is one of the people providing vital proofs of concept on the value of embracing complexity as a way of seeing the world. We often say “it's complicated” or “it's very complex” as a way of shrugging at an excess of details. To Rigoutsos, this idea is fundamental to his way of understanding the world—not in spite of complexity but because of it.

“Complexity is a measure of how many distinct things you need to account for to make sense of ‘it,’” he says, “whatever ‘it’ is.” We tend to think in straight lines: cause followed neatly, if somewhat later, by effect. This isn't wrong, but it doesn't tell the whole story, especially at scales much different from those in our day-to-day experience.

This is true of the sciences, too, including genetics. After the human genome was sequenced in 2000, scientists believed that the relevant parts of our DNA were genes, the pieces that code for proteins and account for just two percent of the double helix. The rest of the human genome’s six billion base pairs—composed of combinations of the molecules adenine, thymine, cytosine, and guanine—was deemed “junk DNA,” a relic of our evolutionary history.

Rigoutsos’ work is motivated in part by a modest premise—that DNA is not so wasteful. “The prevailing understanding is that nature is parsimonious,” he points out, “Everybody says that, and why wouldn’t it be the case for the human genome?” From a biological standpoint, there is an energy cost to keeping all that junk around and, while some of it may certainly be noise, it is possible, probable even, that the rest does something.

He speaks with reverence about DNA’s ability to compress and express extremely complex relationships within just four repeating base molecules. “Its job is information storage, information processing in the face of very limited resources,” he says, “and it had nearly two billion years to optimize itself.”

2002

Rigoutsos gives a presentation at the United States Department of Agriculture facility outside Philadelphia. On his way home, he detours to visit a friend for coffee. In the midst of their conversation his friend’s colleague stops by and introduces himself.

They get to talking about their work, and the colleague, a geneticist, starts telling the group about these molecules he is studying called microRNAs. As he explains, he pulls out a napkin and begins sketching a little of what they know. It seems that the newcomer and his team are trying to target these sequences in their experiments, but are having trouble uncovering the rules of the interactions.

After the meeting, Rigoutsos drops everything to focus on the problem.

LITTLE THINGS AND HOW TO SEE THEM

MicroRNAs (MiRNAs) are a prominent member of a larger class of molecules Rigoutsos studies called non-coding RNA (ncRNA). While the protein-coding genes that have preoccupied biologists for decades can be thousands of bases long, these ncRNAs can contain as few as a dozen and a half bases.

RNAs play many roles throughout the cell, including assisting with transcription, the first step in the process by which genes are turned into proteins, and have typically been viewed as molecular middlemen. “What we discovered is that ncRNA actually meddles with this very process and helps to control what gets expressed in proteins and beyond.” Moreover, multiple ncRNA seem to be involved at each stage, affecting the process through a complex

push-pull relationship by variously blocking or promoting their targets.

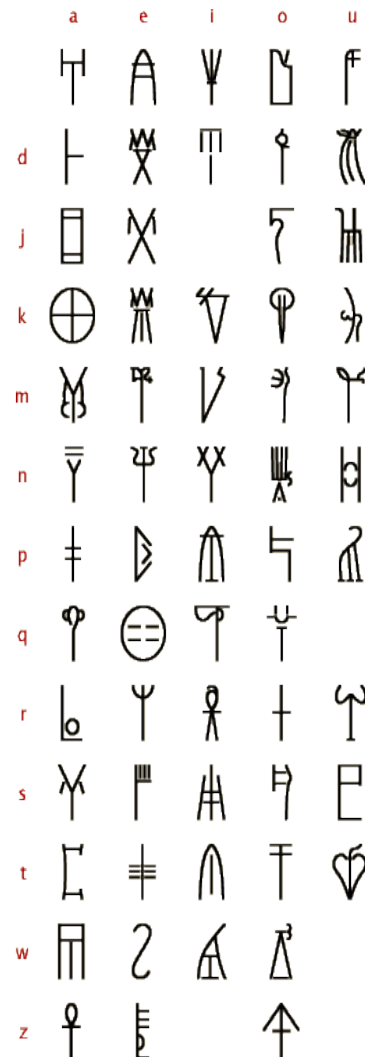
“People think something has to be big to be powerful,” he says, “It’s the interconnectivity that we have failed to account for in our efforts to understand ‘it.’” As such, the first step to explaining these relationships is the problem of keeping count, a task that computers and machine-assisted hypothesis generation are ideally suited for.

To Rigoutsos, this is nothing short of applying a tried-and-true method that has been used in numerous other fields. For instance, in the early ‘50s, archaeologists used this approach, with pencil and paper, to decipher the “Linear B” language, a very early form of Greek. At the beginning of the 20th century, linguists were able to compare text from pottery fragments and other artifacts (see fig on right), again using pencil-and-paper charts to test different combinations of symbols.

Once they had their dataset, the archaeologists began grouping the symbols together according to factors like their relative spacing and frequency. This is analogous to the data-mining phase of the team’s work, when they identify potential targets, and doesn’t require any knowledge of the content, instead relying on frequency of appearance as a guidepost.

After generating a set of candidate words, it comes time to set definitions—what do they mean? This is systematic guesswork. In the case of Linear B, text found on a tablet near unearthed wine jugs could have “grapes” or “wine” substituted in, ditto for names of popular trading posts, and other context-specific possibilities. The process of substitution is akin to the experimental phase, when genomic regions are added or omitted and the effects are observed in the lab.

In this way, a mass of gibberish can quickly be turned into smaller, more manageable repeating patterns, which people are able to wrap their minds around and manipulate. This is a piecemeal solution to the bandwidth limitations of the human brain. In the past, this was a source of bias—toward large genes and simple



diagrams—belying the vast, multicausal picture that is now emerging.

2007

Rigoutsos, by now a well-established authority on miRNAs, is at a conference in Ohio, prepared to give a presentation, when a friend leans over and asks if he's going to talk about the "crazy stuff"—his explorations of ncRNA. He responds no, but his friend insists, saying it'll go over well, so Rigoutsos begins rewriting his entire presentation while sitting in the audience, an hour and a half before he's due on stage.

He goes on to give the talk, and afterward a man comes up to him, agreeing effusively with everything he had just presented. The man has a plane to catch, but promises to give Rigoutsos a call.

A few months later, Rigoutsos gets the promised call. The man on the other end of the phone is George Calin, MD, PhD. As a postdoc at Jefferson working on an orphan project, Calin was the first to identify miRNA as a key factor in chronic lymphocytic leukemia in 2002.

Calin thought that the "crazy" connections Rigoutsos had presented a few months earlier could help spot ncRNA involved in colorectal cancer, the third-leading cause of cancer-related death in the United States. Soon after the call, Calin and Rigoutsos set to work. Using computational analysis, they cherry-picked among the many genomic sites of interest flagged by a study Rigoutsos had done in 2006.

They converge on about 1,200 sites and build a special chip with probes to test those sites. The team begins by testing numerous samples from healthy subjects and patients until the probes light up like a Christmas tree, following patterns that changed with tissue and disease. Then they extend the work to samples from patients with colorectal cancer, and in matter of a few months, they identify a ncRNA—several hundred letters long—whose abundance is associated with patient survival.

REGULAR DIFFERENCES

One of the team's most striking findings using this methodology has to do with differences between races, ethnicities, populations, men, and women. By looking at data from people across four European populations and one African population, they were able to find notable differences in the miRNA spectrum, while also uncovering consistencies within each group. Even white European populations, Italians, and Fins, for instance, showed consistent differences from one another.

This has direct implications for the clinical treatment, not only of groups, but also of individuals, who are always members of more than one group (French women, Greek men, and so on with greater specificity). "Everybody had anecdotes about these variances

between people, but never thought to look for any consistency at the other end of the room. And, until recently we did not even have the data to answer this question," says Rigoutsos. "We simply asked, 'Does this variance show some coherence?'"

In a similar vein, the team analyzed publicly available datasets derived from more than 10,000 cancer samples and were able to distinguish 32 cancers via their ncRNA profile, suggesting that different subsets of these molecules play different roles in different diseases.

2009–10

Unbeknownst to Rigoutsos, Mark Tykocinski, MD, Anthony F. and Gertrude M. DePalma Dean of SKMC, was in the audience that day in Ohio and was excited by Rigoutsos' talk. Tykocinski immediately saw the implications of big data and the importance of an increasingly granular view of the genome.

Tykocinski, who had taken charge of the medical college just the year before, calls Rigoutsos. A few months later, in February 2010, Rigoutsos joins Jefferson.

IMPLICATIONS

Differences have long been observed among U.S. patients with triple-negative breast cancer—the most aggressive kind. In black patients, the cancer has an increased incidence rate, appears at a younger age, and progresses faster than in white patients. These differences persist even after socio-economic variables are taken into account, suggesting that genetics may be the cause.

Clearly, these findings point to an underlying complexity in triple-negative breast cancer and many other cancers, as the Jefferson team showed. But, Rigoutsos stresses, it is important to realize that this uncovered complexity is a powerful and invaluable development.


"Say 1 percent of your active molecules can ever become drugs," Rigoutsos muses, "one percent of 20,000 is one number, but 1 percent of two million is a much bigger number." Having uncovered more causal factors means that more targets are now available for developing therapies that are tuned to the disease and the patient. This means that there is now a greater chance that more effective treatments can be found.

2017

Another eight-and-a-half years pass before Rigoutsos and Calin publish their 48-author paper with their findings on the ncRNA, which by now has a name, N-BLR (pronounced "enabler"). N-BLR shows promise as a possible biomarker that could one day save lives as a diagnostic tool or a target for personalized treatments.

Rigoutsos is amazed at how these things take on a life of their own,

how data begets even more data, and how finally they have a result. It feels improbable. A physics professor in Greece calls out sick. A diagram on a napkin. One question more than a decade ago. A few hundred bases out of six billion.

A cascade of events gaining momentum over time and successive interactions, becoming—with every iteration—inevitable. 

Thinking Through Computers



“A computer is not just the thing that allows me to buy things from Amazon,” says Isidore Rigoutsos, PhD, of the ubiquitous machines. “Its original purpose was to actually solve computational problems that we couldn’t do with pencil and paper.”

In the era of Big Data, these problems could be anything from the location of earthlike planets or quantum particles to why a particular gene causes cancer or what left-handed Philadelphians want for dinner. What all these problems have in common is that they require computers and the know-how to use them effectively. The world has recognized how important this skillset is, and the number of undergraduates studying computer science in the United States—about 89,000 at any given time—shows it.

But there is a problem: Each year universities throughout the country graduate about 1,200 PhDs, many of whom are summarily recruited by tech giants like Facebook, Google, Apple, and Amazon. This leaves about 300 left over to pursue academic careers—an insufficient number by any stretch.

A bidding war for new hires with some of the most valuable companies in the world is not a feasible solution to the emerging shortage

of qualified faculty. Instead, Rigoutsos and his computational medicine colleagues at Jefferson have devised a new way to secure the next generation—find them, train them, and hire (some of) them.

By putting together a certificate program in computer science and computational thinking, with the aim of eventually granting doctoral degrees, they are helping to bring technical talent in-house. Since 2015, they have been doing the much-needed preparatory work and now have launched two brand-new courses in computational science: Introduction to R Programming and Data Visualization.

“Our version of ‘data visualization’ is likely not what you might think,” says Rigoutsos. “Our version of the course pulls together understanding from data science and the human visual system in order to teach students how best to present their findings. Along the way, we also show them how, by visualizing data, they can pick up patterns that highlight which topics are most important to the scientific community at a given point in time and a host of other areas.”

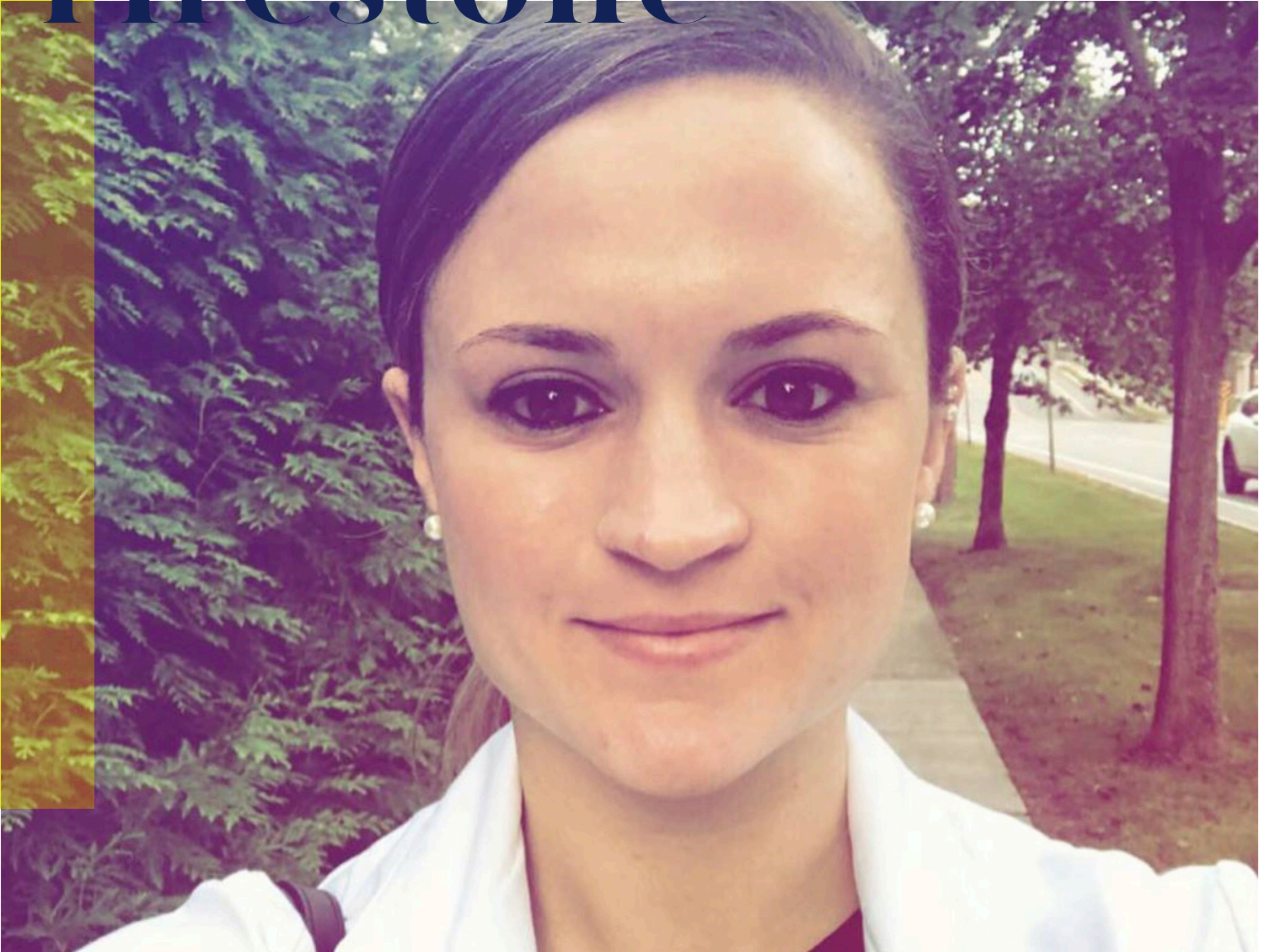
Using problem sets and hands-on exercises familiar to any engineering student, the goal of these courses is to provide Jefferson’s students with their first experience of thinking with a computer. “The amount of information they need to work with is daunting, and it can be difficult to know where to begin,” says Rigoutsos. “I try to teach them not to be afraid to try things, to let the computer loose on the data.” This is perhaps the crux of “computational thinking,” seeing the overarching question and then breaking it down into well-defined, computable pieces that will yield definite answers...then weaving these answers into a single story.

One of the goals of this effort is to embed these abilities in different fields by teaching traditionally specialized professionals like physicians, designers, architects, and engineers, anyone whose work could be affected by a deep dive into the data—in other words, everyone. It has implications for every vocation and subject from automobile design and political polling to advertising and fraud detection, anywhere that patterns need to be discerned and deciphered.

Grace

CLASS
OF 2020

Firestone



Grace Firestone was your “average” high school go-getter: a soccer player with Division I aspirations, a student council member, an active participant in club life. She was getting ready for college and what was in store for her—until the day she went to her mother’s bedroom, said “I don’t feel well,” and collapsed. Sudden cardiac arrest (SCA) had struck.

Paramedics arrived three minutes later and immediately began resuscitation, shocking her six times with an AED and drilling into her shin in order to begin IV infusions after her veins began to collapse. Firestone’s heart stopped three times that night, but each time doctors brought her back.

Now, she’s a third-year student at SKMC and an advocate for heart health. Here she talks about her walk back from the brink and the perspective she brings to her chosen vocation.

What was it like waking up?

I was in the hospital for 10 days and had been in a medically induced coma. One of the only things I remember from the hospital was a nurse bringing in an evaluation to connect the letters of the alphabet and draw three-dimensional blocks. That was really difficult for me and was one of the first inklings of my situation.

I was hoping to play DI soccer in college. In my mind I just was ready to get training again and was looking forward to PT. They brought me into a room that was mostly elderly people and had

me perform tasks like climbing a set of three stairs and just walking in general. It was hard. It’s exhausting, and so, again, it was just the realization that this did hit me and I am affected by it because I was 18, and I think you have the feeling of being invincible to some extent or whatever else.

How has this informed your post-recovery interests?

I’ve helped to start a Cardiovascular Society at SKMC. We bring in speakers and organize events to raise awareness about causes and treatments to heart disease. I’m really involved in advocacy, especially with the American Heart Association, bringing CPR education and AED placement to people’s attention.

I’m on local committees and a national advocacy coordinating committee that meets biannually in Texas. As part of that, I’ll speak at different events, share my story, and help people put a face and name to the issue. I was also part of a group that went to Harrisburg and met with some legislators about that CPR education. I’m usually the youngest person at some of these meetings.

How have your experiences impacted your education?

Getting to this point is kind of surreal. It 100 percent puts a fire under me to dedicate my entire life to honestly saying thank you and showing how much the care they put in that night to save my life means.

On the clinical side, I think I can really relate to patients and communicate that whatever happened or your diagnosis now





There are more than **356,000** out-of-hospital cardiac arrests in the United States each year, effecting everyone from seniors to children. Nearly **90** percent of them are fatal.


doesn't have to define the rest of your life in a negative way. Being in the hospital as a med student, you have more time than almost any other medical staff. So you get to speak to the patients and learn their stories, not just their diagnosis. You also interact with the family members, and when I see people there, I see my family.

In a sense, I know how hard it was for them and they want to be strong and there for their family member who's sick, but they're hurting too. I'm able to see their pain because of my own experiences as a patient. I just try to acknowledge them and let them know it's great that they're present.

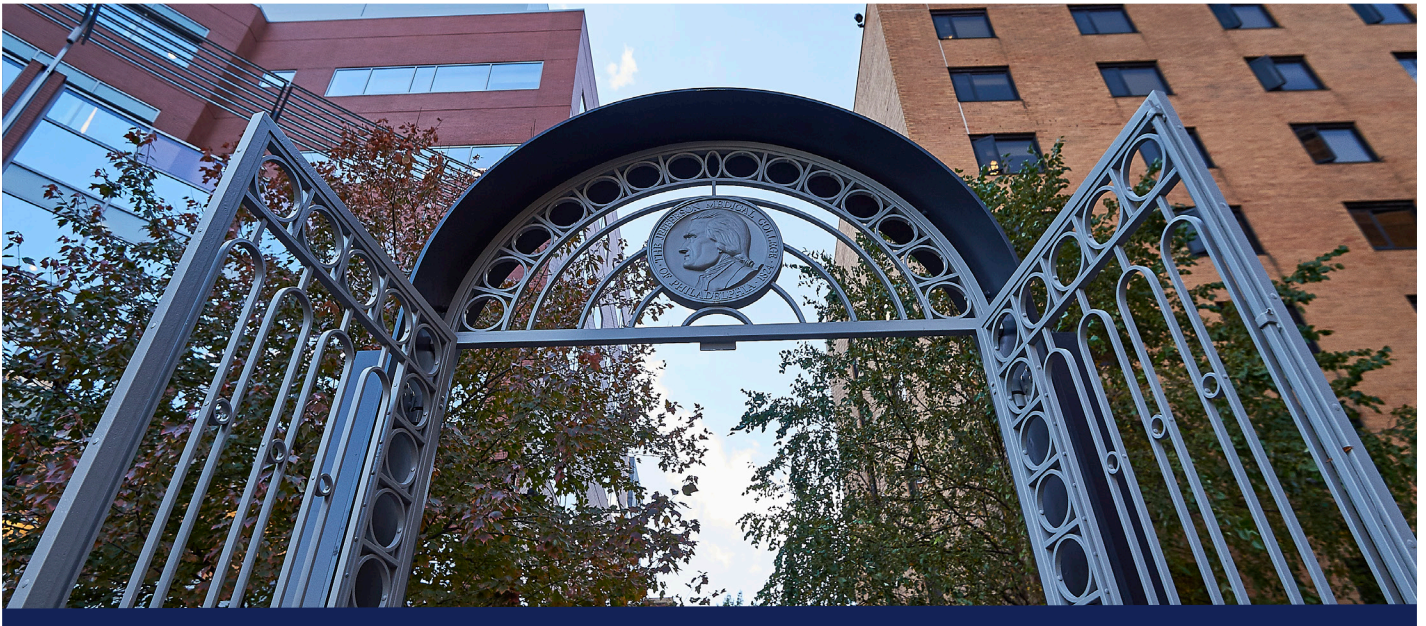
What's your favorite part of clinical rotations?

I think it's seeing doctors who are so adept at explaining complex disease processes to patients that you can see when the light goes on. Patients are like "oh, thank you" because no one's really explained their situation to them before. Now, they can make educated decisions together with their doctors and they're not seen as a "difficult patient," because they know what's going on and they can be comfortable with what you're doing. 🍷



 To see a video featuring Grace Firestone, Class of 2020, visit Jefferson.edu/Bulletin.

SMART INVESTING. SMART GIVING.



“Jefferson’s IRA rollover program offered me a simple way to give back to my alma mater. They condensed a complicated process into one step, helping me to save on my taxes and support a great community resource.”

– Leonard A. Erdman, MD '50

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- The gift must be made on or before December 31 for the 2018 tax year.
- Transfers must be made directly by your IRA administrator to Jefferson.
- Gifts must be outright. The rollover must be from a traditional IRA, not a 401(k), 403(b), or other retirement plan.

Benefits

- You can transfer up to \$100,000 annually from your IRA to Jefferson; spouses can each transfer up to \$100,000.
- Rollovers are free of federal tax.
- Rollovers qualify for your “required minimum distribution” for the year.
- You can reduce your taxable income, even if you do not itemize deductions.
- You can designate your gift to any area or program at Jefferson.

To learn about making a gift through your IRA and other planned giving opportunities, contact:

Lisa W. Repko, JD

Vice President for TJU and Planned Giving
215-955-0437 | lisa.repko@jefferson.edu



Although planning for and designing the Marie E. Pinizzotto, MD '88, MBA and Carol A. Ammon, BSN '17, MBA Alumni Center began 18 months before its grand opening on May 31, the artifacts housed in the display wall have been waiting in the wings for as many as 200-plus years.

The University Archives and Special Collections in Scott Memorial Library was established in the 1980s to collect, maintain, and make available records of Thomas Jefferson University and Hospitals. Most of the materials are paper-based (and now digital) such as minutes, reports, publications, photographs, books, and the like. But the Archives also became a magnet for artifacts associated with the enterprise and its constituents. We have a small but high-quality collection of historic medical objects, many of which have found a home in these displays to, hopefully, delight the eyes of visitors to the Alumni Center. I am grateful to the many benefactors who helped bring these fascinating artifacts from storage to showplace through their generous support for the Center and these display cases.

In curating this exhibition, I have tried to select materials that represent the various colleges, schools, and specialties at Jefferson. I also included only objects that were used on our campus or owned by alumni who donated them to Jefferson. I think this makes for a unique "cabinet of curiosities" view that informs the arc of medical and scientific progress as we enter our third century of service.

—Michael Angelo, University Archivist

TIME CAPSULE



◀ Surgical Amputation Set

Bornhagen, German instrument maker
Ca. 1850s

This gift of antique instruments was given to Dr. Braverman by Prof. Albert Einstein in gratitude of the Braverman family's assistance in his relatives' immigration to the United States.

Acc. 0000.009.001 Gift of Bernard L. Braverman, MD '44

▶ Pennant, "JEFF"

Unknown maker
Ca. 1900

Jefferson's intermural football squad (1896–1913) played against rival med schools but also other institutions. In 1906 JMC lost to the local YMCA 11-0. But attendance was strong—3,000 tickets were sold for a single game in 1902. Other competitive sports included basketball, track and field, and later rugby.

Acc. 2013.002.001 eBay Purchase



▲ Monaural Stethoscopes

Unknown makers; S. Maw & Son, London
19th century

French physician René Laënnec published his book on auscultation and included a diagram of the first stethoscope in 1817, which he had invented the previous year. These later versions were made by Billings, 1860; Stokes [Maw/London] 1870; and Burrows, 1870..

Acc. 2014.001, .036, .096 Feldman Collection



◀ JMC Student Monocular Microscope

Bausch & Lomb Optical Co., Rochester
NY
Ca. 1910

At the onset of the 20th century Jefferson Medical College was a leader in the teaching of histology and bacteriology. This instrument was one of 40 used by students in lab work.

Acc. 1995.015.001 Gift of John N. Wall



◀ Secretary Desk

Unknown maker, Philadelphia
Ca. 1820–40

George McClellan, MD, was the leading force in establishing Jefferson Medical College and its first professor of surgery. This beautiful piece of furniture now known as “The Founder’s Desk” can be traced to his ownership. Like several other historic Jefferson objects it resided in the home of JMC Dean, RV Patterson, MD, and was bequeathed to the college at this death in 1938.

Acc. 0000.043.001 Internal Transfer



▲ Doll

Alexander Doll Co., New York, NY
Ca. 1930

The Women’s Board of Jefferson Hospital raffled this doll in a Jefferson Medical College Hospital nursing costume for a fundraiser in 1932.

Acc. 2002.100.001 Internal transfer



◀ JMC Nurse’s Cape

CD Williams & Co., Philadelphia
Ca. 1960

The general design for a woolen nurse’s cape in the proud school colors of black and blue was first approved in 1919. With minor variations, the Jefferson cape continued to be an iconic object through the 1970s. This simpler version reflects the fashion from when donor Joan Driscoll Kelley, DN, took her diploma in 1960.

Acc. 2018.003.001 Gift of Joan Driscoll Kelley, DN ‘60

16th annual Jefferson GALA



The 16th Annual Jefferson Gala was a huge success, with a sold-out room of 1,200 attendees and a record-breaking \$2.5 million raised. The proceeds will benefit the Sidney Kimmel Cancer Center and the Neu Center for Supportive Medicine and Cancer Survivorship. At the event, Jefferson honored renowned medical oncologist, researcher, and champion of the underserved Dr. Edith Peterson Mitchell with the Achievement Award in Medicine, and Philadelphia Eagles head coach Doug Pederson with the Award of Merit.

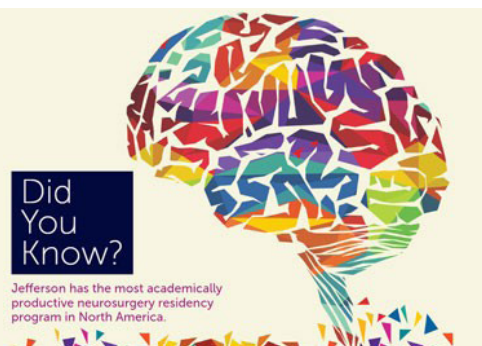
Jefferson and Einstein Healthcare Network Sign Definitive Agreement

Einstein Healthcare Network and Jefferson (Philadelphia University + Thomas Jefferson University) have entered into a Definitive Agreement, legally binding the ideas and commitments described in the Letter of Intent that the two organizations signed in March 2018. With this agreement, Einstein and Jefferson will begin seeking necessary state and federal regulatory clearances.

The merger would bring together two historically linked academic medical centers whose shared vision is to improve the lives of patients and their communities. A merged clinical academic enterprise would host the largest number of residents and fellows in the Greater Philadelphia region, uniquely positioning Jefferson to educate the healthcare professionals of tomorrow with a multihospital clinical rotation unlike any other. The merger would also bring together nationally recognized MossRehab and Magee Rehabilitation, two of *U.S. News & World Report's* top-ranked rehabilitation hospitals.

"This is a critical step forward for the students and patients of both institutions and equally as important for our community as a whole," said Stephen K. Klasko, MD, MBA, President of Thomas Jefferson University and CEO of Jefferson Health. "Our joint planning in recent months has reinforced how much Jefferson and Einstein share the values dedicated to reimagining the future of health, education, and discovery. As we move forward, we will be transparent and committed to the community in making this partnership work."

This merger will enhance the services provided to our patients and their families in the communities we serve, and Einstein will continue living its mission of providing high-quality care with humanity, humility, and honor.



Jefferson No. 1 in North America for Neurosurgery Resident Publishing Productivity

Jefferson's Department of Neurological Surgery has the most academically productive neurosurgery residency program in North America, according to a recent study in *Neurosurgery*.

The study, "An Analysis of Publication Productivity During Residency for 1506 Neurosurgical Residents and 117 Residency Departments in North America," measured quality and frequency of article citations, authorship value, and article type, among other metrics.

Academic publishing productivity demonstrates the quality and quantity of residents' research at the Department of Neurosurgery, part of the Vickie and Jack Farber Institute for Neuroscience. The report represents the most comprehensive bibliometric analysis to date of neurosurgical resident academic productivity during training. Researchers concluded that supportive research environments for neurosurgical residents are associated with increased academic productivity.

The researchers note that neurosurgical resident publication productivity during training contributes to developing future neurosurgical leaders, as publication productivity has been linked with academic positions and future promotions to professorship and chairmanship. They also wrote, "Academic productivity of neurosurgical trainees has been cited as one of the most predictive measures of future academic advancement within neurosurgery."

Robert H. Rosenwasser, MD, MBA, FACS, FAHA, the Jewell L. Osterholm, MD, Professor and Chair of Neurological Surgery and professor of Radiology at SKMC, said that Jefferson's top ranking in the report is particularly noteworthy.

"It is all about creating a culture of discovery, advancing the field of neuroscience and a culture of critical thinking, all of which will hopefully benefit society as a whole to create a healthier world which we all own—the ultimate responsibility," Rosenwasser said.

Matrix Biology Impact Factor 8.136

The journal *Matrix Biology* has reached an Impact Factor of 8.136.

Matrix Biology (formerly *Collagen and Related Research*) was established in 1980 as a cutting-edge journal that is devoted to publishing the latest results in matrix biology research. It focuses on solving elusive questions, opening new avenues of thought and discovery, and challenging longstanding biological paradigms.

The journal's staff includes Editor-in-Chief Renato V. Iozzo, MD, PhD, the Gonzalo E. Aponte Professor of Pathology, Anatomy and Cell Biology and professor of Biochemistry and

Molecular Biology at SKMC; science editors, Maria Gubbiotti (SKMC class of TK) and Thomas Neill, PhD '14; and an editorial board of TJU faculty, including Jouni Uitto, Mak Risbud, Irving Shapiro, Lucia Languino, and Andrea Morrione.



Jefferson Associate Dean for Faculty Development Named Gold Humanism Scholar

The Arnold P. Gold Foundation named Dimitrios Papanagnou, MD, one of its 2019 Gold Humanism Scholars at the Harvard Macy Institute Program for Educators.

Papanagnou is associate professor of Emergency Medicine and associate dean for Faculty Development at Jefferson (Philadelphia University + Thomas Jefferson University). His project focuses on "Fostering Provider Resilience and Empathic Patient Care in the Emergency Department."

"His project will investigate how to make a real and measurable difference in resilience for physicians and medical students," said Elizabeth Cleek, PsyD, chief program officer at the Gold Foundation. "Such work is critical to understanding and impacting systemic factors that ultimately affect both healthcare professional well-being and patient care."

For this prestigious award, the Gold Foundation selects healthcare educators whose work helps develop or evaluate educational projects focused on humanistic patient care that can be replicated across a variety of healthcare settings.

The Gold Humanism Scholars receive partial scholarships of \$5,000 to attend the Harvard Macy Institute Program for Educators in the Health Professions. This highly interactive faculty development program meets twice a year in Cambridge, Massachusetts. Gold Humanism Scholars learn innovative methods to teach and assess their projects, as well as to steer and champion their projects successfully through the maze of requirements.

Papanagnou's project will address burnout among health-care providers by bringing microtraining opportunities directly to the clinical workplace. The emergency department remains one of the most operationally complex settings within the hospital. Interprofessional clinical teams in the ED will undergo immersive experiences that will allow them to reflect, discuss coping strategies, build resilience, support teamwork and better connect with their patients.

Jefferson Soars in Latest Rankings from U.S. News & World Report

For the first time, Jefferson (Philadelphia University + Thomas Jefferson University) has been ranked as one of the most innovative schools in the North Region at No. 5 in *U.S. News & World Report's* 2019 Best Colleges Rankings, released September 10. Jefferson also was named a best-value university and rose to the No. 15 spot in the Best Regional Universities (North category), a vast jump from last year's ranking of No. 64, thanks to significant improvements in how peers assess Jefferson, as well as the University's retention and graduation rates, and the quality of education and test scores, among other factors.

"When we made the decision to combine Thomas Jefferson University and Philadelphia University, we set out to be transformational in our approach to teaching and learning," said Stephen K. Klasko, MD, MBA, president of Thomas Jefferson University. "We were deliberate in our vision that the necessary changes in higher education could no longer be incremental, but must involve bold, strategic, and creative partnerships. Today's news is further validation that we made the right choice, at the right time, to merge our strengths and advance a new model of higher education infused with creativity across disciplines for the benefit of our students, families, alumni, faculty, and staff."

The University's proven approach to transdisciplinary professional education and its commitment to research, discovery, and collaboration is delivering great value to students and uniquely preparing them for today's careers and those that have yet to be imagined, said Mark L. Tykocinski, MD, provost and executive vice president, Academic Affairs, Thomas Jefferson University, and the Anthony F. and Gertrude M. DePalma Dean of SKMC.

"Our goal of being a premier professional university and redefining humanly possible is achievable, and this recognition should serve to redouble our efforts," Dr. Klasko said.

Jefferson Researchers Receive \$3.1 Million Grant to Reduce Need for Emergency Diabetes Care in Older African Americans

A team of SKMC researchers has received a major \$3.1 million grant from the National Institute of Diabetes and Digestive and Kidney Diseases to reduce the need for emergency diabetes care in older African Americans.

"This grant extends Jefferson's research and clinical strengths into the community to reduce racial health

disparities,” said principal investigator Barry Rovner, MD, professor of Neurology, Psychiatry and Ophthalmology at Jefferson. “The prevalence of diabetes, the racial diversity of our patients and the need for high-value care are all increasing. This award will enable us to meet these challenges and achieve health equity for all.”

About 40 percent of African Americans with diabetes go to the ED each year, and 24 percent use the ED as their usual place of care (vs. 13 percent of whites), Dr. Rovner said. These disparities reflect racial differences in socioeconomic, medical, environmental, and person-level factors.

The study will explore how poor access to primary care and poor diabetes self-care lead to high emergency department use in African Americans. In particular, the research will compare the efficacy of community care to prevent diabetes emergencies (COPDE) vs. enhanced usual care (EUC) to reduce the incidence of diabetes-related emergency department visits and/or hospitalizations. COPDE is a collaborative intervention of primary care physicians, a diabetes nurse educator and community health workers that aims to improve access to care and diabetes self-care.

Other members of the Jefferson research team receiving the \$3,095,504 grant include Robin Casten, PhD, professor of Psychiatry; Judd Hollander, MD, professor of Emergency Medicine; Kristin Rising, MD, assistant professor of Emergency Medicine; and Anna Marie Chang, MD, assistant professor of Emergency Medicine.

Jefferson Partners on Small Business Innovation Grant for New Drug to Treat Lung Fibrosis



An innovative governmental grant intended to spur the translation of laboratory discoveries into new treatments for patients called the Small Business Innovation Research (SBIR) grant has been awarded to Ross

Summer, MD, professor of Medicine at SKMC, and collaboration partner Fox Chase Chemical Diversity Center, Inc. (FCCDC) for the co-development of a novel, first-in-class treatment for idiopathic pulmonary fibrosis (IPF).

“Research in my laboratory aims to find better options for my patients with this disease,” said Ross Summer, MD, a physician-researcher in the Jane and Leonard Korman Respiratory Institute – Jefferson Health and National Jewish Health.

Rose Ritts, PhD, executive vice president of Innovation at

Jefferson, lauds the FCCDC and Jefferson team for their work in securing this funding. “It is universally appreciated that fibrotic lung diseases such as IPF constitute a world-wide major health problem. Jefferson is proud to partner with the excellent team of scientists at FCCDC to pursue development of this potentially lifesaving technology,” she said.

Stephen K. Klasko Named No. 2 to *Modern Healthcare’s* 100 Most Influential People in Healthcare of 2018



Stephen K. Klasko, MD, MBA, president of Thomas Jefferson University and CEO of Jefferson Health, was named 2nd to *Modern Healthcare’s* 2018 list of the 100 Most Influential People in Healthcare, climbing over 80 spots from the publication’s 2017 rankings.

Klasko tied with a distinguished group of leaders that *Modern Healthcare* named the “Class of Disrupters,” which includes Apple CEO Tim Cook, Amazon Chairman and CEO Jeff Bezos, and the CEOs of CVS and Kaiser Permanente. Klasko was cited for “addressing root problems,” and for “combining a major health system with a design school.”

Klasko has been one of the nation’s foremost voices in applying creativity across healthcare disciplines and championing disruption of long-held beliefs in order to advance the delivery system in a consumer-friendly way, where patients—not doctors or executives—are the boss. He aims to prepare the industry for healthcare’s inevitable consumer revolution by ensuring care is available wherever patients are through telehealth and regional expansion. He calls for a transformation in how medical students are selected and trained, emphasizing team-based problem solving and empathy over the MCATs.

“Healthcare and higher education cannot rely on yesterday’s thinking in today’s world, and both industries are ripe for disruption,” Klasko said. “Just being on this list is always an honor, and jumping to number two means that people are listening. Now, it’s time to start taking the steps necessary to truly transform healthcare in America.”



Key and Harold Ronson Health and Applied Science Center to Open Fall 2019

The University broke ground October 5 on the Kay and Harold Ronson Health and Applied Science Center, a state-of-the-art health and science facility that will provide students with an ideal environment to learn and innovate.

“When people drive by this campus and look at the Kay and Harold Ronson Health and Applied Science Center, they are going to know that this is a place where innovation happens,” said Stephen K. Klasko, MD, MBA, president of Thomas Jefferson University, at the ceremony attended by faculty, staff, noted alumni, and Jefferson leadership.

Set to open for full operation in fall 2019 on East Falls Campus, the building is designed to promote collaborative learning where students from different backgrounds and educational disciplines work together with expert faculty to solve problems.

Key features of the 60,000-square-foot building include a gross anatomy lab; six break-out rooms for team learning; enlarged medical simulation lab; enlarged physical diagnosis lab; athletic training diagnostics lab; labs for use by nutrition, respiratory therapy, occupational therapy, and trauma counseling; enhanced textile materials lab; shelled space intended for health innovation makerspace; and six Nexus Learning Hubs to promote collaborative teaching and learning.

Harold Ronson '51 graduated from Philadelphia Textiles Institute (now Jefferson) with a degree in chemistry and dyeing. In addition to his contribution to the Kay and Harold Ronson Health and Applied Science Center, Ronson has been a lifetime benefactor to his alma mater. His past support facilitated the building of the Paul J. Gutman Library, the construction of Ronson Hall, the establishment of the Harold Ronson Scholarship Fund and the Ronson Simulation Lab, and more. He also served as a trustee of Philadelphia University from 1985 to 2007 and was named trustee emeritus in 2008.

Cheyney University announces formation of Institute for the Contemporary African American Experience

On July 31, Cheyney University announced the formation of the Institute for the Contemporary African American Experience (ICAAE), with Jefferson and Epcot Crenshaw among the initial partners. The newly formed institute is intended to leverage Cheyney’s reputation and legacy as the nation’s oldest historically black university to study contemporary issues related to race, ethnicity, access and diversity in American society. Starbucks Foundation also will partner with the institute on a future research project.

The institute is expected to serve as a catalyst and facilitator in creating networks, fostering communications and developing and testing solutions to contemporary issues among individuals, organizations and communities, working beyond the walls of the academic institution.

Jefferson and Cheyney will partner initially on a research project to analyze health disparities among diverse communities in the Philadelphia region. The two historic institutions also will develop a series of agreements to provide new opportunities for Cheyney University students to pursue graduate degrees at Jefferson in a variety of healthcare fields.

“Today, a ZIP code is a better predictor of life expectancy than genetic code. Universities, health systems and communities can no longer shrug our shoulders and accept these health disparities as fact,” said Stephen K. Klasko, MD, MBA, president and CEO of Thomas Jefferson University and Jefferson Health. “By joining Cheyney University and President Walton in launching its Institute for the Contemporary African American Experience, we are creating urgency around this pressing issue, engaging Cheyney students in researching community needs and working toward health equity in our neighborhoods.”

In addition to providing a vehicle through which to study contemporary issues affecting American society, the institute also will directly benefit Cheyney University students and faculty by providing opportunities for both to develop and participate in important research projects, including the one with Jefferson.

The Jefferson project will engage faculty, research staff and students on both campuses to initiate a Community Health Needs Assessment to identify the dominant health needs of African American communities in the Philadelphia region. Efforts may also inform work of the Philadelphia Collaborative for Health Equity, a recently launched initiative to close health disparities gaps in Philadelphia.



(Left to Right) Fran and Dick Gozon, Adam Dicker, Marion Siegman, Judith and Mark Tykocinski, Alex Vaccaro, Raj Aggarwal, Zvi and Hava Grunwald, Elizabeth Dale, Steven McMahon at Charles Bronfman Auditorium in Jerusalem, prior to a performance by the Philadelphia Orchestra.

Jefferson Israel Center Connects Education, Healthcare, and Innovation

The strains of the string quartet softly rose and filled the ballroom at the King David Hotel in Jerusalem on June 5, 2018. It was a special performance by members of the Philadelphia Orchestra as part of its tour of Israel, and served as the crescendo to a unique partnership. After years of collaboration between Jefferson and Israeli healthcare, education, and technology organizations, the Jefferson Israel Center was celebrating its official opening.

The Center, one of several Jefferson global centers around the world, is the culmination of longtime public and private partnerships between Jefferson and Israeli universities, hospitals, centers of technology, and government agencies. It serves to strengthen academic ties between Thomas Jefferson University (including the Sidney Kimmel Medical College) and Israeli institutions of medicine, research, architecture, engineering, design, textiles, and fashion.

Adding to existing partnerships with institutions including the Weizmann Institute of Sciences, Technion-Israel Institute for Technology, Hebrew University of Jerusalem, Tel Aviv University, and Ben Gurion University, Jefferson signed memorandums of understanding with major medical centers—including the Haddassah Medical Center in Jerusalem, Sheba Medical Center in Ramat Gan, and the Sourasky Medical Center in Tel Aviv. An educational program to host senior medical students from Hebrew University at a “medical boot camp” at Jefferson’s clinical campuses has been ongoing for three years.

At the inauguration ceremony for the new Center, Mark L. Tykocinski, MD, provost and executive vice president of academic affairs, Thomas Jefferson University, and the Anthony F. and Gertrude M. DePalma Dean of the Sidney Kimmel Medical College and Dr. Ami Appelbaum, chairman of the board of the Israel Innovation Authority (IIA) signed a letter of intent between Jefferson and the IIA to develop healthcare start-up companies in Israel. The IAA has promised an unprecedented \$1 million investment in the endeavor.

The opening of the Center was widely covered by the media in Israel, introducing Jefferson to a larger audience and expanding the opportunity for international collaboration. This kind of global outreach not only expands Jefferson’s expertise and innovation beyond its local footprint, it also allows Jefferson to learn from what others are doing in education and healthcare in other parts of the world, according to Tykocinski. He notes that the collaboration is part of Jefferson’s mission to create unparalleled academic experiences for students in healthcare, education, and research, while also making a difference in the world and improving lives.

“By reaching across the world to join forces with similar institutions, Jefferson is increasing its capacity to find solutions to the world’s most pressing problems,” Tykocinski says. “In doing so, we are giving life to Jefferson’s vision for redefining humanly possible.”

Jefferson Researcher Explores Cell Death Controls and Effects

Emad S. Alnemri's breakthrough work may yield a powerful new way to kill cancer

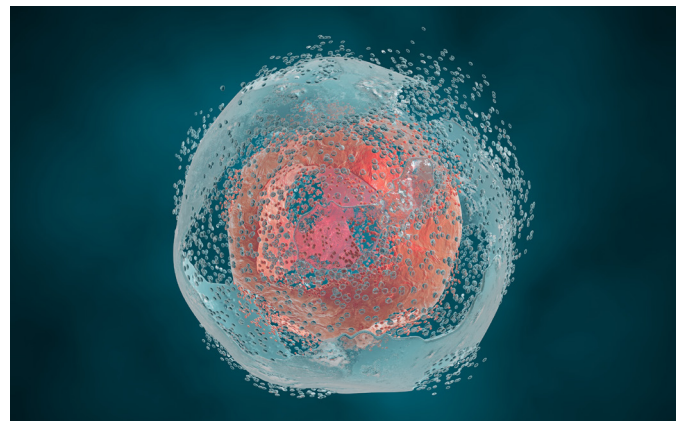
By Robin Warshaw

Programmed cell death, or apoptosis, is a fundamental process in all animals. Caused by the molecular triggering of biochemical reactions encoded within cells, apoptosis enables the digits of a human hand to emerge from a cell mass, protects the body from autoimmune diseases by removing certain white blood cells that could attack it, and even kills some transformed cells before they become cancer.

Impaired regulation of this cellular "suicide" can affect everything from embryonic development to the appearance and progression of devastating conditions such as cancer and Alzheimer's disease.

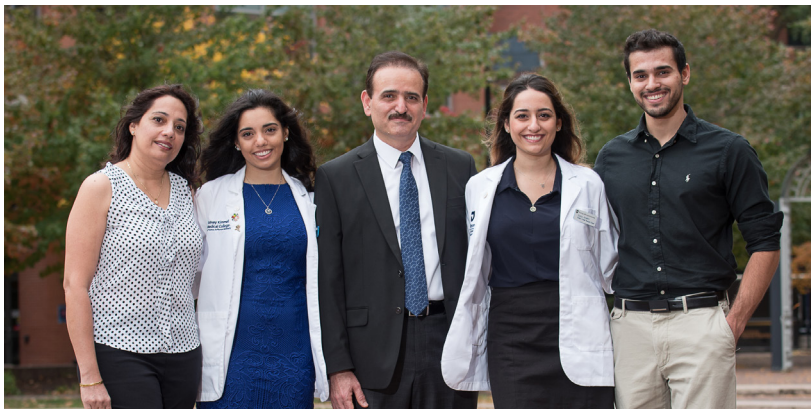
Discovering the basic mechanisms, pathways, and controls of cell death is important for exploring approaches to treatment. "If you understand how the machine works, then you can fix it," says Emad S. Alnemri, PhD, Thomas Eakins Endowed Professor in the Department of Biochemistry and Molecular Biology at Thomas Jefferson University.

"We are trying to find out every piece of this apoptotic machinery, to know what is going on in there, what the players are and how



we can manipulate them," says Alnemri, who is also a researcher at the Sidney Kimmel Cancer Center at Jefferson Health (SKCC).

Alnemri has led many projects during his 27 years at Jefferson, including investigations of caspases, protease enzymes that break down proteins to trigger apoptosis and inflammation. Caspases cleave or split cellular proteins, which dismantles cells and generates inflammatory cytokines.



signals that prompt immune action. “We believe that this protein plays an important role in the ability of dying cells to stimulate the immune system,” Alnemri says.

He recently received \$3 million from the National Institutes of Health (NIH) and \$300,000 from the Dr. Ralph and Marian Falk Medical Research Trust to study DFNA5 further. Researchers have already found that DFNA5 is silenced, or turned off, in many cancers. Alnemri and his team will look at DFNA5’s role as an immune system stimulator to kill cancer cells. Learning to control its activity could lead to advances in cancer immunotherapy.

Guided by the discovery of the first death protease in the nematode worm by H. Robert Horvitz, PhD, of MIT, Alnemri decided to look in human cells to see if they have a similar death protease. He discovered caspase-3, which he calls “the workhorse of all cell death.” That finding was followed by the discovery of six more human caspases, including caspase-8 and caspase-9, known as initiator caspases, which split and activate caspase-3. Further research showed how mitochondria release molecules that jump-start caspase-9 into stimulating caspase-3 to kill the cell.

“We’ve looked at each caspase and found its function. We’ve characterized the important mechanisms that regulate cell death in human cells, what triggers them and what’s upstream of them,” Alnemri says. “Now, although it has been more than 22 years since the discovery of caspase-3, we’re still discovering new things that this caspase does.”

Alnemri came to the United States in 1985 after graduating summa cum laude from the University of Jordan, with a Master’s degree in biochemistry. He joined the lab of Gerald Litwack, PhD, at the Temple University School of Medicine, where he received his PhD in biochemistry and molecular biology. He decided to stay in the United States because, at the time, there were few advanced research opportunities in Jordan. “And I love research,” he says.

In 1991, when the SKCC was established, Alnemri came to Jefferson. Since 1995, his research has been well-funded by private and NIH grants.

His discoveries have helped advance the cell death field. Alnemri has authored or co-authored about 180 peer-reviewed publications, holds more than 20 patents, and has mentored more than 30 trainees. His work has been cited more than 66,000 times, according to Google Scholar. In 2013, he was identified as one of the top 400 highly influential biomedical researchers evaluated from 1996 to 2011.

Two years ago, he and a team of Jefferson researchers found that the protein DFNA5, when split and activated by caspase-3, can form pores in the cell’s plasma membrane. This releases danger


The research looks promising, Alnemri says, because a similar protein, gasdermin D, also makes pores in the cell membrane when activated by inflammatory caspases during bacterial infection. This causes infected immune system cells to swell and burst, releasing potent immune signaling mediators and substances that could lead to septic shock.

Some of the Jefferson research on DFNA5 was described in a 2017 study published in *Nature Communications*. The researchers collaborating with Alnemri on that work included Teresa Fernandes-Alnemri, PhD, research assistant professor in the Department of Biochemistry and Molecular Biology at Jefferson. Teresa and Emad are married, and their daughter Diana was also on the team. Now a first-year student at SKMC, at the time the study was published she was an undergraduate at Pennsylvania State University, where her honors research project was focused on inflammation.

The Alnemris’ older daughter, Angela, is a second-year SKMC student, while their son, Ahab, is an undergraduate neuroscience major at the University of Pennsylvania. “All three are interested in medicine and research,” says Alnemri, with understandable pride.

His lab is also researching the activity and regulation of inflammasomes, molecular complexes of proteins that trigger responses by activating inflammatory caspases 1, 4, and 5. Alnemri notes that inflammasomes cause pyroptotic or inflammatory cell death, a form of programmed cell death that differs from apoptosis.

His work on inflammasomes started more than a decade ago when he characterized pyrin, a protein that forms an inflammasome complex involved in familial Mediterranean fever disease. He later discovered the AIM2 inflammasome, reporting his findings in successive papers in *Nature* and *Nature Immunology*.

“We are trying to find out how inflammasomes are regulated during infection and during sterile inflammation,” Alnemri says. “If we figure that out, you can develop therapeutics that target important steps in the inflammasome pathways and use these therapies to treat inflammatory disease.” 

2018 ALUMNI WEEKEND



On the weekend of October 27–28, 2018, alumni descended on Jefferson’s campus for a weekend of reminiscing and refreshment. Through campus tours, meet-and-greets, and reunion events, they got a chance to see what’s changed and observe all that’s stayed the same. Reviews are in and the weekend has officially been declared a success...read on to catch the highlights.

SAVE THE DATES!
Alumni Weekend 2019
October 25–26

1. 25-Year Reunion Class at the Reunion Dinner. Seated: Liza De Los Santos- DeAnnuntis, MD '93, Kimberly Jones, MD '93, Lisa Winer Pinheiro, MD '93. Standing: Greg Christiansen, MD '93, Dean Otto, MD '93, Hermann Moreno, MD '93, Kurt Crowley, MD '93, David Manuel, MD '93, Mark Syms, MD '93

2. Jack Frost, MD '68 travelled from Alaska to attend his 50-year reunion. Here he is receiving his 50-Year Society pin with Nicholas Ruggiero, MD '01, SKMC Alumni Association president and Mark Tykocinski, MD, dean of SKMC.

3. Morris Orocofsky, MD '68, Mary Palascak, Joseph Palascak, MD '68

4. The 25-Year Reunion Class at the Welcome Reception: David Manuel, MD '93, Greg Christiansen, MD '93, Kimberly Jones, MD '93, Mark Syms, MD '93, Hermann Moreno, MD '93

5. The 30-year reunion class at the Welcome Reception. Randolph Wong, MD '88; Bruce Decter, MD '93; Patricia Curtin, MD '88, Reunion Committee Member; Thomas Londergan, MD '88; Philip O'Donnell, MD '93; Patricia Brumbaugh, MD '88, Reunion Committee Member



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ALUMNI WEEKEND



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6. Alumni Achievement Award recipient, Joseph R. Berger, MD '74, addresses guests at the Dean's Luncheon and Alumni Awards Presentation.

7. Hal Yocum, MD '68, Reunion Committee Member, proudly displays his Jefferson socks.

8. Jack Frost, MD '68 and Raphael DeHoratius, MD '68, Reunion Committee Member, at the 50-Year Society Pinning Ceremony

9. Robert Stein, MD '68 (right), presents the Reunion Giving Campaign check to Mark Tykocinski, MD.

10. Celebrating their 10-Year Reunion: Chris Pagnani, MD '08, Stacey Massey, Patrick Massey, MD '08, Mark Binkley, MD '08, and Laura Binkley

11. Patricia Curtin, MD '88, Reunion Committee Member; Bruce Decter, MD '88; Patricia Brumbaugh, MD '88, Reunion Committee Member; and Randolph Wong, MD '88



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18

12. The Class of 1968 celebrates their 50-Year Reunion at the Reunion Dinner.

13. David Rosenman, MD '68, Reunion Committee Member, and George Titomihelakis, 2021

14. Hal Yocum, MD '68, Reunion Committee Member, with Howard Sabarra, MD '68, and Deborah Sabarra

15. Greg Slachta, MD '68, signs the Register of the Jefferson Alumni in the Pinizzotto-Ammon Alumni Center.

16. Dana Suskind, MD, is presented with the Distinguished Alumni Award on behalf of her late husband, Donald Liu, MD '90. She is pictured with Mark Tykocinski, MD, and M. Dean Kinsey, MD '69, chair, Alumni Awards Committee.

17. Joseph R. Berger, MD '94, Alumni Achievement Award recipient, with Sandra Berger, M. Dean Kinsey, MD '69, and Katherine Kinsey, DN '63.

18. Morris Orocofsky, MD '68 with Howard Sabarra, MD '68 and Deborah Sabarra as they embark on the Taste of Philadelphia Trolley Tour.

2018 Alumni Achievement Award Winner



JOSEPH R. BERGER, MD '74, FACP, FAAN, FANA

Joseph R. Berger, MD '74, FACP, FAAN, FANA, is Professor of Neurology and Co-Director of the Multiple Sclerosis Division at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia.

He held the Whigham-Berger Endowed Chair for the study of the neurological complications of HIV/AIDS, the first endowed chair for studies of this kind, while on the faculty of the University of Miami School of Medicine.

Throughout his career, Berger has been a leader in numerous professional organizations, co-founding and chairing the Neuroscience of HIV Meeting—the first international conference on the neurological complications of HIV—and establishing the Commonwealth Neurological Society for neurologists in the state of Kentucky. He is a fellow of the American College of Physicians, American Academy of Neurology, and the American Neurological Association.

Berger has a longstanding interest in international health and was one of the founding members of People-to-People, an organization for HIV/AIDS care and education in East Africa.

2018 Distinguished Alumni Award Recipient



DONALD LIU, MD '90, PHD (1962–2012)

The Distinguished Alumni Award was established in 2017 to honor alumni posthumously for a lifetime of achievement, for contributions to their profession or field, and for service to the community and to humanity at large.

Donald Liu, MD '90, PhD (1962–2012), was section chief of pediatric surgery and surgeon-in-chief at University of Chicago Medicine (UCM) Comer Children's Hospital.

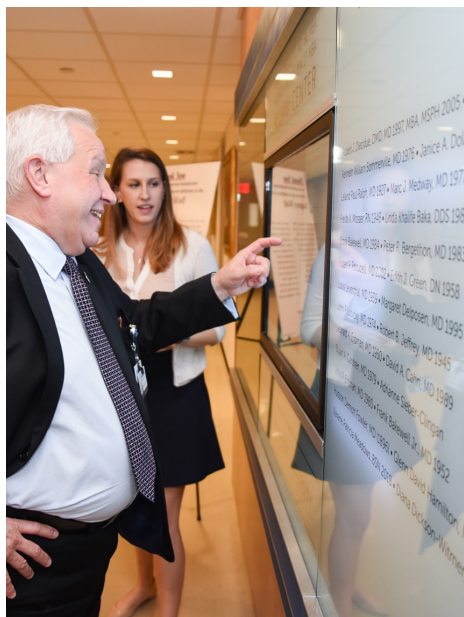
Liu's substantial body of work spans many areas of medical practice, including minimally invasive surgery, the human microbiome, and surgical treatment of intestinal disease. He helped develop a formal affiliation between Comer Children's Hospital and Shanghai Children's Medical Center through Project HOPE. The collaboration trained numerous international fellows who have become institutional leaders in China. For his efforts, he was honored with an endowed chair at Shanghai Jiao Tong University School of Medicine.

His colleague John Alverdy, MD, vice chair of surgery at UCM, said of Liu, "If you were a baby's mother, this is the doctor you would want to care for your child from beginning to end. He was compassionate, funny, unquestionably competent—one of the best in the field."

In 2012, Liu drowned while rescuing two boys caught in rough waves in Lake Michigan. He lost his life doing what he loved, what he did nearly every day since graduating from Jefferson: saving kids.



Come visit the new Pinizzotto-Ammon Alumni Center



Jefferson Alumni Hall
1020 Locust Street
Philadelphia, PA 19107

Open Monday – Friday
8:15 a.m. – 5 p.m.



ALUMNI PROFILE





NEW ALUMNI ASSOCIATION PRESIDENT

Nicholas J. Ruggiero, II, MD '01, has been fraternizing with Jefferson alumni since he was a child growing up in West Pittston, Pennsylvania. His father, Nicholas J. Ruggiero, MD '66, hosted the annual Wyoming Valley Alumni dinners in Wilkes-Barre.

"The thing that always amazed me was how excited people got to interact with fellow Jeffersonians," Ruggiero says. "And also how proud people were to be Jeffersonians."

As the new SKMC Alumni Association president, Ruggiero would like to reinforce and reignite that feeling he witnessed in Jefferson alumni. This has involved a bit of restructuring to engage more active alumni around the country in organizing local events, as well as representing their regions at executive board meetings and national specialty meetings.

"My goal is that when we come out of this restructuring, which we would hopefully have done by early 2019, we can rebuild and redevelop these local alumni pods, if you will, to increase people's enthusiasm and increase people's love and connection to Jefferson in that way," he says.

He would also like to reinstate old alumni traditions such as an alumni mentoring program for students, and include student members on alumni committees. "We are going to do things to try and strengthen those relationships, to let the students know that the alumni are there for them, and alumni will be there to help them grow in their professional career."

Ruggiero, associate professor of medicine at SKMC and director of Structural Heart Disease and Non-Coronary Interventions and the Jefferson Heart Institute Vascular Laboratory, was primed for a medical career by those early positive interactions with Jefferson alumni, which include an

By Eugene Myers



uncle and a cousin. His dad was the most powerful influence and a role model for a great physician. He used to bring young Ruggiero with him on house calls, where the boy learned “how to have compassion and treat every patient as you would want a family member treated.”

Ruggiero also had another life-changing experience at the age of 12 that opened his eyes to medicine—as a patient. He broke his femur during a basketball game, which led to a diagnosis of a bone tumor just above his knee. He was told he would have to lose the leg, but the family got a second opinion at Children’s National Medical Center, where a doctor said he could save the leg, and did so after multiple surgeries.

“There’s no better way of becoming a doctor than being a patient,” Ruggiero says. “When it’s your rear end hanging out of the gown, it gives you a really good understanding of things.”

Once he had settled on becoming a doctor, there was no question where he would attend medical school. “We are a pretty tried-and-true Jefferson family. And my father was the most dedicated Jeffersonian there is; of anybody who bled black and blue, it was him.”

Ruggiero was set on specializing in orthopaedic surgery, but during his four years of medical school, he realized he wanted to focus on a cardiac field, like his father. He stayed on at Jefferson for a residency in internal medicine, served as chief medical resident for a year, and then completed general cardiology fellowship in 2008. He proudly points out, “My father and I were the first father-son fellows who graduated from the same program in the same department. He finished I think in 1971 or ‘72.”

Ruggiero then went to Boston for two interventional cardiology fellowships at Harvard Mass General Hospital, and in 2010 he brought back to Jefferson the skills he’d learned there—including coronary and peripheral stenting, transcatheter aortic valve replacement, and transcatheter mitral valve repair.

“My job is to do all the procedures on the heart that before required open surgical procedures,” Ruggiero says. “So catheter-based approaches like replacing the aortic valve, repairing the mitral valve, or closing holes in patients who were born with holes in the heart. One of my colleague says it’s sort of high-tech interior design.” Among his other roles, Ruggiero is also associate program director for the cardiology fellowship.

When Ruggiero isn’t treating patients, saving lives, and revitalizing the Jefferson alumni community, he likes to spend his scant free time with his family. “My wife and my three-and-a-half-year-old are the be-all and end-all,” he says. In addition to playing with dolls and watching Disney movies with them every chance he gets, his hobbies include playing golf and making wine.

“One of my patients actually had a bobblehead made of me listening to a wine barrel, because he knows that I like to make my own wine.” This gesture underscores how much Ruggiero’s patients appreciate the earliest lessons he learned from his father, as a patient, and as a Jefferson medical student.

“I think that the big thing that we all love about Jefferson is that, even though we’re extremely progressive and we’re doing a diversity of things, we still have a firm hold on the clinical values that we were taught as medical students here,” Ruggiero says. “It’s that each patient is treated as a patient, as a family member and not a disease or a number or a procedure, and we make sure that we continue that philosophy of medicine that sees care with caring as the most important thing.”

NEW BOOKS



Learning About X-rays With Lula and Ethan (Second Edition)

Luther B Adair, II, MD '12 Fel., and Seth Crapp, MD

Published August 2018, Viewbox

Learning about X-rays With Lula and Ethan is based on one young child's playground injury and the subsequent head CT requested by the child's treating physician during a hospital visit. The book is written for children age 7 and older and attempts to create a dialogue to help educate kids (and parents) about both the value of a CT in certain circumstances and potential concerns regarding radiation exposure.

Based on readers' comments, the second edition of this book has been slightly

changed, including a two-minute survey via a link on the book's last page to look for further improvements in explaining simply what is sometimes complex medical care.

Since 2010, Viewbox Holdings, LLC, has created educational resources for trainees, patients, and consumers. The book is available for any Apple device as a free download in iBooks, as well as in hardcopy format at viewbox.net, where lead author Luther Adair, II, MD, also can be reached.

SKMC alumni and faculty authors: Let us know about your new and recent books and novels by emailing a high-resolution cover image, publication information, and a brief description to editor@jefferson.edu.

WHAT'S NEW?

To submit a class note or obituary for the *Bulletin*, contact the Office of Institutional Advancement:

BY PHONE

215-955-7751

BY EMAIL

EDITOR@JEFFERSON.EDU

BY MAIL

125 S. 9TH ST., SUITE 600
PHILADELPHIA, PA 19107

E-NEWSLETTER SIGN-UP

Keep up with the latest and greatest goings-on at Jefferson with our monthly University e-newsletter, which features news, articles, and events you won't want to miss!

Sign up at jefferson.edu/newsletter.

CLASS AGENT



"After graduating from Jefferson in 1995, I completed my residency there and a fellowship five years later, and am now in my 17th year at Jefferson as professor of neurological and orthopaedic surgery. Being a part of the Jefferson community for nearly my entire professional career has made my role as a Class Agent meaningful and impactful. I have an opportunity to engage my classmates and encourage their participation in the very place that brought us together two decades ago."

James S. Harrop, MD '95, FACS

Chief, Division of Spine and Peripheral Nerve Surgery
Neurosurgery Director and Co-Associate Director of Acute Care, Regional Spinal Cord Injury Center of the Delaware Valley
Neurosurgery Director for Adult Reconstructive Spine

Class Agents serve as liaisons to the alumni community, working with Alumni Relations programming and reunions to enhance alumni engagement, participation, and support of Jefferson.

These volunteers foster personal and meaningful connections between classmates and Jefferson.

If you are interested in becoming a Class Agent, please email alumni@jefferson.edu or call 215-955-0977.

CLASS NOTES

'59

Matthew N. Boulis writes that he visited Iceland in December 2017 with his son and grandchildren: "Fun, but very cold. Winter wonderland."

'61

Sheldon Amsel writes, "Until retirement in 2011, I spent 37 years at the University of Maryland Medical School and Hospital in Baltimore, Md., primarily practicing and teaching internal medicine. In retirement I continue to paint, an activity I started while at Jefferson, taking night classes at the Fleisher Art Memorial (within walking distance of Jeff). Shelleyamsel.com is my website. Currently I live in Cockeysville, Md. with my wife, Patti."

'67

Anthony ("Tony") Chiurco took first place in the traditional 12-metre class at the 2018 Race Week at Newport presented by Rolex, hosted by the New York Yacht Club from July 16 to 21. Now in its 11th year, this biennial race week—upholding a rare tradition in this day and age—is a favorite of sailors for its spectacular sailing conditions, onshore hospitality, and great race management provided by the Club's all-volunteer race committee. While previous events featured two parts, in the 2018 regatta all competing yachts raced simultaneously. Chiurco was skipper and helmsman of the historic, America Cup-winning Columbia US-16. His son Coleman, a senior at the Hun School of Princeton, who also served as crew on the victorious vessel, accepted the Newport Trophy from Commodore Phil Lutz on their behalf.



'70

W. Clark Lambert continues to work part-time at Rutgers University – New Jersey Medical School (Rutgers – NJMS), Newark, N.J., where is emeritus professor of Pathology and Medicine. An award for meritorious medical student research at Rutgers,

the Lambert and Weiss AOA Research Recognition Award, has recently been renamed in his honor (jointly with Stanley Weiss, MD (BA Yale, MD Harvard), who developed the award with him. Eleven students won this award in 2018 and were honored on Class Day, May 9, 2018. Clark works with his wife, Muriel, who is professor of Pathology at Rutgers – NJMS.

Ronald J. Palmieri writes, "Enjoying retirement in Lakewood, N.J.—playing golf, bocce, shuffleboard. Spending lots of time with my two grandsons, Aidan, 9, and Liam, 7. Encouraging them to attend Jefferson. We'll see!"

'75

Arthur St. André continues to enjoy the practice critical care part-time at the MedStar Washington Hospital Center in Washington, DC, and to provide operational excellence consultant services to MedStar Health. At the most recent annual meeting of the Society of Critical Care Medicine, he was inducted as a Master of Critical Care Medicine.

'78

Norman G. Rosenblum is currently at Jefferson as professor of Obstetrics and Gynecology and director, Division of Gynecologic Oncology, SKMC.

'81

Guy Giordano writes, "After 25 years in Williamsport, Pa., my wife and I have relocated to Thornton, Colo., to be close to some of our children. I will be working for MedExpress in Longmont, Colo. My email is giordoc@comcast.net.

'82

Richard Lorraine is the medical director of the Montgomery County Health Department and continues in the private practice of internal medicine. He is the president and lead physician of Harleysville Medical Associates and has served as principal investigator in over 100 clinical trials. He also is commissioned as a lieutenant colonel in the PA Air National Guard and has had three overseas deployments as leader of a Critical Care Air Transport Team. He currently commands the 193rd Special

Operations Medical Group Detachment 1 (3rd CBRN Task Force). Recently, he was the keynote speaker at the annual membership dinner of the Montgomery County Medical Society, where he presented "Serving Our Nation's Heroes," based on his article published in the fall 2017 edition of MCMS Physician at <http://www.nxtbook.com/hoffmann/MCMSPhysician/MCMSPhysicianFall2017/index.php#/8>

CLASS NOTES

'06

Patrick Bering writes that he joined the Cardiology faculty at Medstar Washington Hospital Center in August 2018 as a cardiac imaging specialist in echocardiography and cardiovascular MRI. "My wife, Amanda, who recently gave birth to our first daughter, Matilda, told me it was 'about time to get a real job' after having completed a cardiology fellowship, where I served as chief fellow at University of Maryland Medical Center in Baltimore, which was followed by an advanced cardiac imaging fellowship at UPMC Presbyterian Hospital in Pittsburgh. Fond greetings and wishes for success and happiness to my classmates!"

'15

Laura Livaditis joined the Franciscan Children's Pediatric Primary Care Clinic in Boston, Mass. in July as a primary care pediatrician. In her role, Laura is responsible for providing preventive and urgent care for outpatients.

"Each member of the Franciscan Children's Pediatrics team is dedicated to delivering excellence in care to every family who walks through our doors," said Dr. Paul Geltman, MD, MPH, medical director of Ambulatory Care Services. "Dr. Livaditis is a valuable addition to our team as we seek to increase the availability of our outpatient services to the community. She brings with her impressive experience with children from all walks of life and cultural backgrounds, including work with children in rural Haiti to Native American families in Arizona."

After graduating from SKMC, Laura completed her pediatrics residency at Johns Hopkins Hospital. Laura is also focused on medical writing, medical education, advocating for incarcerated youth, enhancing patient-provider communication and utilizing electronic medical record technology to optimize preventive care.

IN MEMORIAM

'43

Edwin J. Levy, 94, of Wynnewood, Pa., died February 20, 2013. Edwin was predeceased by his wife, Frances. He is survived by his children, Jill and Richard; grandchildren, Sari, Jenna, Jeffrey, Lee, and Jordan; grandson, Nolan; and siblings Barbara and Warren.

William "Bill" H. Whiteley, III, 99, of Mullica Hill, N.J., died July 1, 2018, hours shy of his 100th birthday. Bill, an honor graduate, became the first neurosurgical resident at Jefferson and worked under Dr. Rudolph Jaeger in 1944. After service in World War II as a lieutenant in the U.S. Army, he took post-graduate work in neurosurgery and rose in academic rank to clinical professor. For a time he was the personal assistant to Jaeger and aided in preparation of color motion pictures of neurosurgical operations that were shown at national meetings. Bill was also a member of the Schaeffer Anatomical League at Jefferson Medical College.

Bill spent his entire career practicing medicine at Thomas Jefferson Hospital. He also served on the staff at Will's Eye and Methodist Hospitals in Philadelphia, as well as the Veteran's Hospital in Coatesville. He contributed to neurosurgical literature, produced many scientific exhibits, and was active in the societies of his specialty. In the Christian Medical Society he served as National President in 1948 and 1961.

Bill was preceded in death by his former wife, Margaret Flach. He is survived by his wife, Barbara Perkins; children, William, Margaret, Nancy, and Susan; grandchildren, Seamus, Ryan, and Lauren; and three great-grandchildren.

'49

Sanford M. Goodman, 95, of Rydal, Pa., died May 2, 2017. He was a veteran of both World War II and the Korean conflict. He opened his practice in 1953 in Roslyn, Pa., and was on staff at Abington Memorial Hospital for 37 years. He was belovedly known as "Roslyn's doctor," taking care of most in the community. He was physician-in-chief of Family Practice at Abington Memorial Hospital from 1981 to 1986, during which time he helped train the medical residents. He was an executive board member of the hospital from 1979 to 1985, a charter diplomat of the American Board of Family Practice, and a fellow of the Academy of Family Practice.

Sanford is survived by his wife, Ina; children, Philip, David (JMC '83, Anesthesiology '87), and Judy; seven grandchildren (including Andrew SKMC '18), and one great-grandchild.

'51

Frank A. Carroll, 92, of Alexandria, Va., died June 15, 2016. He was a family physician in Alexandria for 50 years. He served in the U.S. Army during World War II, earning a Purple Heart medal for being injured in the Battle of the Bulge.

Frank was predeceased by his former wives, Suzanne Clarke and Shirley Shaw. He is survived by his children, Susie, Drew, Ellen, Megan, David, and Gail; stepchildren, Cheryl, Steve, and Martha; 26 grandchildren; and nine great-grandchildren.

'52

Henry Stuart ("Hank") Trostle, 95, of Wallingford, Pa., died July 15, 2018. He was born and raised in Wernersville, Pa., and graduated from Muhlenberg College before enlisting in the U.S. Navy during World War II. After receiving an honorable discharge, he attended Jefferson Medical School, during which he joined the Naval Reserve through the V-12 program and, upon graduating, was commissioned as an officer. He had numerous accomplishments and duty stations over a 38-year naval career, culminating in the rank of captain. Highlights of his career include qualifying and serving as a naval flight surgeon, a member of the medical staff for Project Mercury, senior medical officer on the USS Enterprise during the Vietnam War, commanding officer of the Naval Aerospace Medical Institute, medical officer of the Atlantic Fleet Marine Force, and head of the Aeromedical Division of the Naval Safety Center. After his naval career he went into civilian medical practice, retiring for the second time at the age of 85.

Known for his sly humor and affable nature, Hank made friends everywhere he went. He is survived by his wife, Mary; his son, Henry; grandchildren, Melanie and H. Stuart; and great-grandchildren, Ivan and Eloise.

'53

Walter Dalsimer, 89, of West Lafayette, Ind., died September 9, 2017. Upon graduation from Jefferson Medical College he was in the Army, stationed in Panama as a base physician during the Korean War. He next became a child psychiatrist and practiced in the Philadelphia area until retirement. Walt enjoyed camping and many adventure expeditions, including seeing icebergs in Antarctica, petting whales in Baja, Cal., and viewing many creatures on



Richard H. Rothman, MD, PhD '67 | 1936 – 2018

Husband, Father, Grandfather, Surgeon, Teacher, Researcher, Mentor, Inventor, Philadelphian

Dr. Richard Rothman was a peerless visionary in orthopaedics who never deviated from his core principle of patient-centered care.

Clinically, Dr. Rothman was unrivaled. During his distinguished career, he performed or supervised more than 50,000 total hip and total knee replacements, many at Thomas Jefferson University Hospital.

Dr. Rothman took tremendous pride in education and research. He taught medical students at Jefferson and at Jiao Tong University in Shanghai. During his leadership as Professor of Orthopaedic Surgery at Jefferson, he developed the Rothman Institute into one of the preeminent destinations for orthopaedic joint arthroplasty fellowship training. Researchers from the organization annually present the greatest number of peer-reviewed papers, posters, and podium presentations at the American Academy of Orthopaedic Surgeons, the world's largest orthopaedic meeting. The Rothman Orthopaedic Institute at Jefferson ranks among the top ten in grants from the National Institutes of Health.

Dr. Rothman served as vice chair of the Board of Trustees at Thomas Jefferson University and was a trustee of the University of Pennsylvania and the Brandywine River Museum of Art. He was also on the board of trustees as a senior adviser for the Riverside Corporation, a private-equity firm in New York City, and taught medical students not only at Jefferson but at Jiao Tong University in Shanghai as well.

Dr. Rothman was a proud Philadelphian. A native of Cheltenham, he graduated from Cheltenham High School and attended the University of Pennsylvania, where he obtained a BA in history along with a degree in medicine. He earned a PhD in anatomy at Thomas Jefferson University and remained in Philadelphia, serving mainly at Jefferson for his entire orthopaedic career.

Dr. Rothman befriended presidents and ambassadors, treated his office staff and operating room team like family, mentored students, and cared for patients from every walk of life. His greatest love was for his wife, Marsha, and his children. He will be sorely missed.

By Alexander R. Vaccaro, MD, PhD, MBA
Richard H. Rothman Professor and Chair
Department of Orthopaedic Surgery
President, Rothman Orthopaedics

a safari in Tanzania. In 1995 he retired and relocated to West Point, Ind., to be close to family. Walt is survived by his wife, Emma; four children; 11 grandchildren; and 10 great-grandchildren.

Leonard Klinghoffer, 90, of Philadelphia, died June 7, 2018. He served in the U.S. Army in Korea and graduated Phi Beta Kappa from the University of Pennsylvania. After receiving his medical degree from Jefferson Medical College, he completed his residency in orthopedic surgery at Jefferson and spent more than 50 years in private practice.

Leonard is survived by his wife, Barbara; his children, Nancy, Andy, and Joanne; and grandchildren, Alison, Jonathan, Isabelle, Jonah, Luca, and Benjamin.

'58

Arnold Singer, 84, of Lakeworth, Fla., and Voorhees, N.J., died May 19, 2018. He was an obstetrician and gynecologist in the South Jersey area, where he delivered thousands of babies in his career. He loved medicine, his work, and his family. He was predeceased by his wife, Ruth. He is survived by his four children and nine grandchildren.

'59

Peter J. Andrews Sr., 94, of Wilkes-Barre, Pa., died April 8, 2018. He was a member of the U.S. Army from 1943 to 1946, serving in the Pacific during World War II. He did a medical internship at Mercy Hospital of Wilkes-Barre from 1959 to 1960, then was in private practice in family medicine from 1960 to 1999, with his office in the Miners Mills section of Wilkes-Barre. He served on the medical staffs of Mercy Hospital, Wilkes-Barre General Hospital, Nesbitt Memorial Hospital, and Valley Crest Nursing Home. He was also a longtime school physician in the Wilkes-Barre School District and team doctor for the Coughlin football team. Peter received awards of appreciation from both Mercy Hospital of Wilkes-Barre and the Pennsylvania Medical Society for 50 years of medical service in 2009.

Peter was preceded in death by his siblings, Mary, Anthony, and Paul. He is survived by his wife, Nicolina Finocchiaro; children, Annamarie, Patricia, Saralyn, Nicole, Peter, Paul, Andrews, John, and Joseph; and 21 grandchildren.

'61

Jack Klein died March 10, 2018. His son Adam Klein, MD '92, an orthopaedic surgeon at WVU Medicine, writes, "He was a proud graduate of Jefferson, which is why I went there."

Carl Major Mansfield, 89, of Philadelphia, died January 11, 2018. He is survived by his wife, Sarah Flower; children, Joel and Kara; and grandchildren, Gabriel and Elijah.

'64

Robert B. Burns, 84, of Great Meadows, N.J., died April 25, 2018. Born and raised in Philadelphia, he served as an interpreter in the Army, after which he graduated from St. Joseph's College. After graduating from Jefferson Medical College, he spent a year as a research fellow in pharmacology and cardiology. He had a distinguished career in pharmaceutical research, working for Sandoz (Novartis) as director of Clinical Research, and Wyeth-Ayerst as vice president, Clinical Research. He was instrumental in bringing numerous drugs to market. Following early retirement, he remained active as a consultant. He also coordinated and set up a cataract surgery clinic with S.E.E. International in Namibia.

Robert is survived by his wife, Cynthia; children, Bennett, Stephanie, and Gregory; and eight grandchildren.

Arnold O. Steffens, 78, of Ambler, Pa., died March 10, 2017. After graduating from JMC, he completed a year's rotating internship at Abington Memorial Hospital and then served as a general medical officer in the U.S. Air Force. Arnold returned to Abington Memorial Hospital for a residency in obstetrics and gynecology. He worked and served as a board-certified OB-GYN on the staff of Abington Memorial Hospital for 33 years, during which time he delivered over 4,000 babies and cared for generations of women. Arnold was a member of the American Medical Association and the Pennsylvania Medical Society. In 1983 he received the honor of being inducted into the Chapel of the Four Chaplains.

Arnold was an active member of Upper Dublin Lutheran Church, the family's church home for 41 years, where he served as an usher and a mentor to youth. He also enjoyed meeting and sharing with junior and senior students at Germantown Academy, the school his children attended, on career days. Arnold loved all sports, particularly baseball, and in 1992 he was elected as Lower Montco American Legion Baseball Commissioner.

He is survived by his wife, Olivia; children, Paul, Mark, and Laura; and grandchildren Henry, Sarah, Helen, Amelia, Seamus, and Keelyn.

'65

John Cashman, 79, of Wilmington, N.C., died March 3, 2018. He grew up in Warren, Pa.; was a graduate of Phillips Academy, Andover, Mass.; the University of Chicago; and Jefferson Medical College. He served his internship in Harrisburg, Pa., and a urology residency in Cincinnati.

In 1970, John moved to Charleston, S.C., where he was head of Urology at the U.S. Naval Hospital and completed his service as a lieutenant commander. He moved to Wilmington to join Hanover Urological. John was a diplomate of the American Urological Association and a Fellow of the American College of Surgeons. He served as president of the Hanover-Pender County Medical Society, Carolina Urological, Southern Society of Urological Surgeons, and Wilmington Surg-Care. He was on the staff of the Babies' Hospital in New Hanover and served as chairman of the Department of Surgery at NHRMC. John enjoyed a caring rapport with his patients and staff and during his late illness, many came forward to tell him what a positive force he had been in their lives.

John was predeceased by his parents, Ella and William Cashman, MD '31, FACS, and by his sister, Anne. He is survived by his wife, Dianne Cobb; children, Nancy and Patrick; six grandchildren, and four siblings.

'66

Col. John F. Habermel, 87, of Floyds Knobs, Ind., died March 26, 2018. He served at Bolling Air Force Base in Washington D.C., from January 1951 to 1955 during the Korean War. He later earned his medical degree from the University of Louisville, completed an internship at the University of Pennsylvania, a residency in internal medicine in Bethlehem, Pa., and a fellowship in nephrology at Thomas Jefferson University Hospital. John opened a private practice in Bethlehem and came home in 1972 to establish a 20-year private practice in internal medicine. He served as chief of staff at Floyd Memorial Hospital and operated the Floyd County Board of Health for several years.

In 1980 John joined the U.S. Army Reserve. He was activated for duty in Operation Desert Storm/Shield as commander of the 5010th

Army Reserve Hospital, completing brief missions in Jordan and Japan. After Desert Storm/Shield, John remained in the Army. He was proud of successfully completing Expert Field Medical Badge training at age 53. He retired from the Army in 1995 after rising to the rank of colonel.

John is survived by his wife, Verna Stiller; children, John, Christopher, Jeffrey, John, Karen, Donna, and Jennifer; grandchildren, Matthew, Michael, Joel, and Amy; and siblings, David and Jane.

'67

Edgar Jackson Kenton, III, 78, of Danville, Pa., died April 21, 2018. After completing an internship and residency at TJUH, he served a fellowship in neurology at Philadelphia General Hospital in 1970. His specialties were neurology and vascular neurology, especially the study of stroke. Edgar served in the Air Force for two years as the chief of neurology at the Regional Hospital on March Air Reserve, and as a consultant in neurology for medical facilities on Air Force bases throughout the Southwest. He was honorably discharged in 1972 with the rank of major.

Edgar served at various times as a professor of neurology at Temple University, a clinical professor of neurology at TJUH, and an assistant professor of neurology at Emory University in Atlanta. While on the faculty at Morehouse School of Medicine, also in Atlanta, he directed the Stroke Prevention Intervention Research Program. In 2012, he took a job as co-chair of neurology and co-director of the neuroscience center at Geisinger Health System in Danville, Montour County. He directed the stroke program before retiring in 2016.

In addition to his former wives, Sandra and Geraldine ("Mickey"), he is survived by his children, Brian and Adrienne; three grandchildren; a sister; a brother; and nieces and nephews.

Gary R. Peterson, 76, of Columbus, Oh., died August 18, 2018. Gary was a graduate of McKeesport High School; Washington Jefferson College; and Jefferson Medical School, where he was inducted into the 50-Year Society last fall. He loved medicine, especially teaching residents during his years of practice in Akron, Oh. In 1997, Gary became medical director of Doctors Urgent Care in Dayton, Oh. In 2015, he retired to Aspen Glen in Carbondale, Colo. He loved skiing, hiking, golfing, and tennis, but his favorite pastime was spending time with his grandchildren when they came to Colorado. He also enjoyed activities such as the Aspen Music Festival, the World Cup, and anything that had to do with

wine and cheese. His enjoyment for travel took him many places, such as Switzerland, Austria, Morocco, Spain, Italy, Germany, Kenya, and Tanzania.

Gary is survived by his wife, Nancy; children, Kelly and Scott; and grandchildren, Alex, Grady, Tyler, Jay, and Ashley.

'72

Beverly C. Borlandoe, 73, of Wilkes-Barre, Pa., died April 11, 2018. She had always wanted to be a doctor, and her dream was realized when she graduated from Jefferson Medical College. Inspired by a pathology faculty member, who had pictures around the classroom, she decided to concentrate on anatomic surgical pathology and dermatopathology. She also completed a clinical pathology residency and an internal medicine internship and residency. Her medical career path included travels to Boston, Honolulu, back to Philadelphia, and the Poconos. The Poconos, specifically Wilkes-Barre, Pa., became her adopted home, where she built many lifelong friendships.

Beverly's claim to fame was her winning first prize in the neighborhood talent show sponsored by the Kingsessing Recreation Center, with "Do-Re-Mi" from *The Sound of Music*. The talent show singers included children from the Kingsessing block, Frazier's, Bowser's, Darlings, Rouse's, Borlandoes, Cleveland, and Brown. Under her direction, the Kingsessing children surpassed several groups that eventually went on to sing professionally.

Beverly was a devoted and loving aunt, sister, friend, daughter, mentor, and teacher. She was always concerned for others, while going through her own challenges.

'80

Arthur "Drew" William Mellen, IV, 64, of Cherry Hill, N.J., died October 27, 2018, after a 12-year battle with myelofibrosis and leukemia, throughout which he demonstrated a level of soft-spoken determination and grit that his family will forever aspire to emulate.

After graduating from JMC, Drew completed his residency in obstetrics and gynecology at Pennsylvania Hospital, where he went on to practice as a physician for 33 years, delivering more than 7,000 babies and mentoring hundreds of residents and fellows. An avid athlete throughout his youth, he took to running in medical school. In total, he completed 17 marathons, with a personal best of 2:48. His standing offer of \$100 to any friend of his children who can beat his best time will continue to be honored by his family. He was a lifelong New York Giants fan and cherished

decades of friendly banter with his friends, patients, and coworkers—even the Eagles fans among them.

Drew was predeceased by his sister Susan. He is survived by his wife, Jennifer Metzler; children Peter, Gregory, Phoebe, and Matthew; and grandchildren, Benjamin and Tessa; siblings Lynn, Robert, M. Scott, and Christopher; and 16 nieces and nephews.



D. Walter Cohen, DDS (1926 – 2018)

D. Walter Cohen, DDS, 91, of Philadelphia, died June 29, 2018.

Cohen, a member of the Philadelphia University Board of Trustees and Academic Board, once gave this bit of advice to those entering the field of medicine: “Volunteer in your communities... help those who are underserved.” And that, says Stephen K. Klasko, MD, MBA, president and CEO of Thomas Jefferson University and Jefferson Health, sums up the life and career of one of Jefferson’s most respected citizens.

“The city of Philadelphia has lost a great philanthropic leader, and I have lost a trusted advisor, an inspiration, and a friend,” Klasko says.

Cohen joined the Philadelphia University Board of Trustees in 1999 and became a member of the Jefferson Academic Board when Philadelphia University and Thomas Jefferson University merged in July 2017. He was a strong advocate for the university and its students, and for many years sponsored the annual D. Walter Cohen Asclepius Career Day for premedical majors. In 2012, the university awarded Cohen its Leader of Innovation Award in recognition of his outstanding achievements.

Born in Philadelphia, Cohen received his undergraduate degree from the University of Pennsylvania and earned his DDS from its dental school in 1950. After a research fellowship in pathology and periodontics at Beth Israel Hospital in Boston, he returned to Penn as an assistant instructor. He later established the school’s Department of Periodontics and was its first chair. He became president of the Medical College of Pennsylvania in 1986, and then chancellor in 1993.

In 1997, Cohen founded the D. Walter Cohen Middle East Center for Dental Education at Hebrew University in Jerusalem, establishing an exchange program between students at Hebrew University and Palestinian students at the Al-Quds School of Dentistry in Jerusalem. He received the French government’s Legion of Merit, was chair of the Pennsylvania Diabetes Academy, and was president of the National Museum of American Jewish History. He received eight honorary doctorates from universities around the world.

Cohen once said that of all of his accomplishments, he was most proud of helping to create the Executive Leadership Program for Women in Academic Medicine and Dentistry (ELAM), which prepares women for leadership in academic medicine, dentistry, and public health.

“Throughout his entire life, when Walter saw a need, he mobilized the resources to address the issue head on,” Klasko says. “When it was clear to him that women were disadvantaged in being promoted to deanships and presidencies, he founded ELAM. When he saw that scientists needed a bank of tissue samples to further their research, he became a founding board member of National Disease Research Interchange.” NDRI is the nation’s leading source for human tissues, organs and cells for research.

Cohen also served on the boards of the Drexel University College of Medicine, Philadelphia University, Gratz College, the Philadelphia Orchestra, the Philly Pops, and the Hadassah Medical Organization.

“He was one of Philadelphia’s great citizens who did so much to improve the lives of others. He will be missed,” Klasko says.

Cohen is survived by his partner, Claire Reichlin; three daughters, Jane E. Millner, Amy Cohen, and Dr. Joanne Cohen Katz; five grandchildren; and two great-grandchildren.

Jefferson held a special tribute to Cohen, Celebrating a Life of Service to Others, on October 22. The event included remarks from Dr. Klasko; Eileen Voyick, chair of the Jefferson Academic Board and a Trustee of Thomas Jefferson University; Sister Mary Scullion, founder and executive director, Project HOME; John Fry, president of Drexel University; Robert Decidue, DMD, MD, MBA, MSPH, chair of the Department of Oral and Maxillofacial Surgery; and Elizabeth A. Dale, EdD, MPA, executive vice president and chief advancement officer, Office of Institutional Advancement.

If you would like to read or share remembrances of Dr. Cohen with his family and the Jefferson community, please visit his tribute page at jefferson.edu/waltercohen.

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CLASS OF 2022



9907
students applied

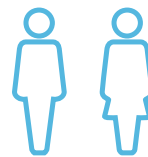
457
students accepted



268
students enrolled

18
legacy students

3.71
overall GPA



131 women
137 men

42 age of oldest student

20 age of youngest student

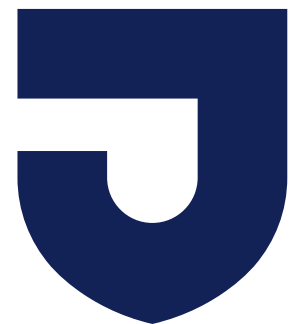


8
international students

80
students from PA

38
students from NJ

19
students from DE





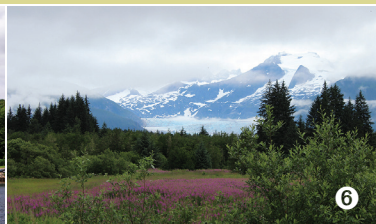
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1
**Panama to Paradise –
 Oceania Cruises**
 APRIL 1 – 17, 2019

5
Canadian Maritimes
 JULY 19 – 28, 2019

9
Italian Riviera
 AUGUST 31 – SEPTEMBER 8, 2019

2
**Gems of the Danube
 with Prague – River Cruise**
 APRIL 28 – MAY 9, 2019

6
Discover Southeast Alaska
 JULY 26 – AUGUST 2, 2019

10
**Wines of the Pacific
 Northwest – River Cruise,
 American Queen
 Steamboat Company**
 SEPTEMBER 15 – 23, 2019

3
Tuscany ~ Cortona, Italy
 JUNE 4 – 12, 2019

7
**Baltic & Scandinavian Bliss –
 Oceania Cruises**
 AUGUST 13 – 24, 2019

11
Galapagos Islands
 OCTOBER 30 – NOVEMBER 6, 2019

4
**Normandy ~ Honfleur:
 75th Anniversary of D-Day**
 JUNE 29 – JULY 7, 2019

8
**National Parks and
 Lodges of the Old West**
 AUGUST 28 – SEPTEMBER 6, 2019

12
**Majestic Vistas: Venice to
 Rome – Oceania Cruises**
 OCTOBER 27 – NOVEMBER 4, 2019

As part of our commitment to lifelong learning, the Office of Alumni Relations is excited to offer Jefferson alumni an opportunity to see and experience the world through group travel programs. A varied itinerary of travel destinations has been selected for 2019 that combines educational forums and excursions to places of historical and cultural interest, with the opportunity to enjoy unplanned experiences and unique adventures. These trips offer the highest-quality travel experience through our partnerships with experienced travel providers.

