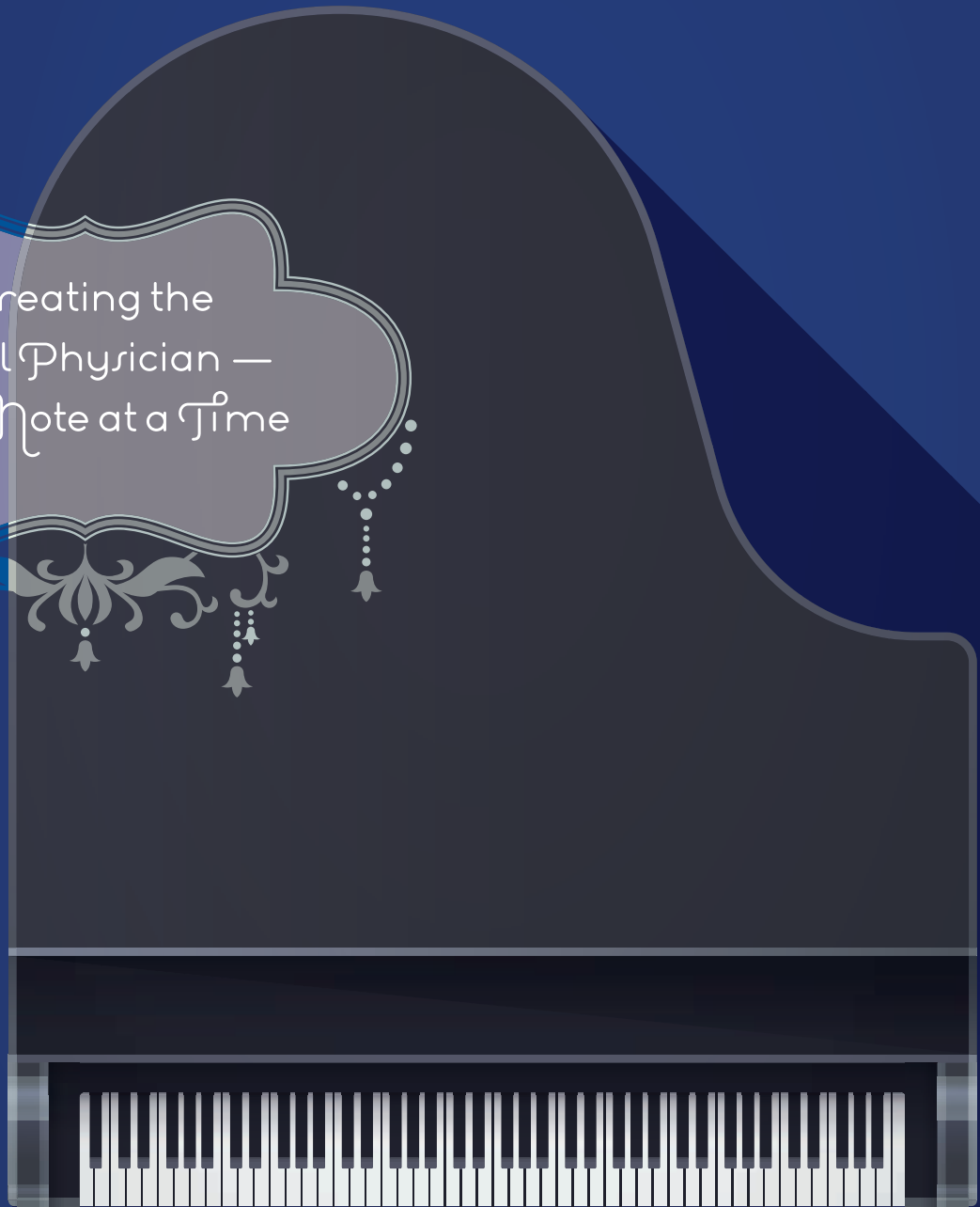


FALL 2016
The Bulletin



**Sidney Kimmel Medical College
at Thomas Jefferson University**

Creating the
Ideal Physician —
One Note at a Time





30
TIME CAPSULE

From the Jefferson Archives

SOME HAPPENINGS FROM 50 YEARS AGO, IN FALL 1966

 **Sidney Kimmel
Medical College**
at Thomas Jefferson University

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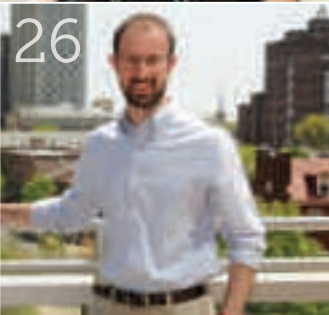
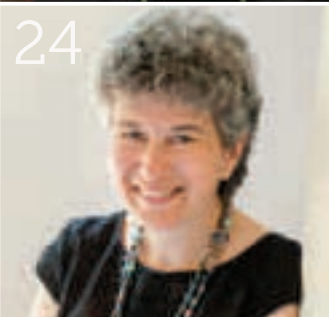
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Legacy + Transformation

This September, Jefferson, home to one of the nation's distinguished medical colleges, signed a first-of-its-kind agreement to combine with a very different type of academic institution, one deeply rooted in the fields of business, design, health, architecture and engineering — Philadelphia University (founded in 1884 as Philadelphia Textile School).

In so doing, we are bringing together two iconic Philadelphia institutions, with storied 192- and 132-year histories, respectively. We have given birth to a comprehensive university that will continue to serve our communities and society in a richer way, from two campus hubs just a short drive apart.

To explain this most unusual combination, a few words about its origins. One of my showcase initiatives, started soon after arriving here almost eight years ago as Dean of the medical college, was the *College-within-the-College (CwiC)* program. We saw this creative co-curricular offering as part of a larger Medicine+ concept, wherein we would cultivate new ways of thinking, merging knowledge domains in our students. We initially launched *CwiC-Population Health* and *CwiC-Clinical Translational Research*, and two years ago, *CwiC-Design* was added to the mix.

Two visionary individuals emerged on the scene — both passionate advocates for linking medicine with design. First, Peter Lloyd Jones, PhD, rooted in fundamental science, joined us to give life to *MEDstudio*, a multi-faceted initiative for connecting students and faculty to human-centered design thinking, with an emphasis on spatial thinking. And then Bon Ku, MD, joined the team to launch the *CwiC-Design* track, along with

Innovation & Design Application (IDeA), a program that invites Princeton University sophomores pursuing non-traditional pre-med majors or concentrations to apply for early admission to SKMC. Suddenly the campus was abuzz with talk of design thinking — a way for our medical college to cultivate the most imaginative MDs.

Looking for a regional academic partner with a strong focus in the design space, it became apparent that Philadelphia University, under the leadership of Stephen Spinelli Jr., PhD, was the clear choice. Quickly, presidents and provosts convened, and a new kind of comprehensive university was born.

From the Jefferson perspective, leadership saw the unique opportunity to become comprehensive — no longer a graduate-predominant institution — and far more diverse — freed from traditional healthcare silos. In turn, this would allow for tailoring unique educational experiences, and for linking disciplines in unthought-of ways.

On the surface Jefferson and Philadelphia University would appear to operate in different worlds, but we share a core vision and values. We link disciplines through the *Jefferson Center for Interprofessional Education*; they do it through *Nexus Learning*. We are both intimately involved in our common community — Jefferson, through a panoply of student-run programs, like JeffHOPE and Refugee Health Partners; and Philadelphia University, through robust experiential learning opportunities that embed students on the frontlines of difference-making with some of the area's



Mark L. Tykocinski, MD

Provost, Thomas Jefferson University
Anthony F. and Gertrude M. DePalma Dean,
Sidney Kimmel Medical College

premier social and commercial enterprises. We share the belief that professional education should be tailored to real world demands, where students can shape their degree programs and educational pathways. Our desire to integrate is based on our commitment to addressing and reimagining the future of work, the future of health and the future of education for the benefit of our students, alumni, employers and society.

An added “bonus” is space. Instantly, we will go from having 13 urban acres in Center City touching nine city blocks, to a dual hub configuration, including Philadelphia University’s East Falls campus, which is comprised of 105 suburban-like acres and upwards of 50 buildings. This combination will further enable unfettered experimentation pioneering educational pathways and exploring entirely new ways to bridge disciplines.

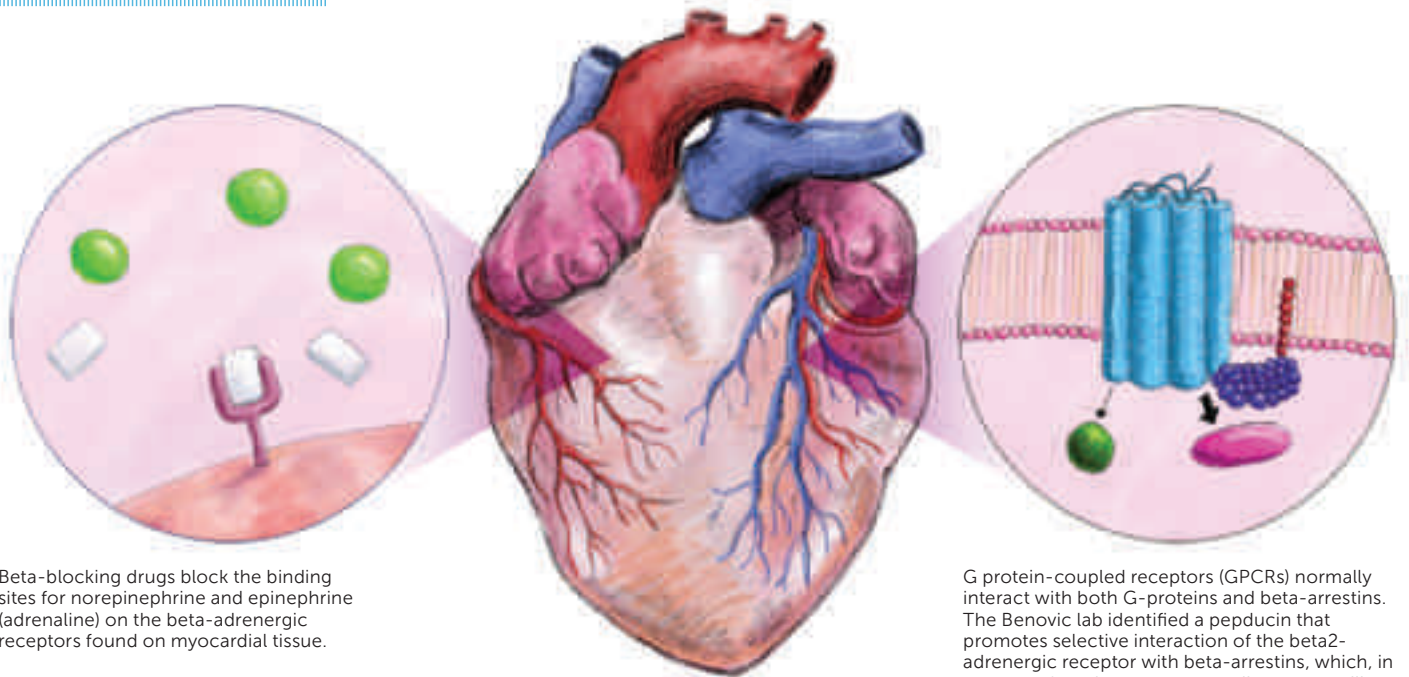
Over the years, my message to alumni has been one of *Legacy + Transformation*. Yes, we will continue to cherish Jefferson’s legacy, and all the core values embodied in our illustrious history. But at the same time, to remain relevant, we are open to transformation and bold steps. And transforming we are. Propelled by the boundless drive of our president and CEO, Stephen Klasko, MD, MBA, the clinical enterprise has been growing by leaps and bounds, making healthcare innovation a centerpiece, and assuring our success in one of the nation’s most competitive healthcare markets. And now, it’s the academic pillar’s turn — not just to grow our faculty, student and alumni base, but to do so in a most strategic way that opens limitless vistas.

PHILADELPHIA UNIVERSITY, founded in 1884, is a private university with 3,750 students enrolled in more than 70 undergraduate and graduate programs. With nationally-ranked programs in physician assistant studies, architecture, interior design, fashion design, graphic design, strategic leadership and occupational therapy, along with opportunities for partnerships and internships with top companies, PhilaU graduates have achieved a job success and graduate school placement rate of 95 percent.

By forming a comprehensive university, students will have access to

- more state-of-the-art programs and facilities
- increased Nexus Learning, interprofessional and transdisciplinary opportunities
- more internship and experiential learning opportunities
- programs designed for emerging professions
- multiple campuses that will provide students with suburban-like and Center City experiences
- more studio, clinical and active-learning spaces
- more opportunities for undergraduate scientific and applied research
- a combined alumni base of 78,000
- a student base of more than 7,800
- nearly 4,000 combined faculty

FINDINGS



Beta-blocking drugs block the binding sites for norepinephrine and epinephrine (adrenaline) on the beta-adrenergic receptors found on myocardial tissue.

G protein-coupled receptors (GPCRs) normally interact with both G-proteins and beta-arrestins. The Benovic lab identified a pepducin that promotes selective interaction of the beta2-adrenergic receptor with beta-arrestins, which, in turn, was found to promote cardiac contractility via a novel signaling pathway.

New Pathway to Treat Heart Failure

Researchers discover a new way to keep the heart pumping, which could lead to new drugs.

About 5.7 million Americans have heart failure, and half of them will die from the disease within five years, according to the Centers for Disease Control and Prevention. Two processes help drive the disease: a weakened heart muscle and the death of heart cells. Beta-blockers, commonly used to treat heart disease, work by blocking beta-adrenergic receptors in the heart, saving heart cells from cell death. But beta-adrenergic receptors also help keep the heart pumping — a function this medication also blocks.

Jefferson researchers have discovered how to bypass this problem by tapping an alternate pathway that both blocks damage to the heart and helps it keep pumping. The research, published online in the *Proceedings of the National Academy of Sciences USA*, offers the possibility of developing a new class of heart failure medications.

"There's much more work to be done, but this is an excellent example of how a little curiosity in the basic research laboratory can lead to discoveries that have the potential to change the way we treat a very

common and deadly illness," says senior author Jeffrey Benovic, PhD, Thomas Eakins Professor and Chair of the Department of Biochemistry and Molecular Biology.

Beta1-adrenergic receptors are primarily responsible for the heart's contraction, and are targeted by traditional beta-blockers. Benovic's lab, however, developed a series of molecules called pepducins that were derived from pieces of the beta2-adrenergic receptor and found that these molecules could selectively activate the very receptor they came from.

It was while former graduate student Richard Carr, in Benovic's lab, was characterizing the properties of these pepducins that he noticed the molecule had similar characteristics to a common heart failure medication called carvedilol. Benovic and Carr sent the pepducin to their colleague Douglas Tilley, PhD, at Temple University, who tested how heart cells responded.

When Tilley pulsed heart cells with the pepducin, the cells started to beat more forcefully. The pepducin used was specific to the beta2-adrenergic receptor pathway and didn't have any effect on the beta1

receptors. The researchers had demonstrated for the first time that contraction of heart muscle cells could be triggered via the beta2-adrenergic receptor, using this novel pepducin.

Through further analysis, the researchers showed that the pepducin activated the ability of the beta2-adrenergic receptor to interact with a secondary signaling molecule called beta-arrestin, and that it was this interaction that promoted the heart cells to beat. However, the pepducin activated the beta2 receptor to only 40–50 percent. By tinkering with the pepducin molecules, says Benovic, "we think we can get full activation."

The next steps are to design a better version of the pepducin. In addition, Benovic and colleagues plan to screen existing small molecules to see if one can mimic the action of the pepducin. They also plan to study the structure of the pepducin and the beta2 receptors to gain better insight into the design of more effective pepducin-like molecules.

#Giving Tuesday

Why Tuesday?

Because it follows Black Friday and Cyber Monday, the start of holiday shopping that leads to the season of giving to family and friends.

Why Giving?

Because philanthropy makes a difference, and giving to those in need never goes out of season.

Tuesday, November 29, is Giving Tuesday, a worldwide, grassroots day of giving powered by social media and generosity. The fundraising success of Giving Tuesday has been building every year since 2012. Last year on Jefferson Giving Tuesday, more than 700 people celebrated the power of philanthropy with us by making a gift to Jefferson.

Jefferson is leading the healthcare revolution with the nation's only four-pillar model (clinical, academic, innovation and philanthropy pillars) for an academic medical center. Philanthropic investments help support the other three pillars, providing resources that enable Jefferson to care for patients, train healthcare professionals, and carry out research and innovation that translate into better treatments and cures. That's why we say Jefferson is made possible by you.

In the run-up to Jefferson Giving Tuesday, you will be hearing more about philanthropy at Jefferson and how you can be a part of it. On November 29, there will be stations across campus where you can grab a free coffee, make your gift and have your picture taken with Thomas

Jefferson. You can also give online from anywhere in the world at Jefferson.edu/GivingTuesday. We hope you'll share your love of Jefferson on social media using #ILoveJefferson when you make a gift between 12 a.m. and 11:59 p.m. on Tuesday, November 29.

Why Giving?

Because Giving Tuesday is your chance to give back and be a difference-maker at your alma mater — and deepen your connection to Jefferson.

Why Tuesday?

Because when it comes to philanthropy, just one day can make a big difference.

Why Jefferson?


Because you can help save a life, launch a health career, make a discovery or ease the burden of pain. Philanthropy makes it all possible, and giving makes you a part of all we do here at Jefferson.

Tuesday, November 29, is Giving Tuesday, a worldwide, grassroots day of giving powered by social media and generosity.

Elizabeth Dale, EdD
Executive Vice President for
Institutional Advancement



✦ Research has indicated that activities involving the humanities — literature, visual arts and music — play an important role in **building better physicians**.



Creating the
Ideal Physician —
One Note at a Time

BY JEFFREY LOTT

✦ Several programs at SKMC, including the Dean's Concert Series and the Jefferson Chamber Orchestra, have become **vital parts of co-curricular life** and enrich the experiences of both students and members of the broader Jefferson community.

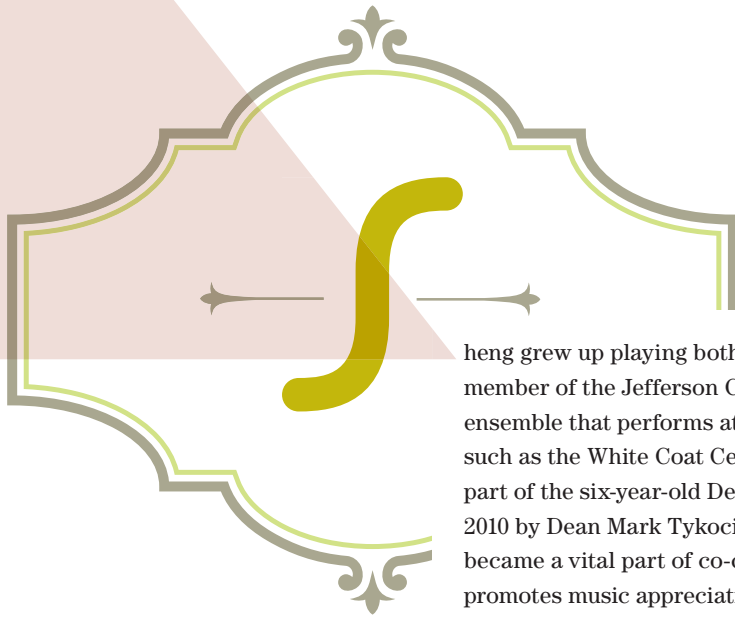
✦ Participation in music programming might become part of a distinction track at SKMC that would lead to a **certificate in the humanities** in conjunction with one's medical degree.

The Dean's Concert Series is more than a respite in the middle of a busy day at SKMC. It's part of a broader effort to educate a holistic, sensitive and empathetic physician.



In the crazy, stressful life of a medical student, there are many ways to cope: healthy eating, exercise, meditation, yoga, counseling. Michelle Sheng's prescription for stress relief weighs 400 pounds, has 88 keys and comes with instructions to "*romena*" — or *pro re nata*, a Latin phrase meaning "as needed."

It's a good bet that Sheng's the only third-year Sidney Kimmel Medical College student with a piano in her apartment. "I missed having a piano that I could play as needed," she explains. "I found several free instruments on Craigslist, but you had to move them yourself. Then I saw someone who was offering a beautiful 100-year-old piano, with moving included. I had it tuned, and now I can play whenever I want."



Sheng grew up playing both piano and violin and is a member of the Jefferson Chamber Orchestra, an informal ensemble that performs at special University functions such as the White Coat Ceremony — and occasionally as part of the six-year-old Dean’s Concert Series. Launched in 2010 by Dean Mark Tykocinski, MD, the series quickly became a vital part of co-curricular life at SKMC. It promotes music appreciation and a certain esprit de corps for the University community, engaging audiences not only with music, but often with the performers themselves. The concert series is made possible by a gift from Robert H. Rosenwasser, MD, the Jewell L. Osterholm Professor and Chair of the Department of Neurological Surgery, and his wife, Deborah L August, MD. “Music has been an integral part of our lives,” says Rosenwasser. “We thought that the Dean’s Concert Series was so unique and deserving, it was a natural fit for us.”

In an environment that’s laser focused on scientific knowledge and clinical practice, the popular weekday-afternoon series is a non-academic effort to encourage development of “the ideal physician,” according to Charles Pohl, MD ’87, associate provost for student affairs.

Nurturing the Skills for Success

SKMC already has a required humanities credit for first-year students that can be satisfied both within and outside the established curriculum. And Pohl is working to create a distinction track in the humanities — “a sort of college within a college,” he says — that would lead to a certificate in the humanities. “To successfully prepare students for the future healthcare workforce,” he says, “we need to develop emotional intelligence, empathy and compassion, tolerance for ambiguity, comfort with complexity and resilience.”

Wellness programs that teach work-life balance and reduce stress, anxiety and burnout are not just good for medical students, Pohl believes. They are lifelong skills for a successful career in the profession. “A lot of medicine is just being mindful — in the moment,” he says. The arts and humanities are “natural activities that help people achieve these qualities.”

Michelle Sheng agrees: “You don’t want to come out of medical school as a robot. I feel like we get tunnel vision

LEFT: Devoted to interpreting classic rock in a contemporary jazz format, the Jöst Project performed “Good Vibrations” at a Dean’s Concert Series event in October 2015



OPPOSITE FROM TOP: Members of Bruce & the FenderBenders, an Irish jig band — Moe Hernandez, Kurt Channick and Tyler Bauer

• Richard Kogan, MD, clinical professor of psychiatry at Weill Cornell Medical Center and artistic director of the Weill Cornell Music and Medicine Program, addresses SKMC students

• Cellist Vivian Barton plays during “Reflections of Moritz Moszkowski”





and feel guilty about taking a break. All of us want to be good doctors — to learn so we can do our jobs well. Still, there's a part of all of us that's still human." For her, "music is universal — and through it I can always connect with others."

The Dean's Concert Series helps make these connections six times each academic year with a diverse set of programs curated by Gilya Hodos, DMA, a classical pianist and music educator who teaches at Penn State Abington.

"I'm not a medical educator," Hodos says, "but I am completely passionate about bringing music into this setting. These concerts provide a musical respite for very busy students, faculty members and administrators." In designing the concerts, she tries to create the intimate experience of the old-fashioned "salon," where concerts were given in people's homes — creating an intimate relationship between audience and musicians, many of whom are also composers.

"That's what makes this series different," she says.

In addition to showcasing musicians from Jefferson, Hodos books dynamic and stimulating outside groups, drawing on her contacts throughout the rich Philadelphia music scene. She works with these performers to create programs that will help connect the performer with the SKMC audiences — often including opportunities for audience members to participate in the music-making.

New Dimensions

Hodos says the medical school audience is highly educated and sophisticated, but that "much of what we bring to the series is fresh and new to them." The Dean's Concerts "go a long way toward creating a more holistic, multidimensional listener — well rounded, sensitive, empathetic." To Hodos, "there's no question that music plays an important role in nurturing these kinds of physicians."

Some programs tell stories, like a 2016 concert that examined the life of Moritz Moszkowski, a Polish composer and pianist widely known during the late 1800s whose music is all but forgotten today. Another offering last spring featured Richard Kogan, MD, Juilliard-trained concert pianist and Harvard-educated psychiatrist, who explored the notable relationship between creative genius and insanity. Playing excerpts from the work of composers including Schumann, Tchaikovsky and Beethoven, Kogan examined their minds and masterpieces in a riveting fusion of medical and musical knowledge.

Tykocinski recently co-authored a paper examining the personal qualities that correlate with perceived leadership among medical students. The study found that peer-nominated top influencers "scored significantly higher on empathy, sociability and activity" and implied

that, with the “increasing shift toward team-based, inter-professional and collaborative healthcare delivery models,” physicians with these attributes “have the potential to serve as leading agents of cultural change ... facilitating teamwork, solidarity and collective efficiency among the healthcare workforce.”

The role of the so-called “medical humanities” in building a better doctor has long been the subject of journal articles and conference presentations. The term traditionally referred to subjects such as the philosophy of medicine, ethical decision-making and medical anthropology and history. In recent years, however, leading medical educators have expanded that definition



to embrace literature, visual arts and music — adding new dimensions to the medical school experience.

The 2015–16 Dean’s Concert Series ended with a rollicking performance by the student-faculty Irish jig band Bruce & the FenderBenders. Founded in 2010 by Avi Nguyen, MD ’14, the band features fiddles, flutes, cellos and guitars. “Bruce” is none other than Bruce Fenderson, PhD, professor of pathology at SKMC.

Fenderson seems to be at the center of campus-based music-making at Jefferson. An accomplished classical violinist — and toe-tapping Irish fiddler — he plays in two local community orchestras. In addition to the Jefferson Chamber Orchestra, which he organizes, SKMC also has two *a cappella* groups — the all-male “Testostertones” and the female “Arrhythmias.”

“A lot of med students have talents in the arts and humanities — especially in music — that they developed



The role of the so-called “medical humanities” in building a better doctor has long been the subject of journal articles and conference presentations.



LEFT: More members of Bruce & the FenderBenders — Rebecca Newbrander, BoHyung (Kathy) Yoon and Jenny Guo

• INSET: Stefan Jackiw at a Dean’s Concert Series performance in January 2016



as young people or as undergraduates. Ideally, students who aspire to medicine will continue to nurture that side of themselves, but it's really difficult given the intensity of the curriculum," Fenderson says, offering his own experience as an example.

As a dedicated musician from fifth grade through high school, he had a private violin teacher who "instilled a love of music and a commitment to excellence." While playing violin in the Youth Symphonies of Greater Minneapolis, he also learned the saxophone to participate in school bands. But when Fenderson went to the University of Michigan and later to Johns Hopkins as a serious science student, he dropped the lessons and



Music Is Universal

Fenderson is a strong supporter of the Dean's Concert Series — and not just as an occasional performer. "It shows the SKMC community that music is not just high-brow but universal," he says. "The programs that Gilya puts together celebrate diversity. Some are sad and soulful; others make you want to get up and dance. It's a really eclectic mix."

SKMC also collaborates with the Curtis Institute of Music to provide a venue for students from each institution to socialize and enjoy two or three evenings of classical music annually.



put away his instruments.

Reflecting on his life at age 40, he decided to return to playing the violin. "I realized that this is part of who I am, and I needed to get back to it," he says. "And I knew there were others at the medical school who were following the same path." Creating opportunities for students like Michelle Sheng to continue playing music became part of his educational mission at SKMC — and led to his founding the Jefferson Chamber Orchestra in 2005.

According to Fenderson, the unique structure of the orchestra — it has no conductor — forces musicians to listen carefully to each other as they play, to work together to solve musical problems on the fly. "You're constantly analyzing the music in real time, second to second, as you pull it together," he says, omitting the obvious correlation to solving urgent medical problems.

Fenderson credits Tykocinski with the insight and initiative behind the emphasis on music-related activities at Jefferson, saying that "music creates a shared community and makes what we do more three-dimensional." Hodos sees "Mark's vision" as "part of his effort to broaden the humanities — to create a holistic, sensitive, empathetic person. There's no question that music plays an important role in nurturing those kinds of people — those kinds of physicians."

For Sheng, who recently dived into two years of clinical work and is considering a future in surgery, there's just one 400-pound problem: "I want to have my piano with me wherever I go. So I need to make friends with someone who has a great big truck." 🚚

MIDDLE:
The Jefferson Chamber Orchestra performs in the Hospital Atrium for the benefit of patients, visitors and staff

RIGHT:
SKMC student Katrina Lettang plays the trombone with the Jefferson Chamber Orchestra

Story Summary

Ultrasound contrast agents use microbubbles to **increase the clarity of images**. In the U.S., contrast-enhanced ultrasound is used mostly for heart and liver imaging.

Research at Jefferson is **focusing on subharmonics** — unique signals produced by microbubbles during imaging. Tuning into subharmonic echoes lets scientists trace the flow of blood through tumors and measure pressure in the heart and liver.



FROM LEFT: Jaydev Dave, PhD; John Eisenbrey, PhD; Mark Forsberg; and Flemming Forsberg, PhD.
Photo by Ed Cunicelli.

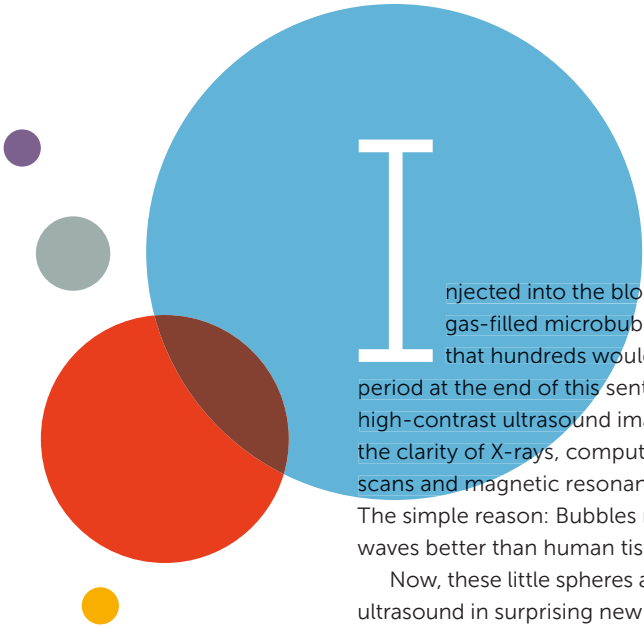
Techniques developed at Jefferson, entering large-scale clinical trials, could **reduce the need for invasive pressure tests** in the heart and liver and allow doctors to better identify cancerous and non-cancerous breast masses without biopsy.

A photograph of two male doctors in white lab coats standing in a hospital hallway. The doctor on the right is gesturing with his hand near his face as if speaking. The doctor on the left is listening. The background is a blurred hospital hallway with a red fire exit sign.

Tiny Bubbles, Big Future

New uses for microbubble-filled ultrasound contrast agents could reduce the need for highly invasive medical tests. Jefferson researchers are at the forefront of subharmonic imaging and pressure estimation.

● **BY SARI HARRAR**



Injected into the bloodstream, gas-filled microbubbles — so small that hundreds would fit inside the period at the end of this sentence — create high-contrast ultrasound images that rival the clarity of X-rays, computed tomography scans and magnetic resonance imaging.

The simple reason: Bubbles reflect sound waves better than human tissue does.

Now, these little spheres are bouncing ultrasound in surprising new directions.

Researchers from Jefferson's Division of Ultrasound, led by Flemming Forsberg, PhD, professor of radiology, are at the forefront of investigating unique "subharmonic" echoes emitted by ultrasonic microbubbles. In projects that began in water tanks in the late 1990s and have advanced to large-scale human trials today, Forsberg's team is harnessing bubble signals to measure blood pressure inside the heart and liver and monitor blood flow in breast cancer tumors.

Their work could reduce the need for anguishing and highly invasive medical tests that tens of thousands of Americans — and more around the globe — face every year.

"Currently, people with liver disease or pulmonary hypertension who need specialized blood-pressure checks must have catheters inserted into the jugular vein, groin or elsewhere and threaded through the heart while they're sedated. That's not something you want to repeat very often," Forsberg says. "Noninvasive tests developed in our lab could allow for regular monitoring

of these serious conditions for better treatment decisions. We are also testing subharmonic imaging of suspicious breast masses detected by mammography to determine which are cancerous and which are benign. This could vastly reduce the need for biopsies."

Subharmonic imaging and pressure estimation are also being studied at Jefferson to gauge the effectiveness of breast, skin and kidney cancer therapies and to look inside gunky plaque in artery walls. "Knowing early on whether a cancer treatment is working would allow doctors to make changes sooner, personalizing cancer therapies for more patients," Forsberg says. "And understanding more about why some plaque deposits burst, leading to heart attacks or strokes, could lead to new ways to protect the heart and the brain."

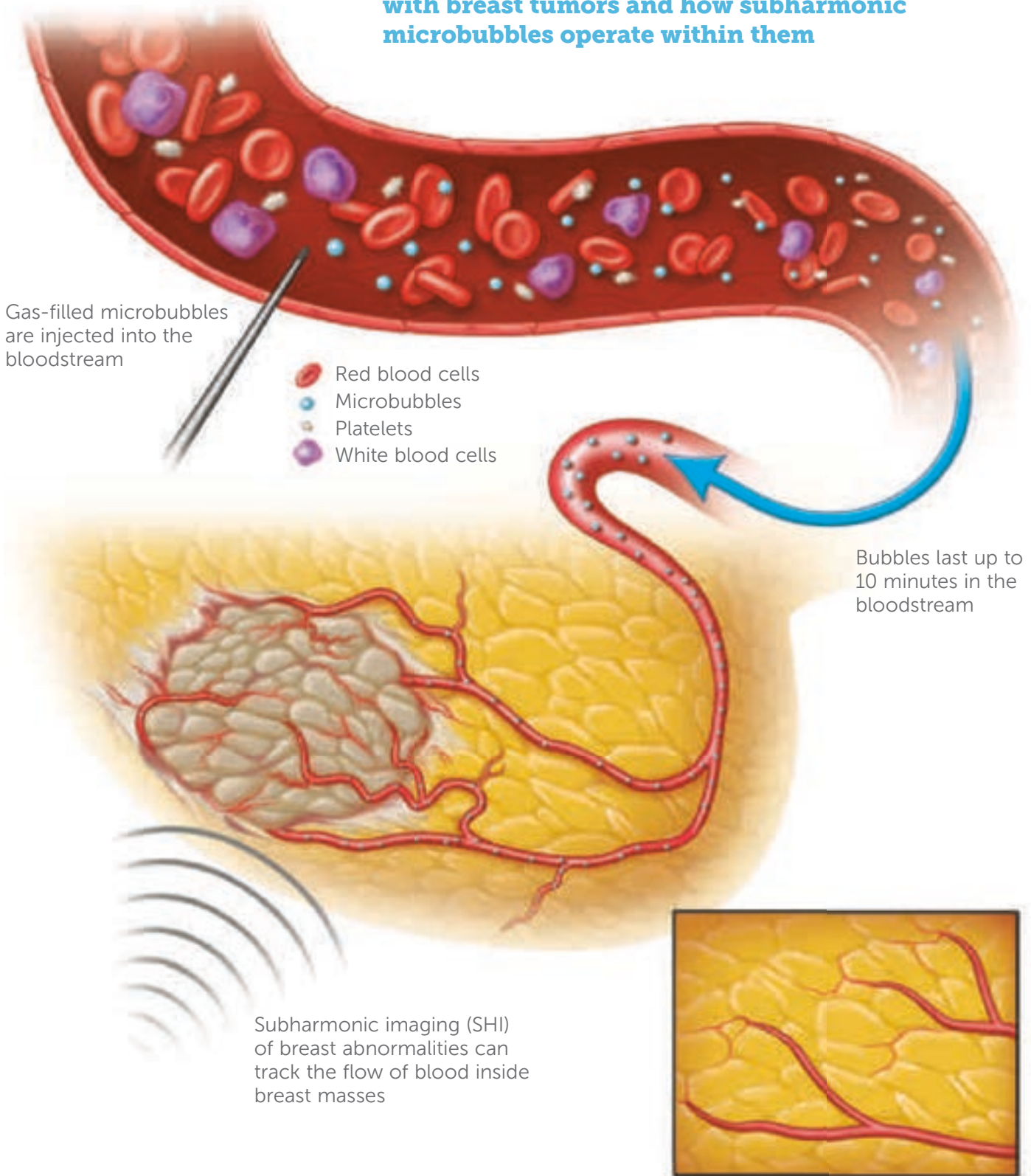
SEEING THE LOW NOTES

In the United States, microbubble-packed ultrasound contrast agents are FDA approved for echocardiograms and, since April 2016, to diagnose certain liver cancers — a development hailed by ultrasound experts across the country. In other parts of the world, these contrast agents are also used clinically to image the kidneys, spleen, breast, prostate, gallbladder, bladder, uterus and peripheral arteries.

"The irony is that Jefferson's Division of Ultrasound in the Department of Radiology is at the forefront, leading the world in

"Knowing early on whether a cancer treatment is working would allow doctors to make changes sooner, personalizing cancer therapies for more patients."

A look at the blood vessels associated with breast tumors and how subharmonic microbubbles operate within them



Blood vessels in normal tissue



Imaging Research Spans Three Generations

When Jaydev Dave, PhD, now an assistant professor of radiology at Jefferson, was working on his doctorate in bioengineering at Drexel University, he was also doing graduate work in radiology at Jefferson. His area of study: subharmonic imaging and pressure estimation. His adviser: Flemming Forsberg, PhD, professor of radiology.

Now, Dave is advising a young medical student: Forsberg's son. Mark Forsberg, now in his second year at Sidney Kimmel Medical College, received a 10-week grant from the Radiological Society of North America to look at image quality in fluoroscopy, which uses X-rays to capture moving images of structures inside the body. "I started by measuring physical properties in images of phantoms (models), and then attempted to measure similar characteristics in images collected from real procedures here at Jefferson," said the younger Forsberg. "I acquired these images over three radiation dose levels, two different vendors and five different machines. The goals of this project were twofold. First, these measurements could provide a comprehensive way to compare different machines and vendors. Second, if the quality metrics measured on clinical images corresponded to the image quality analysis based on phantom images, then this would provide the basis for a real-time quality assessment of clinical images."

With characteristic dry wit, his father noted, "I tormented Jaydev, and now he torments my son ... but, to be serious, I'm proud of them both. Investing in good people is the key to high-quality research."

advancements in the use of ultrasound contrast agents, even though many of those advances cannot yet be widely used in the United States outside of experimental applications," notes Barry Goldberg, MD, director emeritus of the Division of Ultrasound. "The work Dr. Forsberg is doing has the potential to save lives in the U.S. and around the world."

The bubbles' usefulness was discovered accidentally in the 1960s, when a cardiologist named Claude Joyner, Jr., MD, noticed he got sharper ultrasound images of a patient's heart after injecting a dye that, it turned out, contained bubbles. Among ultrasound researchers, the story is famous and widely cited. But it was almost two decades before bubbly contrast agents were ready for prime time. "It took until the 1980s to develop small, stable microbubbles with gas cores and outer shells made of proteins or lipids that lasted more than a few seconds in the bloodstream and were the right size to pass through the entire cardiovascular system," Forsberg notes. "The bubbles used today are about the size of red blood cells or a little smaller. They last up to 10 minutes in the bloodstream, then the shells are metabolized by the liver, and you simply breathe out the gas."

When bombarded by ultrasound waves, microbubbles react like a plucked violin string. "They vibrate, producing overtones and undertones including signals used in conventional ultrasonography," Forsberg explains. The bubbles stay inside blood vessels, throwing the borders between the circulatory system and organs into sharp relief. "But microbubbles also produce subharmonic tones at half the frequency of the ultrasound waves. That's something blood and tissue don't do," Forsberg explains. "And the signals change as the pressure on the bubbles changes. That's the focus of our research."



Eisenbrey, Forsberg and Dave with a patient.

That interest has fueled a large and significant body of research in Forsberg's lab over the past 20 years, with considerable funding from the Department of Defense, the National Institutes of Health, the American Heart Association, ultrasound equipment manufacturers and others. "We were the first to study subharmonic imaging in humans, but it's important that groups at other institutions have replicated the research," Forsberg says.

THE SHAPE OF THINGS TO COME

"Researchers had known about microbubbles' subharmonic signals for a long time," Forsberg says. "But the idea of using the subharmonic signals as a pressure marker was totally new. We started working on it in the late 1990s, along with colleagues at Drexel University."

Early studies in water tanks showed that the bubbles changed shape — and produced weaker or stronger subharmonic signals — under varying amounts of pressure. Lab studies followed, further testing subharmonic-aided pressure estimation (SHAPE). In a 2013 study of 45 people with chronic liver disease who were undergoing conventional pressure tests at Jefferson, lead researcher John Eisenbrey, PhD, a research assistant professor in the Department of Radiology, and others found that SHAPE was highly accurate at estimating blood pressure readings used to gauge liver disease. A larger, 300-person study led by Forsberg, in collaboration with the University of Pennsylvania and the National Institute of Diabetes and Digestive and Kidney Diseases, is recruiting patients.

"Checking portal blood pressure is an important way to know whether liver disease is present and progressing," Eisenbrey says. "In severe liver disease, high pressure in the portal vein can cause life-threatening bleeding. Some of the

people in our first study had their pressure checked every six months by having a catheter inserted into their jugular vein and passed through the heart to the liver. Coming up with a less invasive way to do this could lead to easier, faster and more frequent monitoring of their health.”

Eisenbrey and Forsberg say SHAPE may be ready for commercial use to check portal hypertension in four to five years. “The test uses existing ultrasound equipment, modified with software changes,” explains Eisenbrey, who did postdoctoral work on SHAPE at Jefferson.

Meanwhile, Jaydev Dave, PhD, an assistant professor of radiology at Jefferson, is studying SHAPE to estimate blood pressure in the heart. With grants from the American Heart Association and the National Heart, Lung and Blood Institute,


A NEW VIEW OF CANCER

One in 10 women who have a screening mammogram for breast cancer get a troubling call-back for further testing; many will have a biopsy. Up to 90 percent will find out they don’t have cancer, but they’ll live through days or weeks of worry first. Now, Forsberg and researchers from the University of California San Diego are comparing biopsy results to the results of subharmonic imaging (SHI) of breast abnormalities to find an easier way to find cancers in masses identified via mammogram. Their study will track the flow of blood inside breast masses in 450 women. A small pilot study of 14 women found that noninvasive SHI correctly identified breast cancers up to 90 percent of the time.

“Tumors develop their own system of blood vessels, but the vessels are not like those in normal tissue,” Forsberg says. “They’re twisted and leaky. You can watch the blood move through them using SHI — the scans take about 20 minutes — and see the difference.”

His lab has also used microbubble subharmonics to measure changes in fluid pressure inside breast, skin and kidney cancers during treatment. “In women undergoing neoadjuvant chemotherapy for breast cancer before surgery, pressure dropped in drug responders after the first dose,” Forsberg says. “Typically, women receive 16 doses of this early chemotherapy. If we could tell after the first one whether or not it was working, the drug cocktail could be changed for hopefully better results.”

Extending ultrasound’s reach through subharmonics could have a global impact, Eisenbrey notes. “Ultrasound is extremely useful because it’s far less expensive than other imaging modalities,” he says. “It doesn’t employ ionizing radiation — which could raise cancer risk, especially in children and young adults. And contrast-enhanced ultrasound doesn’t rely on the types of contrast agents used in X-rays, magnetic resonance imaging and computed tomography scans that can result in adverse reactions. Finding new ways to use ultrasound is particularly important for developing countries where health systems cannot always afford advanced imaging technology.” 🗣️



“If we can show that it works, it would be amazing. A cardiac catheterization is highly invasive and takes up most of a day. When we did a small pilot study, people told us they wish it were available now. It’s rewarding knowing there’s a real need.”

Dave is leading a study that aims to recruit 136 people undergoing cardiac catheterization for heart problems such as heart failure and shortness of breath, or to check the health of a transplanted heart.

“We’ll ask them to undergo an ultrasound at the same time and compare the results to see how accurate SHAPE is,” says Dave. “We couldn’t do any of this without the support of Jefferson’s clinicians, many of whom become co-investigators. If we can show that it works, it would be amazing. A cardiac catheterization is highly invasive and takes up most of a day. When we did a small pilot study, people told us they wish it were available now. It’s rewarding knowing there’s a real need.”

Cardiologist Ira Cohen, MD, director of echocardiography at Jefferson, agrees. “The ability to measure these pressures without the need for an invasive procedure would be of great benefit,” he says. “It would assist us immensely in the management of patients with heart disease.”

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What Every Doctor Should Know: A General Medical Update

SKMC faculty and alumni will meet to update their knowledge and renew collegial ties. This year, SKMC welcomes One Jefferson physicians from Abington Health and Aria Health. Registration and hotel reservations will open soon.

To get full program details and receive notification when registration opens, **email jeffersoncme@jefferson.edu**.

Visit cme.jefferson.edu for CME program updates!



DIMUZIO ELECTED TO ASA

Paul J. DiMuzio, MD, has been elected to the prestigious American Surgical

Association. DiMuzio is the William M. Measey Professor of Surgery, director of the Division of Vascular and Endovascular Surgery and co-director of the Jefferson Vascular Center.



JOSEPH HONORED FOR DIABETES RESEARCH

Jeffrey Joseph, DO, recently received the Distinguished Researcher Award from the American

Diabetes Association. Joseph is vice chair and director of research for the Department of Anesthesiology, director of the Jefferson Artificial Pancreas Center and associate director of the Anesthesiology Program for Translational Research.



JEFFERSON ANNOUNCES CENTER FOR MEDICAL CANNABIS EDUCATION AND RESEARCH

The Institute of Emerging Health Professions (IEHP) at

Jefferson has created the Center for Medical Cannabis Education and Research, which will serve as the nation's first academic and research resource for both healthcare professionals and the public on the subject of medical marijuana. The Center is headed by Charles V. Pollack, Jr., MD, who also serves as director of the IEHP.

Pollack will oversee the Center's mission of advancing the science, research, educational opportunities, social innovation and patient experience associated with the clinical use of cannabis-derived therapies. He is also associate provost for innovation in education; associate dean for continuing medical education and strategic partner alliances; and professor and senior adviser for interdisciplinary research and clinical trials in the Department of Emergency Medicine.

▲ ABINGTON — JEFFERSON HEALTH BREAKS GROUND ON ASPLUNDH CANCER PAVILION

On May 23, 2016, more than 150 people attended a ceremonial groundbreaking for Abington — Jefferson Health's new Asplundh Cancer Pavilion, located at the Abington Health Center campus in Willow Grove, Pa. Scheduled to open in early 2018, the new 82,000-square-foot facility will offer radiation therapy and chemotherapy with a dedicated oncology pharmacy. Patients will also benefit from the latest therapies and trials, thanks to Jefferson's MCI-designated Sidney Kimmel Cancer Center.



▲ JEFFERSON HONORS SIGMA PI PHI

On July 26, 2016, Jefferson hosted a reception honoring the founders of Sigma Pi Phi, two of whom graduated from Jefferson: Henry McKee Minton, MD 1906, and Algernon Brashear Jackson, MD 1901 (the medical college's first African-American graduate). Also known as the Boulé, Sigma Pi Phi is one of the nation's most prestigious cultural organizations, boasting members who are leading politicians, businessmen and scientists supporting the community and inspiring young people to work hard and succeed in life. Legendary members include Dr. Martin Luther King, Jr., W.E.B. Dubois, Ralph Bunche, Arthur Ashe, Hank Aaron and Ambassador Andrew J. Young.

The reception, which drew more than 300 attendees, was an official event of the Democratic National Convention and introduced the Drs. Algernon Brashear Jackson & Henry McKee Minton Endowed Scholarship Fund campaign at SKMC. Recognizing the dire shortage of African American males pursuing a medical degree, Jefferson is committed to improving the diversity of SKMC's

student body. The Jackson/Minton Scholarship will support this goal, providing tuition funding to African-American men aspiring to attend SKMC.

The goal is to create a \$1 million endowed scholarship that would be matched by the Sidney Kimmel Foundation. To learn more about the Jackson/Minton Fund or to make a contribution, visit w3.jefferson.edu/giving/sigma-pi-phi.html.



DICKER APPOINTED TO NCI TASK FORCE

Adam P. Dicker, MD, PhD, professor and chair, Department of Radiation Oncology, was elected as radiation oncology co-chair of the

NCI Genitourinary Cancers Steering Committee (GUSC)'s Prostate Cancer Task Force. The goal of GUSC is to promote the best clinical and translational research for patients with genitourinary cancers by critically reviewing phase 2 and phase 3 clinical trial concepts.

RISBUD RECEIVES NASS AWARD

Makarand V. Risbud, PhD, received the North American Spine Society's 2016 Henry Farfan Award, which recognizes outstanding contributions to spine-related basic science research. Risbud is director of SKMC's Spine Research Program and co-director of the Cell and Developmental Biology PhD Program in the Jefferson College of Biomedical Sciences. Studies in his lab examine how changes in the microenvironment compromise cell function and promote development of degenerative disc disease, a leading cause of chronic back and neck pain and disability.

Clara Callahan, MD

A Keen Eye for Aspiring Physicians



If you enrolled at SKMC during the past 17 years, Clara Callahan had something to do with it. The Lillian H. Brent Dean of Students and Admissions, Callahan took over the medical college's admissions office in 1999. Since then, she has culled through countless applications, reading about thousands of prospective students' triumphs, failures, dreams, fears, passions and tragedies before participating in their interviews and honing final lists of incoming class members.

Callahan's tenure at Jefferson didn't begin with admissions. Upon completing her pediatrics fellowship in 1982, she worked in the outpatient pediatric clinic for many years, balancing patient visits with new responsibilities after accepting a position in the Office of Student Affairs

in 1987. Then, when Benjamin Bacharach, MD '56, stepped down from his role as admissions dean, Callahan took his place.

"Having spent 12 years in student affairs — which I call the 'emergency room of the medical school' — taught me a lot about who can handle the demands and quick pace of medical education, which helped with my transition into admissions," she says.

Today, Callahan works with admissions director Elizabeth Brooks, DPM, to spearhead the daunting task of whittling nearly 11,000 applications down to approximately 450 acceptance letters to fill 266 slots at SKMC each year. She recently sat down to discuss the process.

IN A NUTSHELL, HOW DOES THE ADMISSIONS PROCESS UNFOLD?

In late June, AMCAS [the American Medical College Application Service] sends us our first batch of applications — usually about 5,000. There's an automated process that generates a "Jefferson score" using GPA and MCAT scores. We also have a secondary application that asks about personal connections to SKMC, such as an alumnus or faculty member parent, as well as interest in special programs like, for example, the Physician Shortage Area Program or the DIMER [Delaware Institute of Medical Education and Research] Program.

Dr. Brooks and I screen applications for more than numbers, looking for activities applicants have done outside of class — particularly things related to medicine and altruism. Most applicants say they want to go to medical school because they're interested in helping people; we want to see if they've started doing that already. Of course, we also read the personal statements and the letters of recommendations. It's not unusual for me to read four applications before finding one candidate to bring in.

From September to April, we interview about 30 people a week, for a total of around 800 interviews a year. Our admissions are rolling, so we admit students throughout the year. We try to let candidates know if they're accepted within a month of their interview.

WHAT HAPPENS ON INTERVIEW DAY?

Candidates are welcomed by student coordinators before meeting with Dr. Brooks and me. There are several presentations, including one from a physician keynote speaker, before current students do interviews, followed by lunch and a campus tour. Then there is a one-on-one interview with a faculty member from the Committee on Admissions.

We have about 45 faculty members on our admissions committee, which I consider the hardest-working committee at Jefferson. When a colleague tells me they want to join, I have to make sure they understand how much they're taking on. We meet every week to discuss the applicants.

HOW HAS ADMISSIONS CHANGED THROUGHOUT YOUR CAREER?

The thing that has changed the most is when students apply to medical school. More than half of our current students did not come to Jefferson directly from college. Today's students are likely to take a year or two to do something else, from Peace Corps and Teach for America to completing a postbaccalaureate program because they pursued a non-science undergraduate degree. There are all sorts of reasons people don't come right away. When I was applying to medical school, if you didn't go right after college, you weren't dedicated enough! Luckily, we have seen the light.

WHAT ADVICE DO YOU GIVE ASPIRING STUDENTS AND THEIR PARENTS MOST OFTEN?

One thing parents ask a lot is, 'If my child wants to go to medical school, where should they go to college?' I say they should go wherever they want to go — because if they're happy, they'll work harder and do well.

My advice for students is: Don't take the MCAT until you're ready. It's not like college entrance exams, where you can choose to submit your highest score. If someone takes the MCAT more than once, we see all of their scores and take the average. Nobody should take the MCAT just as practice.

ARE ASPIRING LEGACY STUDENTS TREATED DIFFERENTLY THAN OTHERS?

We look carefully at every application from the child of an alumnus, but a downside to having the largest alumni association in the country is that we can't possibly interview them all. Alumni can be disappointed that we maintain the same criteria for their children as for everyone else, but we need to be fair, and I don't think an alumnus is going to be any happier than any other parent if their child enrolls and doesn't do well. To admit someone whose qualifications indicate a good chance they won't be successful — it doesn't make sense.

If we are unable to interview the son or daughter of an alumnus, I write letters to both the applicant and their parent and offer to discuss ways they could make their application stronger.

WHAT IS THE BEST PART OF YOUR JOB?

I enjoy reading students' stories on their applications and then meeting them and seeing what they're like in person. And it's wonderful to watch students grow once they're here — I get to see the people who will be taking care of me and other patients in the future. I also read graduating students' names onstage at commencement, which is very fulfilling. I helped to bring them in, and I help to send them out. It all seems to come full circle. — KAREN L. BROOKS

Kate Sugarman, MD '88

A Career Guided by Social Justice

Although many of her patients have experienced unthinkable acts of cruelty and abuse, Kate Sugarman, MD '88, refuses to use the word “victims” to describe them. To her and her colleagues, they are always “survivors.”

Sugarman, a family practitioner and HIV physician in Washington, D.C., treats refugees who have fled from nations ravaged by government-sanctioned human rights violations. Through her work as a clinician at a public health clinic called Unity Health Care, Sugarman began crossing paths with torture survivors whose stories inspired her to develop ties with various refugee agencies in the area, voluntarily providing forensic medical evaluations of people's scars as they applied for asylum.

Two years ago, her involvement expanded when she joined the Board of Directors of the Torture Abolition and Survivors Support Coalition (TASSC) International — the only group in the United States founded and run by survivors of torture. The organization had a small staff when she signed on, but after Washington lost its only formal torture treatment program in 2015, Sugarman and her fellow board members sprang into action.

“More than 100 people were going to lose their life-saving therapy. We had no money, but we started fundraising to bring on these fantastic psychologists and social workers,” says Sugarman, whose TASSC team ultimately secured a federal grant to support its rapid growth. The coalition empowers its members by assisting with asylum applications, providing mental and physical healthcare resources, offering temporary housing and spearheading advocacy efforts on Capitol Hill.

“We use what we call a strength-based model,” explains Sugarman, who has been interested in social justice for as long as she can remember. After graduating from Jefferson, she completed Montefiore Hospital's Residency Program in Social Medicine in the Bronx, New York City, and worked with a drug abuse treatment program for pregnant women. She then moved to Israel, where she co-founded a program that served disabled children and

later treated patients at an AIDS clinic before returning to the U.S. and settling in Washington. “Traditional medicine treats people by focusing on their disease, whether it's heart failure or a psychosis,” Sugarman says. “But at TASSC, we focus on people's strengths — they've fled their country, they've made it to America, they've overcome countless obstacles. Now it's time to build on all of that strength to help in their recovery.”

One of Sugarman's favorite activities is taking torture survivors to medical schools, where they talk to students and residents about treating patients who have endured similar trauma. Telling their stories helps them heal, she says. Another favorite: accompanying them to marathons and other races. The majority of the survivors she sees have come from Ethiopia, and many were elite runners back home. After they become acclimated to life in the States, Sugarman encourages them to return to the sport they once loved. An amateur (“and very slow!”) runner who joined her first running club at age 45, she helps survivors train and has recruited a pro bono team of professionals — including a massage therapist and a physical therapist — for support.

The runners have significant physical issues to work through, but Sugarman says financial pressures present an even bigger barrier. “These are people who are working two or three jobs with all kinds of crazy shifts that don't allow them time for training. They're working nonstop to survive and to be able to send for their families.” Still, Sugarman urges them to participate when they can and travels with them to races in the D.C. area and beyond — sometimes as a cheerleader, and sometimes as a runner herself. Getting back to running revitalizes people who have lived through a nightmare, she says.

“Survivors see me shortly after arriving in America, and then I get to watch their entire journey,” Sugarman adds. “It's so exciting to see people heal and put their lives together — their resilience is wonderful and amazing. Working with this population is a true privilege. I definitely receive more than I give.” — KAREN L. BROOKS



At TASSC, we focus on people's strengths — they've fled their country, they've made it to America, they've overcome countless obstacles. Now it's time to build on all of that strength to help in their recovery.



Sugarman with TASSC executive director Gizachew Emiru, Esq. *Photos by Erin Scott*



Nick Benvenuto

Finding Science and Art in Both Winemaking and Medicine



Nick Benvenuto counts himself as one of the many Jefferson students who are already Jefferson alumni.

Now in his second year at SKMC, Benvenuto completed the Postbaccalaureate Pre-Professional Program — better known as “P4” — in the Jefferson College of Biomedical Sciences in 2014.

Designed to enable students to pivot from non-science undergraduate degrees to careers in health-related fields, P4 was a perfect fit for Benvenuto, who graduated from Penn State with a bachelor’s in agribusiness management, then began working at Wycombe Vineyards near his hometown in Bucks County, Pa. Fascinated by the science behind the fermentation process, he eventually headed west for a job at a vineyard and winery in California’s Sonoma County, stopping to visit a friend in Colorado along the way.

“I fell completely in love with Denver and couldn’t leave,” says Benvenuto, who changed his plans and reached out to a local winemaker in search of a position. “Luckily, wineries are always looking for harvest help.” Benvenuto and his coworkers would take turns driving a big yellow moving truck four hours to a tiny grape-growing town on the state’s western slope, where they’d pick up “a couple tons of grapes” before heading back and make and sell wine.

In his spare time, Benvenuto started volunteering at Denver Health Medical Center, where he did things like folding linens and keeping patients comfortable as they waited for care. He had always felt that winemaking was a temporary career and found himself drawn to the field of medicine: “Denver Health is a teaching hospital, and the doctors were comfortable with me watching them work.” The experience inspired him to apply to postbaccalaureate programs, and the following fall he enrolled at Jefferson as one of only 10 students in the inaugural P4 class.

P4 appealed to Benvenuto on several levels — he liked the thought of attending a graduate-level institution that focused exclusively on healthcare. “After three years out of

college, I didn’t want to go back to your typical 300-person gen-chem course, which can happen in postbac programs at undergraduate institutions,” he says. But he soon discovered perks beyond the small class sizes.

“As P4s, we got to be part of JeffHOPE [SKMC’s student-run organization that provides free care to homeless and underserved individuals]. Actually getting to serve on a med team in that environment — taking patient histories and vital signs, doing physical exams, presenting to resident-physicians — you don’t get to do that through other postbac programs.” These activities affected Benvenuto deeply;

now, as an SKMC student, he continues to volunteer with JeffHOPE as well as with Refugee Health Partners, which operates clinics for refugees living in Philadelphia.

Although his days in the vineyard are behind him, Benvenuto remains intrigued by wine: “Like medicine, winemaking is both a science and an art — all winemakers have their own touch and style. The process still amazes me.”

Can he recommend a standby favorite? “Sure. Rhône Valley reds, from the south of France. Châteauneuf-du-Pape is a really good one.” — KAREN L. BROOKS



As P4s, we got to be part of JeffHOPE. Actually getting to serve on a med team in that environment — taking patient histories and vital signs, doing physical exams, presenting to resident-physicians — you don’t get to do that through other postbac programs.



CLASS NOTES

'68

Joel Barish writes that he will “finally” retire in 2017 as clinical professor of medicine at the University of California, San Francisco, and says he enjoys his life on the West Coast and semiannual visits to Asia. He has two sons — a tax attorney and a PhD food scientist — both of whom live in Los Angeles.

Harold Yocum is three years into full retirement but keeps his license, takes CME courses and occasionally does volunteer work for the Boy Scouts of America. He lives in Edmond, Okla., with his wife, Mary Jo, and enjoys Scouting, birding and spending time with family.

'77

Michael T. Brady is associate medical director of Nationwide Children’s Hospital in Columbus, Ohio. From 2005 to 2013, he served as the hospital’s physician-in-chief. Brady is currently one of two candidates for the presidency of the American Academy of Pediatrics. His candidate profile can be found at www.aappublications.org/news/2016/06/22/BradyProfile062216.

'99

Lou Giangulio is the founder of a solo pediatrics practice, Sugartown Pediatrics, and has offices in Newtown Square and Malvern, Pa. Giangulio also serves as school physician at the Phelps School in Malvern and is the medical consultant for the Penn-Delco School District in Aston, Pa. He was named a “Top Doctor in Malvern” for 2016.

IN MEMORIAM

'44S

Peter P. Midura, 97, of Auburn, N.Y., died June 14, 2016, one day short of his 98th birthday. Midura served as a captain in the U.S. Army with the 27th infantry regiment, 25th Infantry Division, and was part of the occupation of Japan. Following his military service, he attended the Menninger School of Psychiatry in Topeka, Kan. From 1960 to 1987 he served as director of the Cayuga County Mental Department, retiring in 1994. He enjoyed gardening, golf and painting in oil and watercolor.

Midura is survived by three children, William, Alan and Elizabeth; seven grandchildren, Ben, Megan, Emily, Jake, Maya, Kiran and Mallika; two great-grandchildren, Brynn and Ben; and many nieces and nephews. He was predeceased by his wife, Ruth; seven brothers; and two sisters.

'46

Myron (“Mike”) Bash, 92, of Delray Beach, Fla., died March 5, 2016. After returning from two years of service as a medical laboratory officer in Stuttgart, Germany, Bash did his postgraduate training at Cincinnati General Hospital. He established his orthopaedic surgery practice in Trenton, N.J., in 1950 and continued to work there until his retirement in 1985, when he and his wife moved to Boynton Beach, Fla., and eventually Delray Beach. He had privileges at Mercer Medical Center, where he was chief of staff.

Bash is survived by his wife of 65 years, Naomi; two sons, Steven and **Evan ('82)**; a grandson, Ryan; seven granddaughters, Abigail, Amanda, Kimberly, Stevie, Mollie, Katherine and Erica; and two great-grandchildren, Fraiser and Resse. He was predeceased by a son, Gregory, in 2010.

'54

Joseph Leo Abbott, 86, of Newtown Square, Pa., died March 10, 2016. An ob/gyn who practiced for 40 years and delivered more than 8,000 babies, Abbott completed junior and senior internships at Fitzgerald Mercy Hospital in Darby, Pa. In 1954, he entered the U.S. Army Medical Corps, serving for two years as family physician and ob/gyn to airmen and families at the reactivated World War II Air Force base in Blytheville, Ark., where he became a staff member at Chicasawba Hospital. He and his family returned to Philadelphia in 1957 for his residency training at Misericordia Hospital. Abbott opened a private practice in West Chester, Pa., in 1961; in time, he joined with another practitioner to build what is known today as Chester County Ob/Gyn Associates. After retiring in 1996, he helped to found and served for 10 years at Community Volunteers in Medicine, a volunteer medical/dental clinic for working poor families in Chester County, Pa. He enjoyed traveling with his wife; reading biographies; watching movies; listening to big band music (especially his idol, Frank Sinatra); playing tennis; and spending time by the ocean and with family.

Abbott is survived by his wife of 63 years, Bernardine (“Bunny”); five children, Eva, Louis, Theresa, Andrew, William; 13 grandchildren, Kathy, Molly, Keren, JJ, Billy, Nicole, Patrick, Mary, Bryan, Megan, Rachel, Christine and Bernardine; three sisters, Gertrude, Harriet and Patricia; his longtime brother-in-law/friend **Louis L. Keeler, MD**, who completed his urology residency at Jefferson in 1967; and numerous nieces and nephews. He was predeceased by his oldest son, Joseph, Jr.; his brother, Francis; and his stepmother, Francis.

'56

Richard T. Price, 86, of Perkasio, Pa., died April 30, 2016. Price completed his internship at Methodist Hospital. Following two years as a U.S. Air Force flight surgeon in Fairbanks, Alaska, he returned to his hometown of Perkasio in 1960 and joined the medical practice of **Thomas Gates ('55)**. In 1966, along with his longtime business partner, **James Conrad ('65)**, he established Pennridge Medical Associates (later TriValley Primary Care), where he provided compassionate healthcare to residents in the Pennridge area until his retirement in 2002. A music lover, Price was proficient on both piano and organ, and he sang with a lovely bass voice. He and his wife of 57 years, Kathleen, enjoyed dining out; attending theatre and concerts in New York, Philadelphia and the Lehigh Valley; traveling with friends; and spending time with family. In addition to his wife, Price is survived by a son, Steven; a daughter, Sally; and three grandchildren, Mitchell, Aaron and Natalie. His son-in-law, **David Finkelstein**, graduated from SKMC in 1997 and completed his dermatology residency at Jefferson in 2001.

What's New?

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

BY PHONE
215-955-7751

BY EMAIL
alumni@jefferson.edu

BY MAIL
125 S. Ninth St., Suite 700
Philadelphia, PA 19107

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Deadline is **NOVEMBER 10, 2016**.



Jefferson Health®

HOME OF SIDNEY KIMMEL MEDICAL COLLEGE



'58

Albert B. "Bud" Wolbach, Jr., 83, of Lititz, Pa., and formerly a longtime resident of Ephrata, Pa., died July 1, 2016. For more than 40 years, Wolbach operated a private family practice at his home. He held memberships in the American, Pennsylvania and Lancaster medical societies and served as a Lancaster County deputy coroner. He sat on the Ephrata School Board for 12 years and was a member of the Lancaster County and Ephrata Republican committees, the Historical Society of the Cocalico Valley and the Ephrata Cloister Associates. He was a 320 Mason and member of Ephrata Blue Lodge No. 665, the Reading Consistory and Rajah Shrine.

Wolbach is survived by his wife, Shirley; three daughters, Sheryl, Wendy and Ann; three granddaughters, Christina, Stephanie and Helen; nine great-grandchildren, Miriam, Regina, Trevor, Olivia, Noelle, Lucian, Gabrielle, Charlotte and Madeleine; a brother, Richard; a sister, Carol; and several nieces and nephews. He was preceded in death by a sister, Doris.

'62

Leon M. Mielcarek, Jr., 79, of Delaware County, Pa., died June 14, 2016. Mielcarek was a U.S. Navy veteran who served as a battalion surgeon with the 9th Marines, traveling throughout the Far East with his unit. He then attended Naval Flight School at Pensacola, Fla., and spent the last year of his military career as a naval flight surgeon. After leaving the Navy as a lieutenant, he completed an ophthalmology residency at the University of Pennsylvania's Scheie Eye Institute. He then obtained a "locum tenens" in Nassau, Bahamas, where he filled a critical medical gap in this underserved area. For several months he was the only ophthalmologist in the Bahamas, working through Princess Margaret Hospital before returning to the University of Pennsylvania to teach ophthalmology. He also co-founded Mielcarek Eye Center in Media, Pa., with his wife, Eileen, in 1978, and they raised their family in the area. He continued to cover a full schedule at the practice until a few days before he died. A member of the Board of Directors at the Blind Sight Center in Delaware County, Mielcarek served as president of the National Dental

and Medical Association for Polish-American physicians and dentists. He spent his leisure time traveling, playing the piano, sailing, orienteering, attending art exhibits and classical music concerts, cheering for the Eagles, and eating good food and wine. He loved vacationing in Ocean City, N.J., with his family.

In addition to his wife, Mielcarek is survived by three daughters, Laura, Linda and Lacey; and five grandchildren, Adelia, Kay, Ryan, Travis and R. James.



From the Jefferson Archives

SOME HAPPENINGS FROM 50 YEARS AGO, IN FALL 1966

'66

▶ **PETER J. HERBUT, MD**, chair of pathology, is elected by the Board of Trustees to be the first president of the medical college and hospital (as opposed to president of the board). Herbut's plans included Jefferson's establishment as a full university.

▶ **THE JEFFERSON RUGBY FOOTBALL CLUB** (founded 1963) and the Temple University Medical School Rugby Football Club are the only medical colleges that play in the United States. Fall 1964 training takes place with enthusiastic cheering by "Rugger Huggers" (Jefferson fans) in anticipation of a spring rematch with Temple. Jefferson won the 1965 trophy match 21–0, making the team the "Medical School Rugby Champions of the USA!"

▶ Fundraising and design plans begin for the new **SCOTT LIBRARY-ADMINISTRATION BUILDING**, to be located on Walnut Street across from the College Building.



THE SCOTT LIBRARY-ADMINISTRATION BUILDING
 Jefferson Medical College and Medical Center
 Philadelphia, Pennsylvania

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Leave a Legacy

For Thomas Green, MD '94, Jefferson is more than just his alma mater; it's a place that feels like home. And while he now spends most of his time in upstate New York, where he serves as medical director of the Radiology Department at Crouse Hospital in Syracuse, his heart — and his philanthropy — remain at Jefferson.

Three generations of Greens have attended TJU. His mother, a nurse, and his father, a physician, met when they were students. So as Green likes to say, "If it weren't for Jefferson, I might not be here." Keeping it all in the family, Green's daughter recently enrolled in the Postbaccalaureate Pre-Professional Program in Jefferson's College of Biomedical Sciences.

A generous supporter of Jefferson, Green has made a contribution every year since his graduation. Recently, he made the ultimate gift by making a bequest to ensure that his generosity has a lasting impact even beyond his passing.

"Besides my children, one of my proudest accomplishments is graduating from Jefferson," Green says. "So, when I thought about what I wanted to leave behind, I knew I wanted to give back to thank Jefferson for what it's done for me."

To learn about including Jefferson in your will and other planned giving opportunities, contact:

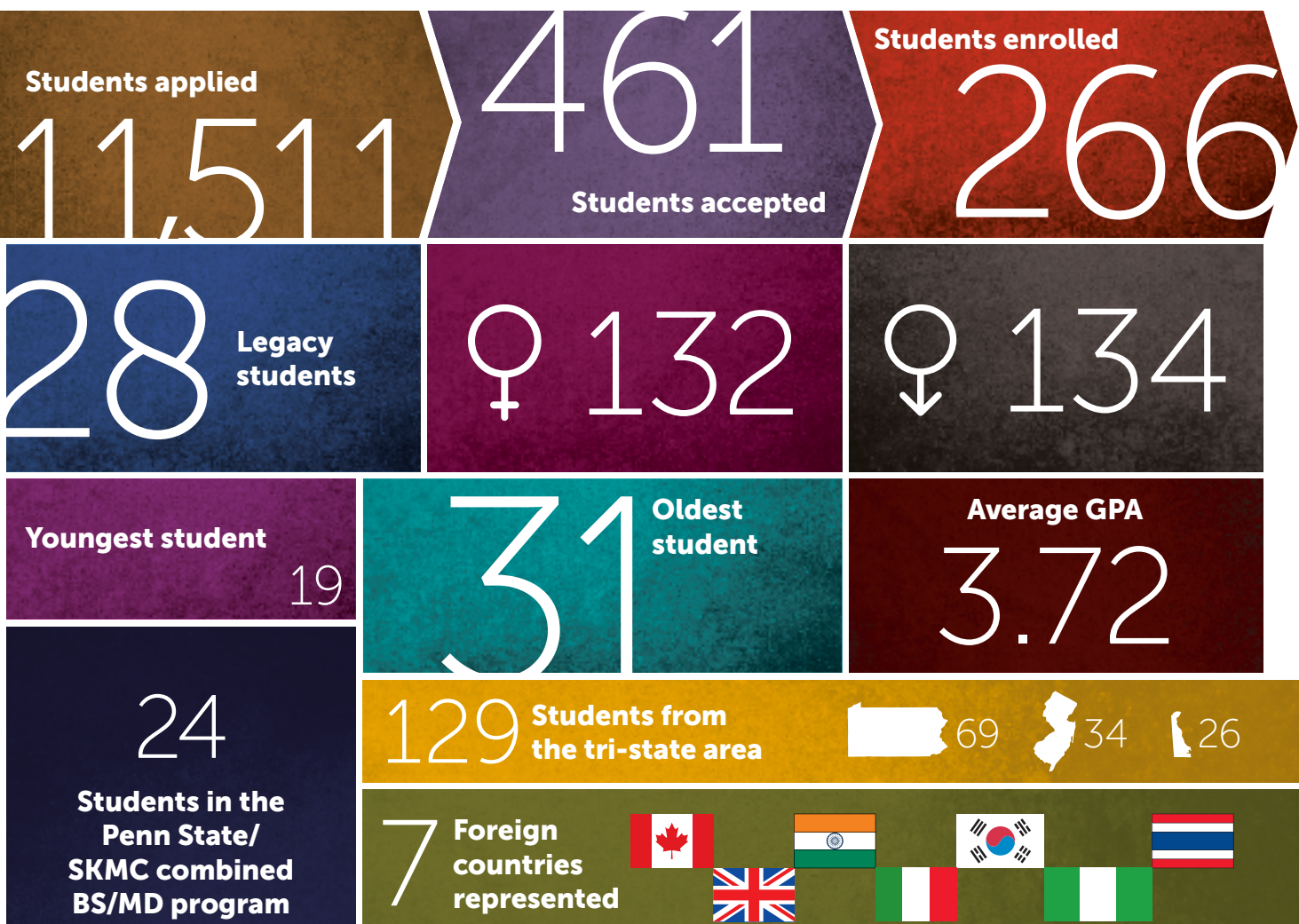
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Class of 2020 at a Glance

Five years ago, standout student-athlete Gracie Firestone cheated death when she survived sudden cardiac arrest just two days after graduating from her Delaware high school. She later teamed up with the American Heart Association of Delaware to spread awareness about sudden cardiac arrest and inspired three pieces of state legislation: the Grace Firestone Resolution, the Grace Firestone Act and Hands-Only CPR – laws that require sudden cardiac arrest training and education for coaches, referees and high school students.

Now living healthily with a defibrillator implanted in her chest, Firestone recently began her first year at SKMC. In addition to this staunch advocate for youth heart health, Jefferson's newest class of medical students includes a married couple, a children's book author, a rabbi, a former intern with Marvel Comics, a decorated U.S. Army Ranger and a participant from the physical competition television show "American Ninja Warrior."

Here are more Class of 2020 facts:



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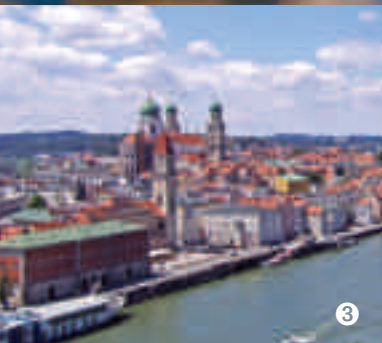
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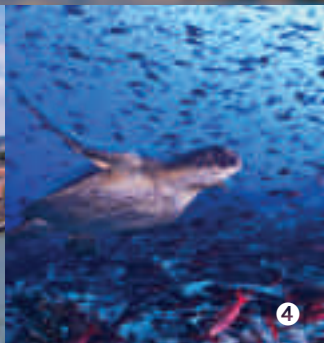
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UPCOMING TRIPS

Cuban Discovery
MARCH 4–12, 2017

Timeless Treasures: Athens to Rome
APRIL 28–MAY 6, 2017

Provence & the French Riviera ①
JUNE 1–11, 2017

Canadian Rockies Parks & Resorts ②
JULY 20–27, 2017

Baltic & Scandinavian Treasures
AUGUST 22–SEPTEMBER 2, 2017

Grand Danube Passage ③
AUGUST 23–SEPTEMBER 6, 2017

Flavors of Northern Italy
SEPTEMBER 9–17, 2017

Apulia: Undiscovered Italy ④
SEPTEMBER 19–27, 2017

Galapagos Islands by Small Ship ⑤
OCTOBER 18–25, 2017

As part of our commitment to lifelong learning, the Jefferson Office of Alumni Relations offers an exclusive Alumni Travel Program. A varied itinerary of travel destinations has been selected through 2017 to combine educational forums and excursions to places of historical and cultural interest. These trips offer the highest-quality travel experience through our partnerships with experienced travel providers.

Information on each destination is available at advancement.jefferson.edu/alumnitravel.

To sign up for our Alumni Travel Interest List or request an individual brochure for a specific destination, please contact the Office of Alumni Relations at alumni@jefferson.edu or 215-955-7750.



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