VOL. 6, NO. 1 SPRING/SUMMER 2020

DREXEL UNIVERSITY

College of Medicine

ALUMNI MAGAZINE

2019 REUNION PHOTO ALBUM | 28

HELLO TELEMEDICINE

Continue a Tradition

Give a white coat and stethoscope to an incoming medical student

Each year, at medical schools around the country, new medical students receive their first white coats at the annual White Coat Ceremony. This emotional event marks the beginning of their medical school journey.

To make the day especially memorable for our future physicians, Drexel College of Medicine also presents a stethoscope to each first-year student, thanks to the inspiration of alumnus Raymond Schreyer, MD, HU '78.

Now we invite alumni to follow his lead, to connect with our newest class and reconnect with their own journey through medical school. Additionally, Dr. Schreyer is generously matching any gift to the White Coat/Stethoscope Fund, up to a total of $13,000.

Please help us leave a lasting impression on our first-year medical students by purchasing a white coat and a stethoscope to be presented at the White Coat Ceremony.

Questions? Contact:

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DREXEL UNIVERSITY
College of Medicine
ALUMNI MAGAZINE

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ON THE COVER
Nineteenth-century image "Telephone Receivers" (color enhanced)

Photo: Science Source

FEATURED

DEAR HAHNEMANN

In a tradition started in the 1980s, teams of Hahnemann students decorated hospital beds and raced down Broad Street. Explore 171 years of history and archival images courtesy of the Legacy Center.

ARTICLES

DEPARTMENTS

Low-dose rapamycin shows great promise in reducing clinical signs of aging in human tissue

Virtual Reality

Since the advent of COVID-19, the College of Medicine has embraced virtual reality. The General Faculty Meeting was held on schedule; the work of committees continues; classes are in session; and a virtual thesis defense was attended by 120 people. A bigger challenge is presented by celebratory events, but rather than cancel, faculty and staff rise to the occasion.

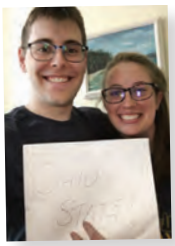
Virtual Match Day

Match Day is never ordinary for a graduating medical student, but on an ordinary Match Day — traditionally the third Friday in March — the seniors at medical schools around the country gather in a central place, are presented with envelopes they are not allowed to open, and maintain a jittery decorum as they wait for the clock to strike noon. Then they rip open their envelopes and find out their future.

This year, with the novel coronavirus on the horizon, Drexel College of Medicine students, staff and faculty responded by creating an extraordinary virtual Match Day. Even the jitters were represented as students awaited the signal to log in and view their results online. Then they celebrated each other with virtual hugs and high-fives. And the matches? They were amazing, as usual.

The Feeling Is the Same

Damarcus Ingram, who matched in internal medicine at Duke, says the change of venue didn't lessen his excitement. "Even though the circumstances were different, I don't think the feeling differed at all," he says. "I'm really glad Drexel gave us the opportunity to do this with our peers, because they're the people who know what we've been through."

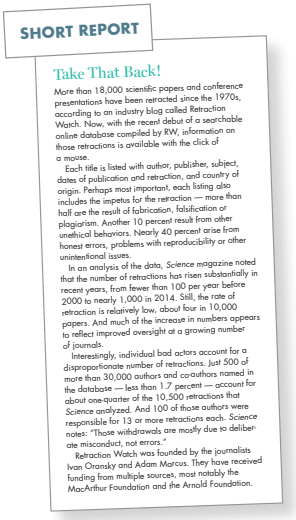


Silver Linings

Adrian Rainero Garcia and Meagan Clark matched together at Ohio State — he in emergency medicine and she in internal medicine. Rainero Garcia, who is from Spain, says his parents would not have been able to visit for an in-person Match Day. Thanks to the remote-only ceremony, his family was able to watch it in real time.

Necessity may be the mother of invention, but here we also credit TIME. The Technology in Medical Education group has been creating, developing, programming and facilitating since 2001 when, as MCP Hahnemann University, we became the first wireless medical school in the country. Watch the Match Day video at: https://bit.ly/DUCOMMatch2020

LETTERS


SHORT REPORT

Take That Back!

More than 18,000 scientific papers and conference presentations have been retracted since the 1970s, according to an industry blog called Retraction Watch. Now, with the recent debut of a searchable online database compiled by RW, information on those retractions is available with the click of a mouse.

Each title is listed with author, publisher, subject, dates of publication and retraction, and country of origin. Perhaps most important, each listing also includes the impetus for the retraction — more than half are the result of fabrication, falsification or plagiarism. Another 10 percent result from other unethical behaviors. Nearly 40 percent arise from honest errors, problems with reproducibility or other unintentional issues.

In an analysis of the data, *Science* magazine noted that the number of retractions has risen substantially in recent years, from fewer than 100 per year before 2000 to nearly 1,000 in 2014. Still, the rate of retraction is relatively low, about four in 10,000 papers. And much of the increase in numbers appears to reflect improved oversight at a growing number of journals.

Interestingly, individual bad actors account for a disproportionate number of retractions. Just 500 of more than 30,000 authors and co-authors named in the database — less than 1.7 percent — account for about one-quarter of the 10,500 retractions that *Science* analyzed. And 100 of those authors were responsible for 13 or more retractions each. *Science* notes: "Those withdrawals are mostly due to deliberate misconduct, not errors."

Retraction Watch was founded by the journalists Ivan Oransky and Adam Marcus. They have received funding from multiple sources, most notably the MacArthur Foundation and the Arnold Foundation.

To the Editor,

When I received the Spring/Summer 2019 issue of the *Alumni Magazine*, the story "Take That Back" in the Short Report section caught my eye. There was a study in the *International Journal of Radiation Oncology, Biology, and Physics:* "Continued Citation of Retracted Radiation Oncology Literature — Do We Have a Problem?" (2019; 103 (5) 1036–1042).

This study is by Daniel George Hamilton at the Peter MacCallum Cancer Centre in Melbourne, Australia. He updated a list of known retracted articles, and used Google Scholar, Web of Science, and Scopus to determine the number of publications which cited the retracted articles. There were initially 47 retracted articles, and 34 articles received 407 English and 169 foreign-language citations after they had been retracted. Most occurred in the second year after the articles had been retracted. He concludes:

> *Postretraction citations are an avoidable phenomenon. The results of the study emphasize the need for investigators to adhere to good research practices to mitigate the influence and propagation of flawed and unethical research. Journal editors, peer reviewers, and the broader radiation oncology readership should remain diligent in ensuring that citations of retracted work are identified and removed before, during, and possibly even after publication.*

I do not practice academic medicine, and have almost no research experience, but clearly this problem is widespread, and can potentially affect everyone who uses the medical literature. There was one example of a retracted study in a meta-analysis, which could potentially affect the conclusions of the meta-analysis and is concerning. Fortunately, more journal editors are becoming aware of it.

Peter Whitcopf, MD, MCP '94

WE WANT TO HEAR FROM YOU

Do you have an idea for "Did You Know"? Please send it along! We also welcome letters to the editor. Please send your ideas or letters concerning the magazine by email to jat492@drexel.edu, or by mail to DUCoM Alumni Magazine, 1505 Race Street, Mail Stop 484, Philadelphia, PA 19102. Please include your contact information. Letters to the editor may be edited for space.

Dear Fellow Alumni:

At their 35-year reunion last year, Dr. Codella and classmate Alfred E. Geissele, MD

Welcome to the Spring/Summer 2020 edition of the *Alumni Magazine*. During this unusual time, our efforts are focused on maintaining the education of the next generation of physicians at the highest quality and keeping scientific discovery progressing. This poses an additional challenge as we adapt to an environment necessitating that we communicate more via technology rather than within close proximity to each other. To that end, it continues to be important to acknowledge the good work coming out of our College, our alumni and of course our students — there is much to be proud of.

The new decade brings in a new era at Drexel University College of Medicine. Like many of you, I am a graduate of one of Drexel's legacy schools, Hahnemann University. I not only graduated from Hahnemann in 1984, but I completed my residency and gastroenterology fellowship at Hahnemann Hospital. Medicine is constantly changing, and while it pains me — along with so many others — in regard to the recent events surrounding the closure of the hospital, rest assured that the College of Medicine is adapting and thriving to meet that change.

Leading that charge at Drexel University College of Medicine is Dr. Charles B. Cairns, our new College of Medicine Dean. I hope you had the opportunity to read about Dean Cairns in the most recent edition of *Pulse*. Under his leadership we are excited about our partnership with Tower Health and the acquisition of St. Christopher's Hospital for Children. I hope you also saw the exciting announcement that Drexel is embarking on a phased process to relocate the College of Medicine to a new facility in University City. At the new academic building, many of Drexel's health-related programs will be under one roof, enhancing opportunities for interdisciplinary education in a facility that affords health sciences students, faculty and professional staff the best possible environment for continued development and growth.

As president of the Alumni Association, I can tell you that one of the most important missions of the association is to support our current students in their journey to become physicians, and to provide programs and opportunities for students to connect with alumni. Now, more than ever, our students are in need of alumni mentors and supporters. I want to thank the many of you who are already involved in mentorship roles or through philanthropic support. This pandemic has created challenges for all of us, but I know we will get through it, together. Stay well. Stay healthy. And thank you for your care and commitment for our community and, in particular, our students. If you would like more information on ways to get involved, please contact our Alumni Office by emailing medical.alumni@drexel.edu.

Mark S. Codella, MD, HU '84
President, Alumni Association Board

Ana Núñez, MD, HU '86

Image courtesy of Al Dia News

This profile of Ana Núñez was adapted from the cover story featured above, "Dr. Ana Núñez Bridges Gaps in Medicine at Drexel," by Emily Neil, published in Al Día, *October 9–16, 2019 (online October 10: aldianews.com/articles/culture/health/dr-ana-nunez-bridges-gaps-medicine-drexel/56540).*

The College of Medicine alumna, professor and physician focuses on developing diversity, equity and inclusion among providers and within the field as a whole to improve the quality of medical care.

Above and below: The Diversity Senior Celebration Dinner follows a tradition begun at MCP by James Batts, MD, an African American faculty member, who retired as professor emeritus in 1989. Batts, at his own expense, hosted a dinner at the Germantown Cricket Club, where the event is still held.

When, as a 9-year-old girl, Ana Núñez announced at the dinner table that she wanted to become a doctor, her family quickly corrected her.

She could become a nurse, they said. But women aren't doctors.

Growing up "Spanglish" in Altoona, Pennsylvania, Núñez didn't have many role models around her that would indicate anything other than that as the extent of her possibilities. But she persisted in her vision.

Later, as an undergraduate student at Wilkes University in Wilkes-Barre, Pennsylvania, Núñez faced yet another barrier of disbelief at the idea that she could achieve her dream of becoming a doctor.

As a chemistry major and an excellent student on the pre-health track, Núñez began receiving solicitations from Harvard Medical School and other prestigious programs during her junior year. But in addition to her academic success, she was also president of the student government. Nowadays, that would have been a point in her favor. Then it meant that her advisers and professors thought that she wasn't serious enough about academics to do well in medical school.

When she presented her pre-health adviser with the recruitment letters from Harvard and other schools, he said simply: "Throw them away."

"What?" she replied.

"Throw them away, you'll never get in," he told her.

Núñez was shocked, and disappointed. But once again, she didn't listen.

She had done well on her MCATs, and decided to still apply. She eventually got into four medical schools, and chose to attend Hahnemann because it was only four hours away from her parents and gave her good financial aid.

Now, as the associate dean for diversity, equity and inclusion at Drexel University College of Medicine, Núñez makes it her business to send a different message to those intent on pursuing the medical vocation. She tells all students, of all backgrounds, that not only do they belong in the profession, but their unique experiences, backgrounds, and skills are, in fact, vital to the betterment and growth of medicine.

'We have to do better'

On an unseasonably hot day in early October, Núñez walks the hallways of the College's Queen Lane Campus in East Falls. Around every corner she sees a student whom she knows by name, greeting them, asking them how their studies are going as she continues on her way.

Núñez knows pretty much all of the nearly 500 first- and second-year students on campus, not to mention many of the third- and fourth-year students, who are busy doing rotations, and the many students who have since graduated and started practicing in the field.

The kind of personal attention she offers her students is indicative of the respect and support that she has cultivated in her practice as a doctor, researcher, and advocate for better, more accessible health care.

Núñez was born and raised in Altoona — "not where a lot of Latinos are." Her dad was born in Ponce, Puerto Rico, and her mom had immigrated to New York City as a child from Valencia, Spain. Núñez's parents met in New York and eventually moved to the small city in central Pennsylvania so that their children could have access to good educational opportunities, and enjoy playing outside, surrounded by grass and trees.

Though there were many immigrants in the city, most were from Europe and had been there for several generations. The Núñez family did face discrimination because there wasn't really anyone like them, Núñez said.

But because there was no wider community context for her Latinidad, Núñez said that she didn't really feel "Latina" until she came to study at Hahnemann University in the 1980s.

She discovered that though it presented some barriers in how people perceived her, her identity as a Latina and her knowledge of Spanish shaped her experience as a medical student and beyond.

Her knowledge and unique identity also became something she learned to value, Núñez said. She witnessed early on in her medical career how the lack of doctors and nurses with different backgrounds and cultural competency and knowledge can cause serious problems.

At some point in training, she was called in to speak to a 25-year-old Puerto Rican woman who had given birth to her sixth child three days before. The baby had a fever, though, and had been separated from the mom so that the baby could receive proper care.

But the mother was, in the words of some of the other doctors, being "a pain in the butt." They didn't understand why she was upset and asked Núñez to speak with her.

"She looks me in the eye and she says, 'You people killed my baby,'" recalled Núñez.

She responded in disbelief. "What?!"

The woman said that she had had five other babies in the same hospital, and they had always been given to her as soon as they were born. This one, though, had been taken away.

Núñez realized that no one had attempted to explain to the mother where her child was, nor had they taken her to go see the baby in the nursery. The mother had assumed that the child had been killed, or had died.

"How can this be OK?" Núñez recalled wondering at the time. "We have to do better than this."

Bridging the gap

Spurred by the disconnects she saw in medicine that exacerbated health disparities, Núñez decided to focus on medical education training and health services research in the course of two fellowships she completed after becoming a general internal medicine practitioner.

She examined how providers can do better in terms of cultural competency and quality of care, developing a curriculum centered on how interventions could be utilized in the health care process, from people in the community to health care providers — and how, from there, people could be empowered to care and advocate for their own health.

This ultimately led Núñez to found Philadelphia Ujima in 2007, an initiative which grew to include more than 30 different local organizations and partners in supporting community members in developing healthier habits and aided in distributing vital medical education in a variety of ways.

"I have forever been the holistic, complex, how-do-you-approach-the-whole-system kind of person," Núñez said of her approach as a doctor.

Núñez acknowledged that it is an outlook which runs counter to a controversial op-ed published in the *Wall Street Journal* by a former associate dean of curriculum from the University of Pennsylvania, who argued that there was too much focus on "social justice" at the expense of technical medical expertise at medical schools today [wsj.com/articles/take-two-aspirin-and-call-me-by-my-pronouns-11568325291].

The need for consideration of lived environments and experiences is vital, and to illustrate her point Núñez pointed to something she discovered while working with Philadelphia Ujima. She explained that in the course of her work with the initiative, she discovered that some people do not have refrigerators in their homes. If they have diabetes, this means that their insulin will go bad because it is not refrigerated, and even if they are taking it faithfully, it will not work for them.

"The whole idea that you have to choose between medical care and attending to sociocultural determinants of health is really a false sort of dichotomy," Núñez said. Medical students and doctors, she said, "can do both."

In this context, a focus on women's health equity has been a vital part of Núñez's work. In addition to her role as associate dean, Núñez is also the director of the National Center of Excellence in Women's Health and the Women's Health Education Program at Drexel.

Núñez is particularly proud of her contributions to heart health awareness for women. In the early 1990s, she helped create a dissemination campaign that informed not just consumers, but also doctors and providers about the varying symptoms of heart attacks in women.

She believes that better research and funding options for how medications affect women is a necessary step towards addressing gaps in care. Núñez noted that once the field of obstetrics and gynecology was established, there was a view by medical providers that "Oh good, we don't have to do women's things.

"But that's also just implying that you are your gonads," Núñez observed. She said that many studies even today are still conducted with male mice and rats, which are cheaper for laboratories to purchase, and skew the results of drug trials so that most of what is known about how the drug operates is in relation to its effect on men.

"The things that we say are true were done on half the population" in many cases, Núñez said.

Full circle

Though Núñez said she faced barriers in her journey through medicine, she is now in a position, and in an environment, where the focus is on expanding access to the medical field for people of more diverse backgrounds, and also enhancing the quality of care for all people.

Núñez said former Dean Daniel Schidlow and current Dean Charles Cairns of the College of Medicine, along with the president of Drexel University, John Fry, have helped continue and enhance the heritage of both Hahnemann Medical College, founded in 1848, and Woman's Medical College of Pennsylvania, founded in 1850.

Both institutions historically looked to give groups under-represented in medicine — women as well as immigrants and African Americans — an opportunity to study in the field that had long been closed to them. It is a tradition which the school, under its new name, continues to uphold today, Núñez said.

Having providers that come from different backgrounds is essential for the quality of health care as a whole, she noted.

"The experiences and perspectives that you bring into the space flavor your antenna, in terms of what are the nuances, how do you understand what's going on, and how can you best serve using your talents," she said.

Though there are many obstacles that remain in establishing greater equity in health care, Núñez is as intent as ever on tackling every challenge she can find.

"I usually try to do not easy things," she admitted with a laugh.

First-year students from groups underrepresented in medicine are welcomed by older students at a party at Núñez's home after the White Coat Ceremony.

And Another Thing ...

The *Al Día* profile of alumna Ana Núñez, MD, was published in honor of her selection as the winner of the 2019 Hispanic Heritage Award for Health from Al Día News.

Also in 2019, Núñez was a recipient of the Hispanic Health Leadership Award from the National Hispanic Health Foundation, which honors leaders for their innovative strategies that improve the health of Latino communities. The foundation is the philanthropic arm of the National Hispanic Medical Association.

Núñez is a graduate of ELAM, the Executive Leadership in Academic Medicine program for women, a national program based at the College of Medicine.

A SHOT THAT CAN'T MISS:

What do hard fouls and buzzer beaters have to do with childhood literacy and high school graduation? For Drs. Hans Kersten and Dan Taylor, pediatricians at St. Christopher's Hospital for Children, there's a direct connection. The physicians are part of Reach Out and Read, a national nonprofit that champions reading daily to youngsters and provides the books to do it. In a fortuitous moment, Drs. Kersten and Taylor united their passion for basketball with their care for children, creating a nationally recognized fundraiser that benefits thousands of local families.

Reach Out and Read's mission is to give every child, ages birth through 5 years, a book at every well visit. Since St. Chris began its program in 2001, more than 800,000 books, and literacy guidance, have been provided to more than 300,000 families. Kersten says that gifting a book — in conjunction with speaking with parents about literacy — is a powerful tool. "It's hard to break that cycle of poverty," he says. "But when you get kids interested in reading and see them really take off, it's exciting. You hand them a book and their eyes light up."

BASED ON SCIENCE

Kersten and Taylor explain that the science behind Reach Out and Read is well established. The biggest predictor of high school graduation is one's reading level at the end of third grade. The biggest predictor of one's reading level at third grade is one's vocabulary at 3 years of age. The biggest predictor of vocabulary at 3 years of age is being read to (and spoken to) from birth.

As Taylor states, "When I've given a book to a 4-day-old, talking with the mom about the importance of reading — attachment, holding the baby and reading — I'm thinking about the 18-year-old graduating from high school and going off to college. Every time you give a book, you give that message."

The parents are the ones doing the work, both physicians stress. It's their engagement that matters. To this end, Taylor says when a baby is read to every day, "They're more likely to be prepared for school. Their brains grow and they're stronger." Yet if there was no book to give, the conversation about brain development "wouldn't be as powerful. They wouldn't have that tool to remind them of the message we talked about, and how school success means a healthier life for the rest of their life."

Despite this powerful evidence, funding was a constant issue for the program's first 12 years. Resources that were once available waned, and the onus was on the office to fund the books. "Once you start giving out books at every well visit, the thought of not being able to feels like you're doing a complete disservice to the families," Taylor says. "I wouldn't be a whole pediatrician without being able to give out the books."

Tournament Planning Committee (l-r): Hans Kersten, Dan Taylor, David Mercuris (front), Mark Tucker and Thomas Hammonds

PASSION MEETS PURPOSE

In the past, the St. Chris team tried various benefits and fundraisers. Kersten says a good night at a restaurant could raise $4,000. They were being creative, but few of their endeavors had lasting traction. As Kersten notes, they don't teach fundraising in medical school.

Then one Sunday morning, at their regular pick-up

REACH OUT AND READ

AT ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN

By Catherine McCorkle

basketball game, Kersten mentioned Reach Out and Read to another player, a real estate developer who'd grown up in North Philadelphia. The developer said he'd like to help. Kersten says this conversation quickly became "Let's have a basketball tournament." And they did.

That first tournament, in 2014, fielded eight teams and raised $8,000, double Kersten's biggest fundraising effort to date. Based on its success, players in the Sunday morning league formed a planning committee to keep it going. The annual event, generously hosted by Germantown Friends School, continues to grow. In 2019, the sixth edition boasted 14 teams, 140 players, 40 volunteers and more than 20 sponsors. The tournament has raised close to $110,000 so far.

"The beauty of it is, the guys are from disparate backgrounds," Taylor says. "You have doctors, guys who are unemployed, lawyers, school bus drivers, people who work at Germantown Friends in the maintenance department, all playing together for love of the game, and also understanding the city's children deserve a shot just like any kids in terms of success."

BIGGER DREAMS

This past fall, the St. Christopher's program was chosen, out of 6,000 sites across the country, to receive the Richard Robinson Award, "in recognition of its outstanding commitment to, and implementation and support of the Reach Out and Read model." More important than the award, however, is that the success of the basketball tournament has allowed Kersten and Taylor to dream for the children and families they serve.

Now, the books don't stop when a child reaches 5. School-age children receive books as well. The program was expanded to serve patients in other departments at St. Chris: Immunology, Special Needs, HIV, and satellite clinics.

There are books in over a dozen languages and stories that reflect a variety of experiences. "We have books for kids who are going through different struggles — a set of books for kids with incarcerated parents, books for kids with same-sex parents, books for kids that are struggling with gender identity. We have books with characters of all different ethnicities. We have situational books as well — books for grief," says Taylor.

Another goal of Kersten's is to develop a reading program for volunteers. "I'd love to do something with Drexel and get students up here on a volunteer basis," he says.

Reflecting on the success of the Reach Out and Read program at St. Chris, Taylor says their office has provided almost a library for some families. "It's a message that we believe in your child. You take home a tangible thing saying, 'We believe your child can succeed.'"

Richard Robinson, chief executive of Scholastic, was on hand when Dr. Kersten accepted the national Richard Robinson Award from Reach Out and Read.

TELEMEDICINE

Changing the Face of Health Care

By Nancy West

Even before the COVID-19 pandemic changed the world as we know it, telemedicine was on the verge of transforming health care. The global telemedicine market was projected to reach $19.5 billion by 2025, a 225 percent increase from $6 billion in 2016, according to a 2018 research study by Transparency Market Research. IHS Markit estimated that telemedicine visits in the United States would soar from 23 million in 2017 to 105 million by 2022. Now those projections could increase exponentially, fueled by the safety considerations and social distancing required to fight COVID-19.

What exactly is telemedicine? The Department of Health and Human Services defines it as "the use of electronic information and telecommunication technologies to support and promote long-distance clinical healthcare, patient and professional health-related education, public health and health administration." Telemedicine can be conducted via video visits, telephone visits, electronic messaging, virtual consults and remote patient monitoring with digital technology.

What is fueling its rapid growth? Besides the current COVID-19 pandemic, many factors are involved. Patients want convenience and an easy way to connect with their health care providers. At the same time, federal and state regulatory changes going into effect will reduce or eliminate longstanding financial barriers as more insurance companies begin to cover telemedicine visits. By the end of last year, 40 states and the District of Columbia had private payer laws in effect. Also, in 2019, the Centers for Medicare and Medicaid Services approved reimbursement for three services:

- Virtual check-ins, when the health care provider has a brief remote check-in with an established patient to assess whether an office visit is needed.
- Remote evaluation of recorded video, images and other patient-generated information to evaluate a patient's condition.
- Interprofessional internet consultations performed for the benefit of the patient.

On March 6, 2020, in response to the COVID-19 pandemic, CMS expanded the telemedicine benefit to include office, hospital and other visits provided via telemedicine across the country, including a patient's places of residence, with the 1135 waiver authority and Coronavirus Preparedness and Response Supplemental Appropriations Act. Physicians, nurse practitioners, clinical psychologists and licensed clinical social workers are now able to offer telemedicine to their patients. Government experts

anticipate that daily visit volumes for telemedicine providers will increase from 50,000 to 100,000 industrywide during the pandemic. Some experts expect CMS to continue this expansion of benefits after the COVID-19 crisis has passed.

Advanced technology has also stimulated the growth of telemedicine by enhancing its efficiency and effectiveness. The quality of telemedicine consults has been demonstrated in many studies (by the Veterans Health Administration and the Agency for Healthcare Research and Quality, among others). And insurers and patients are realizing significant cost savings.

Back to the Future

Telemedicine is not a 21st-century development. Its roots are in the 1960s and '70s, most notably when the National Aeronautics and Space Administration wanted to ensure that an advanced program for remote monitoring could lead to stronger medical support for astronauts during long-duration space missions. To test the advanced system, NASA created an earthbound analog, partnering with the Indian Health Service and the Papago people (now the Tohono O'odham Nation) of southern Arizona in a project called STARPAHC [Space Technology Applied to Rural Papago Advanced Health Care], which provided Native Americans on the remote Papago Reservation with access to physicians at Indian Health Service hospitals. NASA used microwave technology to transmit X-rays, electrocardiographs and other medical information.

Projects like this stimulated research in the field of medical engineering, which in turn led to rapid growth for telemedicine.

One College of Medicine alumnus, retired Army Col. Ron Poropatich, MD, HU '85, pioneered the use of telemedicine in the U.S. military, starting in 1992 when the Army deployed troops to Somalia for a humanitarian peacekeeping mission. Army officials wanted to have remote consultation capability to ensure that the troops got the best care.

"We figured out a simple system to send information back to Walter Reed Army Medical Center so physicians could review dermatology and infectious disease cases," says Poropatich, who is the director of the Center for Military Medicine Research at the University of Pittsburgh, as well as a professor of medicine in the Division of Pulmonary, Allergy, and Critical Care Medicine. "1992 was a breakthrough year for digital photography, so we took a Kodak digital 1.54-megapixel camera — for perspective, the average cell phone today has 10 megapixels or greater — and an Apple MacIntosh laptop computer. I downloaded digital images from the camera to the laptop and sent them to Walter Reed via the International Maritime Satellite system."

This simple system gained great acclaim, and in the ensuing years, Poropatich oversaw the implementation of telemedicine capabilities in more than 80 sites each in Afghanistan and Iraq, as well as locations in Croatia, Macedonia, Kenya and Haiti. In 1995, he developed and implemented telemedicine capabilities back home to meet the needs of active duty military and retirees for the 21-state North Atlantic Regional Medical Command.

Telepsychiatry

"In 1995, we could stand up a large behavioral health program with telepsychiatry consults both stateside and overseas," notes Poropatich. "In combat zones, it was challenging because we had people shooting at us, we were dealing with dust storms, and troops were scattered over large geographic spaces. We always want to provide the best possible care to isolated, small military bases like a command outpost or forward operating base. Those regions have concentrations of soldiers with medical needs. They can't just get in the car and drive to the nearest doctor.

"We were able to provide video consults at these outposts so the troops could see the provider face to face," he continues. "We try to fly providers in for in-person consults, but flights are often grounded due to weather or military conflict. Instead of stopping the psychiatry consult, the provider is still able to see patients via telemedicine. This is so important because these young men and women deal with so much stress. They often need professionals to help them cope, and telemedicine allows us to do that. It worked well in 1995 and continues to work well."

During his military career, Poropatich served as telemedicine and medical informatics consultant for the Army from

Telemedicine for a Warm Transfer

Pediatric neurologist Lawrence Fried, MD '11, is the co-principal investigator for a grant from the Health Resources and Services Administration to study transition of care as pediatric epilepsy patients age out, to study the use of telehealth and telemedicine strategies, and to strengthen relationships between primary care physicians and pediatric epileptologists at Children's Hospital of Philadelphia.

The team's research into telemedicine includes establishing a telemedicine clinic with a special focus on easing the transition of teenage patients from their pediatric neurologist to an adult neurologist.

"There's a lot of fear on the part of the families facing this transition because a lot of these kids have been seeing their pediatric neurologist almost their whole lives," Fried notes. "This longstanding relationship is now ending, and that's always scary.

"We are using a video interface with the pediatric provider, the patient and their family on one end and, on the other end, a nurse practitioner and physician team to help facilitate the transfer of care from pediatric to adult — a warm transfer. This helps to give the family a familiar face to look for when they make the transition. The video visits are more than just a meet and greet. It's also a brief review of the medical record and the psychosocial situation as well.

"We hope to expand the use of telemedicine to actually supplement in-person office visits with telemedicine visits, to reduce disruptions for patients who have geographic barriers and to facilitate access to care. This may also improve physician satisfaction, potentially reducing burnout, which has been widely reported in the profession."

2000 to 2008 and as deputy director for the Telemedicine & Advanced Technology Research Center. He also ran telemedicine for NATO from 2000 to 2012, which involved standardizing telemedicine across all military forces in 26 member nations.

In 2008, Poropatich implemented mCare, a secure mobile messaging program that provides mobile health to wounded warriors using their existing cell phones. In 2010, it was voted the Army's greatest invention.

Today the Army's telemedicine program has doctors in 25 different specialties who put information in "store-and-forward" — an electronic transmission of prerecorded videos, medical records and digital images — so that anyone can ask a question and get an answer within one or two hours anywhere in the world.

Tele-benefits

In the civilian world, Steven V. Gurland, MD, HU '67, also played a key role in the growth of telemedicine. After a career first as an internal medicine specialist and then medical director for a managed care company, Gurland was looking for a new challenge. He saw telemedicine as the future and invested, along with his partner, in the technology to support it. In 2009, they co-founded MDLive, a virtual health care services company with a network of board-certified physicians, dermatologists, psychiatrists and therapists.

Employers and third-party administrators contract with MDLive to provide telemedicine benefits for employees.

"To me, it was an obvious service that was needed," says Gurland. "We could provide access to care at a very low cost, which was what our health care system was crying for. It was a matter of convincing patients that it was a good way of communicating and, more importantly, convincing physicians and payors that it was something of value."

Even before COVID-19 struck, MDLive was thriving, with more than 30 million patient members nationwide.

"We have grown tremendously because we've proven over the years that the more patients who are treated through telemedicine, the more money the payor saves. We definitely decrease the number of unnecessary ER visits and urgent care visits," Gurland says. "Our members love it because, within 10 minutes, you can speak to a board-certified physician, and that is of immeasurable value. They think it's fantastic because they don't have to wait in a sick waiting room, or go to an urgent care center, or spend

thousands of dollars for something that's relatively simple to take care of."

MDLive recently began offering primary care services enabled by new technology. "You can truly examine a patient at home through the computer. You can listen to their heart and look in their throat and ears. Technology has gotten so much more affordable than when we first started. The remote monitoring equipment used to cost $5,000. Now you can get the same technology for $200. It makes sense for the insurance company to pay for the patient to receive this care at home so they don't have to visit the ER or the doctor," notes Gurland.

In response to the COVID-19 pandemic, MDLive announced initiatives to prepare for a significant expansion of services. As of March 19, the company reported a greater than 50 percent increase in utilization of its virtual platform since the start of the outbreak in the United States.

What Lies Ahead?

Most immediately, telemedicine will play a critical role in caring for patients with COVID-19.

"Eighty percent of COVID-19 cases are mild to moderate, not requiring hospitalization," says Poropatich. "Fifteen percent are severe, requiring hospitalization and supplemental oxygen. Five percent are critical, with patients admitted to the ICU on mechanical ventilators. The vast majority of patients in the 80 percent mild-to-moderate category can receive care through telemedicine.

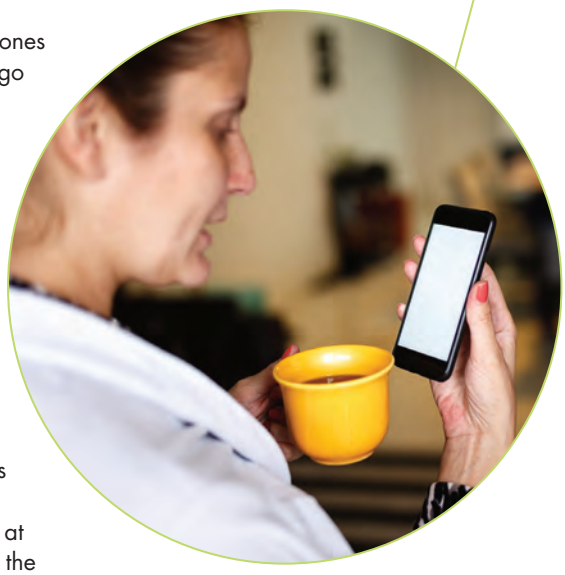
"Enabling patients to receive care at home with remote monitoring technology connected to the whole telemedicine health care team is going to be really important in fighting COVID-19," he continues. "I think more and more people will be going online and buying a pulse oximeter, blood pressure monitor and other simple technology to have at home. Having these and other vital sign readings will enhance our ability to provide effective care via telemedicine."

In the current environment, people with chronic diseases and other health problems don't want to venture from home because of the risk of exposure to COVID-19. "We already do a lot of monitoring of patients with chronic disease," Poropatich says. "At the University of Pittsburgh Medical Center, we have diagnostic kits that we lend to people with COPD, asthma, congestive heart failure and severe diabetes, among other conditions," he adds. "Telemedicine enables them to get the care they need without unnecessary risk of exposure."

Lawrence Fried, MD '11, a pediatric neurologist at Children's Hospital of Philadelphia who specializes in epilepsy, is using telemedicine to continue care for his patients while keeping everyone safe during the COVID-19 pandemic. "The technology that we are using is embedded within our electronic medical record system, and is very easy to use," he says. "My patients all seem to love our virtual visits. They are more comfortable at home, and it's less stressful for them than having to come into the city, especially during these times."

Generally speaking, Fried finds telemedicine most effective for follow-up visits with patients. "For initial encounters, an in-person visit is still preferable because the physical exam is such an important component. You can't test reflexes via phone or computer," he notes. Over the long haul, he believes telemedicine visits offered alternately with office visits would be very effective (see sidebar).

Pretty soon, according to Gurland, "very few conditions will require patients to go to the office. Most things — both acute illnesses and chronic — will be taken care of through telemedicine at home. All primary care will be done that way. With the new payment methods, you're going to see a tremendous amount of specialty work using telemedicine."



Poropatich says, "Cell phones are going to be the way to go in the future. Smartphone apps will probably morph into artificial intelligence in health care. You're going to use your cell phone to take a picture that will tell you what your rash is.

"To me, telemedicine augments care," he continues. "It's really hard to replace face-to-face visits entirely. But the technologies we have are going to make health care providers better at what they do by packaging the patient's medical information in a way that saves time. All this information is going to be on a cell phone. The cell phone is going to be the key tool for educating patients about how to lead a better and healthier life."

LEARNING AT THE INTERSECTION OF ART AND SCIENCE

THE MEDICAL HUMANITIES PROGRAM BROADENS THE MINDS OF FUTURE DOCTORS

By Elisa Ludwig

DRAWINGS MADE BY SECOND-YEAR STUDENT ANDREW DIMATTEO FOR THE GRAPHIC MEDICINE COURSE ARE A VISUAL NARRATIVE OF HIS PERSONAL EXPERIENCE IN GROSS ANATOMY LAB.

Physicians don't treat patients in a vacuum, and the study of medicine can't be isolated from the human experience. For more than 40 years, the College of Medicine's vital and still-growing humanities program has equipped students with greater insight about the world outside of the examination room.

"The more people study the humanities, the more well-rounded they are," says visiting Artist in Residence Emily Steinberg. "When we are exposed to more ideas, it shifts the way we think."

The Medical Humanities program officially launched in 1976 within the Department of Community Medicine at the Medical College of Pennsylvania. The school sought to address questions of ethics in the face of what were then new developments, such as organ transplantation, artificial organs and life-extending technology.

"There arose a belief that students should gain understanding of ethical issues in medicine and medical research," says historian Steven J. Peitzman, MD, a professor in the Division of Medical Education. "A related concern was that medicine had become so science-based and technologic that the 'human element' was being lost, and that study of the humanities within medical education might address this."

An early adopter of what would become a trend in medical education, MCP attracted some students specifically because of its interdisciplinary offerings. Over the years, courses in history of medicine, medical anthropology and art were added to the roster.

The current program includes at least ten electives, which students can opt for individually or as part of the Medical Humanities Scholar Track. Subjects include Poetry and Medicine taught by published poet Kelley White, MD; Being at the Bedside (compassion and mindfulness), led by program director Steven Rosenzweig, MD; literature; and philosophy. In addition, there are Medical Humanities Grand Rounds and special events, such as Peitzman's popular tour of Philadelphia's medical history that begins with a meal and an overview lecture. While most classes are taught by medical school faculty and students, two scholars in residence and visiting artists offer their own perspectives.

THE CHERRY TREE, 2011, BY BILL SCOTT (WOODMERE ART MUSEUM) IS ONE OF THE WORKS USED IN THE COURSE TRAINING THE PHYSICIAN'S EYE: ENHANCING CLINICAL SKILLS THROUGH ART OBSERVATION, TAUGHT BY FLORENCE GELO, DMIN, NCPSYA.

GRAPHIC MEDICINE

As an artist in residence, Steinberg came to Drexel in 2019 to teach a class on Graphic Medicine, a growing genre of comics and graphic novels centered on stories of patients or doctors. (An example is her own comic *Mid-Century Hipster*,

an intimate account of her hip replacement surgery, at emilysteinberg.com.)

Steinberg currently works with five second-year students who are creating illustrated stories about their first exposure to the anatomy lab and cadavers. No previous fine arts experience is necessary, though Steinberg has seen some surprising talent.

"The students have been incredible — I'm impressed with their professionalism, their intelligence, their empathy and, most of all, their willingness to jump into something they might not know anything about," Steinberg says. "For them, it seems to be a real relief and release — a place they can explore a different way of thinking, where they can reach and make mistakes and not worry about perfection."

Steinberg has found there are myriad stories in the world of health care, and visual narratives can uniquely capture the pain, confusion, grief and humor when both patients and providers come up against the body's limitations.

"These stories have difficult details that can be hard to talk about. Images allow you to express that in bold, blunt, visceral terms. The students are not talking about medicine in a dry way here; they can inject the emotional reality into the story."

Second-year medical student Marc Hem Lee found his way into the program when he initially attended Medical Humanities Grand Rounds. That inspired him to sign up for Dr. Ted Fallon's Reflective and Creative Writing class and ultimately opt for the Scholar Track.

"It is through art that we take time to process what is happening around us, especially as it often occurs at a pace that many students find quite challenging," Hem Lee says. "Writing — really any form of storytelling — is a great way to help put my experience as a medical student into perspective."

MEDICAL THEATER

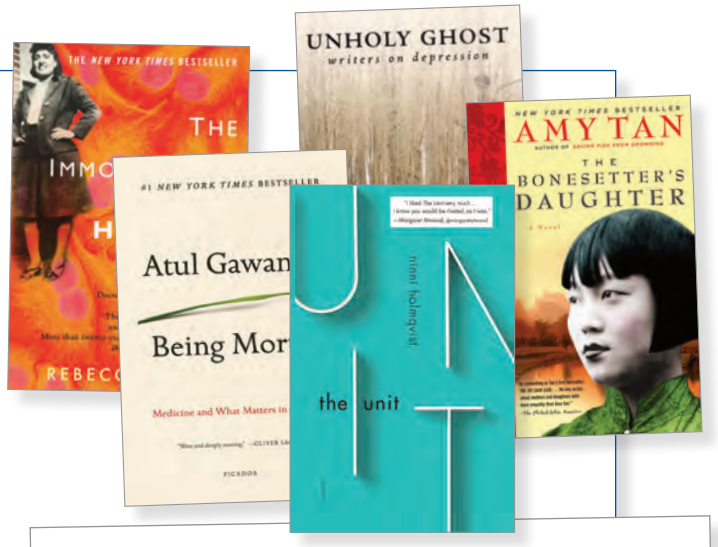
Hem Lee, a seasoned actor and acting instructor who studied theater as an undergraduate at Cornell University and has a graduate degree in acting from East 15 Acting School in London, now teaches his own class, Medical Theater. Students are required to see a play in the Philadelphia area, which Hem Lee views as a chance to better understand the culture of the city, or what he calls the "pulse of a community," and how theater (and doctors using performance modalities) can empower people.

"Every acting technique has its merits and challenges," Hem Lee says. "For example, improvisation is great for pushing your comfort zone and problem-solving in the moment, yet you often lack opportunities to refine that process — something that is more naturally explored in a traditional rehearsal setting with scripted work. We do improvisation for one class, movement for another, voice training for a third, and so on. I aim for versatility, creating different experiences from which students can draw to adapt to a myriad of situations."

As with Steinberg's class, this opportunity is open to all students, regardless of previous exposure to theater or performance, Hem Lee says. "Do I expect my students to be actors? Well, yes, in the sense that we all have roles to play on any given day, in any given phase of our life."

In a culture that has steadily devalued the humanities in education, the idea that medical students should spend their time reading philosophy, writing poetry or studying history can almost seem radical. Whether as an area of concentration or as an elective chosen on a whim, the humanities have much to teach future doctors, says Peitzman. Students walk away with "a broader view of medicine as an enterprise, a way to add to their understanding of the experience of illness and the experience of doctoring, and a chance to exercise analytical observation and thinking."

These "soft skills" are misnamed, Hem Lee says, because medical practitioners rely on them on a daily basis. "As we transition from the part of student to that of doctor, I hope to show student-artists that the medical practice requires their humanness, too."



LITERATURE AND MEDICINE BOOK CLUB, TAUGHT BY DREXEL ENGLISH DEPARTMENT FACULTY EDWARD FRISTROM, PHD, MEETS FIVE TIMES TO DISCUSS FIVE VERY DIFFERENT BOOKS.

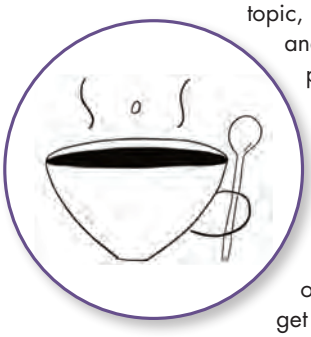
LEARN MORE AT DREXEL.EDU/MEDICINE/MEDICAL-HUMANITIES

SHORT REPORT

Spoonful of Sugar

Ria Mulherkar found herself feeling guilty whenever she took time from studying for the USMLE Step 1, wishing she had a way to keep reviewing while making food or doing laundry. So she did something about it for the next crop of first- and second-year students. She created Spoonful of Sugar, a podcast to help the medicine go down.

"Third- and fourth-year medical students provided the most efficient and useful advice to me as I was preparing for Step 1," says Mulherkar, now a fourth-year herself. She and her classmates provide their assistance through the podcast. Each episode tackles a single topic, including, for example, eye anatomy, myocardial infarction, pulmonary embolism and shock.



They are Q&A-style conversations: The speaker asks a question, pauses to give the listener time to think about the answer, and then proceeds with the response. Says Mulherkar, "When you tune in to our podcast, it doesn't matter if you get every answer right or get every answer wrong. When you listen, engage and understand, the learning will happen on its own." Have a taste at spoonfulofsugarorg.wordpress.com.

Hail to the Chiefs

"The Decade in Healthcare: 12 Milestones We Won't Forget" is an "ambitious yet humble" compilation by the editorial team at *Becker's Hospital Review*. Among other notable developments, such as the Affordable Care Act and the opioid epidemic, the article mentions the expanding array of C-suite roles in health systems. To CEO, CFO and COO, Becker's adds ten newer titles that have become more common, including chief experience officer (that's CXO), chief innovation officer, chief strategy officer and chief wellness officer.

What's in a [Drug] Name?

Out of nothing more than curiosity, an *LA Times* reporter set about figuring out where drug names come from — and not those shiny, sleek names that are clearly the work of marketing firms. He was curious about the often-unpronounceable names of their generic equivalents, citing examples like adalimumab, rovaroxaban, empagliflozin and palbociclib.

What he discovered was quite a surprise: The names are created by two women in Chicago, Stephanie Shubat and Gail Karet. Shubat, director of the United States Adopted Names program (part of the American Medical Association), and her colleague Karet make recommendations that are sent to the USAN Council, and the council approves or rejects the name.

Shubat and Karet name about 200 drugs a year. They consider a multitude of factors, among them similarity between brand name and generic (names too close to each other will lend favor to the brand name when generics are available); offensiveness in any language; and letters with meaningfully different pronunciations in other languages (meaning no W, K, H, J or Y in the name).

The pair work with consistent "stems" within a single drug class. Certain anti-anxiety medications all contain *azepam*, and cortisone-derived drugs have *cort* in their names, for example. This still leaves Shubat and Karet with the daunting task of coming up with new prefixes that don't sound too much like other drugs. Since USAN and other organizations have named about 11,000 generic drugs in the last 50 years, Shubat admits she even turns to license plates for prefix ideas.

Seat at the Table

An interactive exhibition, "Seat at the Table" celebrates the 19th Amendment, guaranteeing women the right to vote, while asking — 100 years later — "Where are we now?" The installation in the lobby of the Kimmel Center is free and open to the public daily through November 4.

The exhibition connects historical stories to contemporary issues, with the goal of raising awareness around women's suffrage and its ties to current social movements. The creators also hope it will inspire the next generation of civic engagement working toward gender equality.

The stark statistics of inequality are displayed in novel ways throughout the space. Huge infographics, which also function as furniture, show the disparities in diversity and leadership across multiple industries. Visitors are invited to take a seat at a board table, step up to a presidential podium, or ride a bike to "exercise your right to vote," while contemplating these disparities and imagining a different scenario. A wall of touch screens introduces 18 pioneering women who represent an array of arenas — activism, politics, business, STEM, communications and sports.

Commissioned by Vision 2020 as part of its Women 100 program, "Seat at the Table" was conceived and designed by DOME Collective, an experience design studio in New York City, and curated by Talbott Exhibits and Planning of Philadelphia. Both firms are women-owned. Visit women100.org/events/seat-at-the-table-exhibition/.

em-pa-gli-FLOE-zin
PAL-boe-SYE-klib

Partnership Across the Pond

A partnership between Drexel University and the University of Bologna known as DUniBo has launched an Italian exchange program for graduate students. Julia Farnan and Anthony DiNatale, doctoral students in the Department of Pharmacology & Physiology, were the first Drexel "ambassadors" to be hosted by the University of Bologna. They spent five weeks in Italy, learning about their counterparts' research. By the time they returned, Claudia Albertini and Ottavia Tartagni, two University of Bologna PhD students, were at Drexel on a similar getting-to-know-you mission.

DUniBo is led by Olimpia Meucci, MD, PhD, professor and chair of pharmacology and physiology at the College of Medicine, and Renato Brandimarti, PhD, assistant professor of pharmacy and biotechnology at the University of Bologna. In 2017, Meucci received a senior fellowship position in Bologna, and spent time gaining first-hand experience with the institution. Her collaboration with Brandimarti dates to 2002, when he visited Meucci's lab at Drexel.

The two institutions signed a memorandum of understanding in 2018, and just a year later, the Drexel students were on the ground in Bologna. In their time there, they met with faculty, PIs and students, and took enough notes to create a database so Drexel researchers and students can search for potential scientific collaborations.

The exchange program is called "The Outlooking Scientist," Meucci notes, because one of the major goals is to push students to look outside their own areas of research and look for more opportunities for interdisciplinary interactions. "We are still really at the beginning, and so far we are doing well," Meucci says. She has big ambitions for developing the program to include other disciplines and other institutions, all with the goal of broadening world views to make better scientists and stronger collaborations.

They Like Our Type

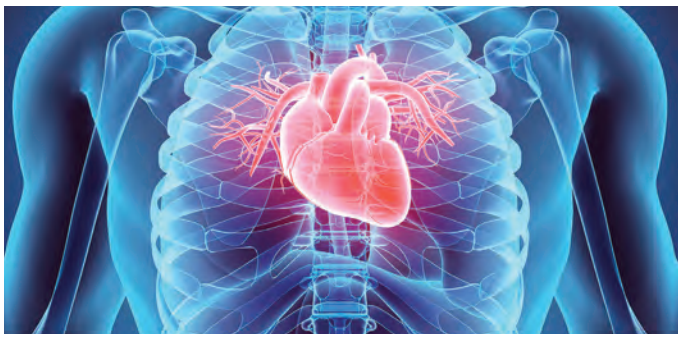
The College of Medicine has been looking good lately, and others have noticed! *Looking In: A Window Into Our Culture* received a 2019 Philadelphia Design Award for excellence in graphic design from the American Institute for Graphic Arts. The book is a glimpse into seven exceptional attributes of the College of Medicine. If you would like to receive a copy, email erl55@drexel.edu.

In addition, the Spring/Summer 2019 issue of the *Drexel University College of Medicine Alumni Magazine* won an award for publication design from Graphic Design USA. It's our favorite cover!

Saying No to 'Manels'

In 2019, NIH Director Francis S. Collins, MD, PhD, penned an open letter to the biomedical research community declaring his unwillingness to speak on panels where women and other people underrepresented in science have not been invited. He states that "it is time to end the tradition in science of all-male speaking panels, sometimes wryly referred to as 'manels.'"

His statement came on the heels of a report from the National Academy of Sciences, Engineering and Medicine, "Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Science, Engineering, and Medicine." The report links limited advancement opportunities for women and underrepresented minorities to a culture that tolerates harassment.



Heart Selfie: The Sharper Image

The heart is one of the most difficult parts of the body to observe. Standard imaging technology, such as ultrasound, echocardiography and computed tomography produce sound and video that is so distorted, doctors are essentially listening to echoes and studying shadows. As a result, cardiovascular disease is only accurately diagnosed about 70 percent of the time.

"Most of the technologies we have are good at looking at the big vessels on the outside of the heart. But really, they don't have the ability to see blood flow through the little vessels," says cardiologist Brett Angel, MD, a faculty member who trained in Drexel/Hahnemann programs.

Angel is part of a group that is developing a heart-activated contrast dye. The team includes Steven Wrenn, PhD, a professor in Drexel's College of Engineering, who designed the imaging dye Electrast. Wrenn's design encapsulates a droplet of perfluorocarbon — an inert chemical commonly used in enhanced ultrasound imaging — inside a lipid molecule.

Because lipids are smaller than blood cells, these capsules can move freely in the bloodstream without triggering an immune reaction. Once they encounter the electric field of the heart, the lipids begin to release the perfluorocarbon tracer. As ultrasound is applied, the sound waves are deflected by the tracer droplets but pass through the soft tissues of the heart, thus creating the contrast that enables an image to form. This means it can provide a very specific and detailed image of blood flow within the heart.

"Electrast can be injected into any vein, and it will not activate until it reaches the heart. Other tracer agents must be introduced directly to an artery via a catheter tube, because they will begin reacting immediately, and in the case of the tracers used in CT and PET imaging, the tracer is a radioactive chemical. So, doctors are hesitant to perform those tests, especially on patients who might not be healthy enough to handle the physical stress of it," says Angel.

Trials thus far are showing no adverse effects of exposure to Electrast. With funding from the Drexel-Coulter Translational Research Partnership program, the team continues testing in order to optimize the design of the lipid and tracer droplet configuration.

"If we could use this as a diagnostic tool to see if there are partial blockages, or a lack of blood flow that could lead to a heart attack, we would be able to catch it early enough to act on it before any damage is done. That's really the holy grail of cardiology," Angel says.

Send Us Your Ticks

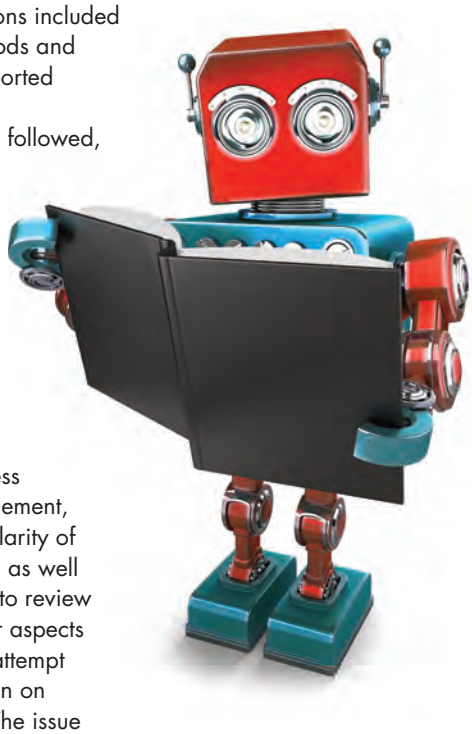
The Center for Advanced Microbial Processing at the College of Medicine is studying ticks and the diseases they carry via species-specific microbiome analysis. Researchers will use the data to make a comprehensive map of which microbes are carried by the different ticks in different parts of the United States. This will allow physicians to tailor testing for tick-borne illnesses in their communities.

The center has restarted its tick collection campaign, which began in 2017. Specimens are needed from "civilian scientists" (or scientists) from throughout the United States.

You can help! If you find a tick on yourself, a friend or an animal companion, please save it and send it to the center. Instructions, including a simple submission form, are available at drexel.edu/medicine/ticks.

Plagiarism Detectors

Last summer, a behavioral scientist discovered that a paper he submitted to a journal had been rejected for plagiarism — a decision he believed was made by a bot. Jean-François Bonnefon turned to Twitter to express his dismay, noting that the "plagiarized" portions included the author affiliations, methods and references. *The Scientist* reported the story on June 25, noting that a lengthy Twitter thread followed, including numerous other researchers complaining of the same issue. Bonnefon and others urged journal editors to allow humans to continue to make the final decision regarding plagiarism.



Journal editors spoke up, some noting that their process always involved a human element, despite the increasing popularity of AI text-duplication checkers, as well as automated systems used to review statistical analysis and other aspects of submitted papers, in an attempt to relieve some of the burden on overtaxed peer reviewers. The issue highlights the limitations of artificial intelligence, though, and adds to the larger issue of retracted works (Spring/Summer 2019) and the replication crisis, which particularly affects social science and medical research.

Speaking of retraction, be sure to see the letter on page 2 concerning postretraction citations.

Exploring the Unknowns of Aging

Researchers are tackling the riddles with some exciting results

By Elisa Ludwig

From metabolic processes to genomics to immunology, aging is a complex, multifaceted phenomenon that impacts the body's structure and function. While biologists have started to grasp some of the fundamental cellular changes that occur in later life, new questions about how and why we age are driving dozens of research endeavors by College of Medicine faculty and alumni.

"The basic biology of aging has evolved to the point where we understand some of the mechanisms behind how we age. We are now grappling with how to move these discoveries into clinical use," says Christian Sell, PhD, an associate professor and director of The Aging Initiative, which supports aging research (including a fellowship) at the College of Medicine. "That's a complicated task for any disease state, but it's especially complicated for aging, given factors such as timeframes and drug interactions."

The goal is not to prolong life, per se, but rather to improve quality of life, health care and potentially — in the distance — health care spending.

Better Living Through Biochemistry

Sell's area of interest is the mechanisms of lifespan extension, specifically metabolism and how cells use energy as they age. Like many researchers in the field, he has focused on the drug rapamycin, already approved by the FDA as an immunosuppressant for use in organ transplants. Rapamycin inhibits mTOR (mammalian target of rapamycin), a protein that is a core component of a network of intracellular and environmental signals that regulate cell growth and some of the biological processes that control aging.

In Sell's laboratory, rapamycin has been used in very low doses to inhibit the mTOR pathway in mice, which modulates their immune systems. The idea is that it might offer some protection from age-related disease, increasing both health span and lifespan.

"We find that in small doses, it actually improves cell function, and that has been very exciting to see," he says.

In his latest published research, Sell and his team tested the effects of a topical formulation of rapamycin in a prospective controlled study to see if it had an impact on aging in human skin.* In fact, the drug showed great promise, reducing markers of senescence and clinical signs of aging in the skin of the majority of subjects (see "How It Works," next page).

"Used in this way, rapamycin turned out to have surprisingly good results," Sell says. "That might tell us something about how other organ systems will react and how other diseases can be addressed with this drug, but we need better markers for differential responses between people."

Moving forward, the goal is to test rapamycin as a therapy for human conditions of aging such as cardiomyopathies, muscle failure, dementia and cognitive decline.

Another Approach

Alumnus Alessandro Bitto, PhD '13, is also studying rapamycin, the mTOR pathway and aging. A molecular pathobiologist and an acting instructor at the University of Washington, Bitto first became interested in this area of research while working in Sell's laboratory. He now looks at rapamycin for the treatment of mitochondrial disease and obesity, and what can be learned about aging vis-à-vis changing metabolic processes.

"I'm trying to develop the concept that obesity and metabolic complications also have common factors with normal aging; rapamycin and other drugs are effective in both situations," he says.

One of the intriguing qualities of rapamycin is that it mimics the effects of caloric restriction, which has been shown to prolong life.

A frequent collaborator with Sell, Eishi Noguchi, PhD, an associate professor of biochemistry and molecular biology, is using rapamycin to replicate the effects of a calorie-restricted diet through the mTOR pathway.

"We know that restricting calories has been good for health and extending life, but we want to understand exactly what mechanisms are at work — why eating fewer calories prevents DNA damage," he says.

His lab is looking at the mTOR pathway that is central to cell growth, proliferation and metabolism. In calorie-restricted diets, mTOR is inhibited and its direct target Maf1 is activated. In his recent report, he investigated the role of Maf1 in extending lifespan under calorie restriction. Closer examination of Maf1's role in protecting against DNA deterioration could allow Noguchi and his colleagues to specifically target Maf1. Ultimately, that could be the basis for the development of a drug that improves lifespan with fewer side effects than a less targeted treatment.

"The maximum lifespan right now is around 120 years old, and at that point most people are sick," says Noguchi. "We are not necessarily looking to have people live longer but to extend the health span as they age.

"If one day we can control our DNA and cellular

**Christina Lee Chung, Ibiyonu Lawrence, Melissa Hoffman, Dareen Elgindi, Kumar Nadhan, Manali Potnis, Annie Jin, Catlin Sershon, Rhonda Binnebose, Antonello Lorenzini, and Christian Sell: "Topical Rapamycin Reduces Markers of Senescence and Aging in Human Skin: An Exploratory, Prospective, Randomized Trial" in* GeroScience *Volume 41, Issue 6, December 2019 (online November 25, 2019, doi.org/10.1007/s11357-019-00113-y).*

How It Works

Basic science studies have used rapamycin to slow aging in mice, flies, and worms, but the study led by Christian Sell, PhD, is the first to show an effect on aging in human tissue.

"We were seeing a growing potential for use of this drug, so we said, let's try skin," Sell explained. "It's a complex organism with immune, nerve cells, stem cells — you can learn a lot about the biology of a drug and the aging process by looking at skin."

In the trial, 13 participants over age 40 applied rapamycin cream every 1-2 days to one hand and a placebo to the other hand for 8 months. The researchers checked on subjects after 2, 4, 6 and 8 months, including conducting a blood test and a biopsy at the 6- or 8-month mark.

After 8 months, the majority of the rapamycin hands showed increases in collagen protein, and statistically significant lower levels of p16 protein, a key marker of skin cell aging. Skin that has lower levels of p16 has fewer senescent cells, which are associated with skin wrinkles. Beyond cosmetic effects, higher levels of p16 can lead to dermal atrophy, which is associated with fragile skin that tears easily, slow healing after cuts and increased risk of infection or complications after injury.

The capability for rapamycin to improve human health beyond outward appearance is further illuminated when looking deeper at p16 protein, which is a stress response that human cells undergo when damaged but is also a way of preventing cancer. When cells have a mutation that would have otherwise created a tumor, this response helps prevent the tumor by slowing the cell cycle process. Instead of creating a tumor, it contributes to the aging process. "These cells that have undergone stress are now pumping out inflammatory markers."

In addition to its FDA-approved use to prevent organ rejection, rapamycin is prescribed (in higher doses than used in the current study) for the rare lung disease lymphangioleiomyomatosis and as an anti-cancer drug. The current Drexel study shows a second life for the drug in low doses, including new applications for studying rapamycin to increase human lifespan or improve human performance.

There are two pending patents on this technology, both of which have been licensed to Boinca Therapeutics LLC, of which Sell and another author are shareholders.

— Greg Richter

activities to make them fully functional, we can improve people's lives."

The DNA Puzzle

Biochemist Kate Beishline, PhD '13, worked in the lab of Jane Azizkhan-Clifford, PhD, professor and chair of biochemistry and molecular biology, while she was at Drexel studying DNA damage and repair. Now a faculty fellow and assistant professor at Bloomsburg University, she is studying the pathways of cellular aging at the molecular level, specifically CTCF (chromatin insulator protein CCCTC binding factor) and its role in telomere stability in normal cells and cancer cell formation.

"For a long time, people were focusing on the length of telomeres as the holy grail of aging, but it's not that simple," she says. "Ultimately, I would like to better understand DNA methylation and its relationship with CTCF and telomeres, as DNA methylation can be highly affected by aging cells."

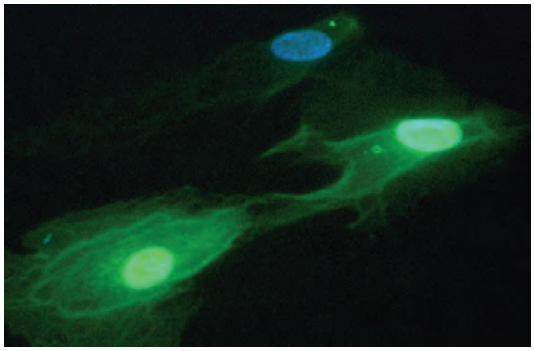
Beishline didn't initially plan to study aging, but developed an interest in the subject through her work on genomic stability. She is not as interested in finding an intervention for aging or its biological processes as in simply defining its mechanisms.

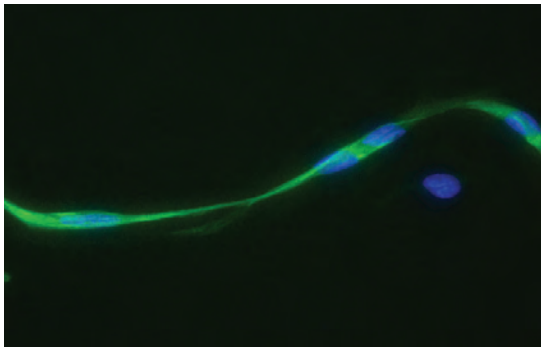
"I like looking at these pieces and understanding the pathways rather than focusing on the bigger picture. To me it's just about the curiosity to answer this question and then the next one," she says. "If we know more about how telomere length is regulated in normal cells, for instance, we might have a better understanding of what leads to disease or what makes us age."

Elsewhere in the College of Medicine, researchers are examining aging from the perspective of age-related disease. That includes Elias El Haddad, PhD, a professor of medicine and an immunologist by training.

"One of the biggest health challenges for older people — that means those 65 years and older — is that they have problems responding to vaccines. We know that the flu vaccine won't seroconvert in more than 60 percent of

Comparison of the placebo-treated hand at left to the rapamycin-treated hand shows that clinical signs of aging were improved in the treated hand.





Images of neurons differentiating in culture show how rapamycin (right) enhances this process versus control.

people who are 55 and older. The question is why."

In his lab, El Haddad takes a systems biology approach, looking at older patients' innate immune response from multiple perspectives to identify the immune cells that are unable to respond to pathogens.

"We've found that dendritic cells have altered functions responding to TLR ligands in aging people, which in turn affects their ability to stimulate T cells," he says. "We are now digging further to understand the intercellular defects in each cell and why this is happening. The ultimate objective would be to design a vaccine with an adjuvant molecule that can target these defects."

Such an approach might be applicable in viral diseases like West Nile, yellow fever, smallpox and pneumonia. The stakes, he says, are very high, given the growing aging population and the public health risks of ineffective vaccines.

"As more and more people will be over the age of 65, it's important to create a healthy environment."

Healthy Aging and Alzheimer's

Claudio Torres, PhD, an associate professor of neurobiology and anatomy, and microbiology and immunology, has long been interested in the mechanisms of aging that pave the way for neurocognitive disease, including Alzheimer's disease and HIV-related dementia. Key among them is cellular senescence, which can be triggered by DNA damage, oxidative stress, telomere dysfunction and other factors.

Through in vitro cell studies, Torres examines the role of proteins associated with Alzheimer's disease and HIV drugs as inducers of senescence; the consequences of cellular senescence on function of brain cells such as glia and neurons; the analysis of cellular senescence in the human brain during healthy aging and Alzheimer's progression; and pharmacological interventions in senescence. The goal is to ultimately understand these mechanisms clearly enough to develop a way to delay senescence through treatment.

"My laboratory is a pioneer in the study of cellular senescence in the human brain, and we have proposed a central role for glia senescence in the pathogenesis and age-dependency of Alzheimer's disease," Torres says. "There are features of the senescent cells that may explain several signs associated with the disease. For instance, the inflammatory response observed in Alzheimer's patients could be explained by similar inflammatory factors highly produced and secreted by aging astrocytes, which vastly populate the brain of these patients.

"Age is the major risk factor for Alzheimer's, and our research supports cellular senescence as the mechanism that links aging with this pathology. Perhaps even more important, our research suggests that brain-targeted interventions in the senescence program may ameliorate the initiation and progression of Alzheimer's disease.

"We've seen that we can eliminate senescent brain cells, and other labs have shown in mouse models that behavior and cognition improve. This could have broader implications for delaying the onset of other diseases, and it has been very promising so far," Torres says.

At the University level, the Cell$_2$Society Aging Research Network, a one-year initiative focused on use-inspired aging research, brings together 23 faculty members with wide-ranging expertise from a variety of disciplines, including biology, nursing (the PI and others), medicine, biomedical engineering and public health, among others. Sell is a member of the steering committee, and surgeon Michael Weingarten, MD, is a member of the research network.

Weingarten has two ongoing studies that could help improve the health of older patients. In one, the professor is testing the use of low-frequency ultrasound to heal chronic wounds, a major health risk in the aging population, particularly for diabetes patients. Another study is looking at the use of infrared technology for earlier detection of pressure ulcers in immobilized patients.

"We have a unique situation at Drexel, where we can collaborate as a team across departments and schools to do research like this," Weingarten says.

"We have a unique situation at Drexel, where we can collaborate as a team across departments and schools"

More PhD students are coming to Drexel planning to conduct research related to aging, according to Noguchi, who directs the Molecular & Cell Biology & Genetics graduate program. With the aging of the population at large, the field will continue to grow.

"It's exciting to think about the continuum of work here, from basic biology to immune function to the clinical side, and interventions that can help prevent age-related health conditions," Sell says. "This is one of the last frontiers in biology. We are not designed to go on forever. When I first started in science, the idea of intervening in aging seemed impossible — and yet here we are."

1800

1848

The Homeopathic Medical College of Pennsylvania opens in a leased building at 229 Arch Street • Students receive clinical instruction at a dispensary that treats the poor

1850

Female Medical College of Pennsylvania is founded • The school is later renamed Woman's Medical College

1852

Homeopathic Hospital of Pennsylvania opens at 24th and Chestnut Streets but closes two years later

1862

A women's association opens a hospital in the rear of the college building to treat wounded soldiers • It closes after the war

1867

Following a rift, a group of physicians leaves to open a second school, the Hahnemann Medical College of Philadelphia

1869

Faculty members bring the rival schools together • The two colleges merge under the name Hahnemann Medical College • A fair is organized to celebrate the merger and raise funds for a homeopathic hospital

1871

Homeopathic Hospital of Philadelphia opens in January

1882

Land (1.8 acres) is purchased on Broad Street between Race and Vine for the medical school

1884

Thomas Creigh Imes becomes the first African American to graduate from Hahnemann • Work on a new hospital and college begins

1885

Homeopathic Hospital of Pennsylvania at Philadelphia (first chartered in 1852) merges with Hahnemann Medical College of Philadelphia

1886

Hahnemann Medical College completes a new education building on North Broad Street

Honoring the Hahnemann Community

The bankruptcy and closure of Hahnemann University Hospital over last summer marked an abrupt end to part of a 171-year legacy, known for path-making medical firsts in the fields of homeopathy, anatomy and cardiology, as well as progressive medical education and exceptional care of its patients.

Those significant aspects of Hahnemann's distinguished history inspired The Drexel Collection's exhibition Honoring the Hahnemann Community, which opened in November at the Paul Peck Alumni Center in University City and moved to the Center City Campus in January. It was scheduled to travel to the Queen Lane Campus this spring, but the campuses were closed because of COVID-19.

The curators documented the history of the institution through an extensive timeline, historical objects and a wide array of archival photographs from the Legacy Center Archives at the College of Medicine. And in honoring the hospital, as the name suggests, the exhibition honored the faculty, staff, students, alumni and community that supported and benefited from the institution for generations.

Photos: The Legacy Center: Archives and Special Collections (drexel.edu/medicine/archives)

1888

Rufus B. Weaver, MD, professor of anatomy at Hahnemann Medical College, finishes the first dissection of the complete nervous system • It wins a gold medal at the Chicago World's Fair in 1893

1889

Following the Johnstown flood, Hahnemann establishes a free homeopathic dispensary in Johnstown for survivors, treating 2,350 patients in a six-month period

1890

Hahnemann completes a 150-bed hospital at 15th & Vine Streets • The corporate name "Hahnemann Medical College and Hospital of Philadelphia" is adopted • The Hahnemann Hospital Training School for Nurses is launched

1891

Drexel University is founded by financier Anthony J. Drexel

Where It Started

The Hahnemann University Hospital that closed in 2019 had a different name, location and medical focus from its genesis 172 years ago. Its roots can be traced to the Homeopathic Medical College of Pennsylvania, founded in 1848 to teach a new medical system known as homeopathy, which is based on the belief that a disease can be cured by a substance that causes similar symptoms in healthy people. The college also operated a free clinic for the poor to provide clinical opportunities for its students.

Created by German physician Samuel Hahnemann, homeopathy was very popular in the 19th century, and the college, which later became Hahnemann Medical College of Philadelphia, was the first enduring institution to teach it.

A homeopathic hospital opened in 1852 but closed two years later. A similarly short-lived hospital opened behind the college for the purpose of treating soldiers wounded in the Civil War. Finally, in 1871, a new five-story hospital, the Homeopathic Hospital of Philadelphia, opened on Cuthbert Street. However, early tensions between the college and the hospital over their missions persisted for nearly a decade. The hospital corporation wanted to be independent of the college, while the faculty wanted to erect an amphitheater in the hospital for clinical instruction.

Eventually, work began on a 150-bed hospital at 15th and Vine Streets, which opened in 1890, and a new education building went up at 222 North Broad. The institutions were united under the corporate name Hahnemann Medical College and Hospital of Philadelphia. But this was not the last move of either the hospital or the educational programs. In fact, they switched places in the late 1920s. Education moved into the

1900

1910

Similia, the yearbook of Hahnemann Medical College, includes fraternities and athletics • The yearbook name varies over the years before finally becoming *The Medic*

1921

Hahnemann opens America's first school of X-ray technology

1927

The Hahnemann College building at 222 North Broad Street is razed

1928

Hahnemann Hospital opens at 230 North Broad Street • It is the first "skyscraper" teaching hospital in the United States • The medical school moves into the 1890 hospital building on 15th Street

1941

Hahnemann Medical College admits female medical students

1948

Chief of Thoracic Surgery Charles Philamore Bailey, MD '32, performs the world's first successful closed-heart valvular surgery • In 1957, he appears on the cover of *Time* magazine

1959

The last teacher of homeopathy retires

1963

Hahnemann doctors perform the region's first kidney transplant

1967

Hahnemann starts the world's first graduate-level art therapy education program • The Myer Feinstein Polyclinic at 216 North Broad Street and the Elmer Holmes Bobst Clinical Research Building open • A graduate school is established

1968

Walter Lomax, MD '57, treats Dr. Martin Luther King Jr. for a viral infection when he comes to Philadelphia to open a field office for the Poor People's Campaign

1970

Hahnemann launches Pennsylvania's first outpatient dialysis unit • Woman's Medical College becomes Medical College of Pennsylvania

1971

Wilbur W. Oaks, MD '55, and David A. Major, MD '64, establish the Physician Assistant program at Hahnemann Medical College and Hospital, one of the first in the country

1972

Hahnemann University Graduate School is formally organized under its first dean, microbiologist Amedeo Bondi, PhD

1974

New College Building is dedicated

1975

The nursing diploma school is converted to undergraduate degree programs

1976

Hahnemann doctors perform the region's first allogeneic bone marrow transplant • Hahnemann Medical College introduces a master's degree in family therapy

1979

The hospital's North Tower opens at Broad and Vine

1982

Hahnemann Medical College becomes Hahnemann University

1890 hospital building, and the education building gave way to a state-of-the-art hospital. The new Hahnemann was much admired as the first "skyscraper" teaching hospital.

A Change in Curriculum

Nearing the middle of the 20th century, the field of homeopathy was in decline, and Hahnemann — which had long taught allopathic medicine as well — rearranged its curriculum, no longer requiring homeopathy courses and removing them entirely in 1959.

By that time, Hahnemann had already started reinventing itself as a nationally known academic medical center, with prominence in cardiac surgery, cardiology and oncology. It would go on to become a leader in organ transplantation and the training of physicians and other health professionals. Throughout its complex history, Hahnemann was well known for innovation and was home to significant medical firsts in the region, the country and the world.

This commitment to excellence and developing new medical techniques and fields lasted until the end: In 2017, Hahnemann became the country's second academic medical center to offer a transgender surgery fellowship program, and in 2019 Hahnemann's kidney transplant program ranked in the top 10 nationally and was Pennsylvania's only 5-star program.

Patients First

As a safety-net hospital, Hahnemann provided affordable care to Philadelphia's uninsured, undocumented and vulnerable residents, as well as those living in the neighborhoods north of City Hall. With its Level 1 trauma center,

Hahnemann's emergency department was the first destination for any casualties of the many festivals and events on the Benjamin Franklin Parkway.

The hospital also had its fair share of notable patients: Actress and future Princess of Monaco Grace Kelly was born at Hahnemann in 1929; Vanguard founder John Bogle received a transplanted heart at Hahnemann in 1996, living for 22 more years; and former President Gerald Ford was treated there for a stroke and infected tongue while attending the Republican National Convention in 2000.

In 1998, the hospital and the medical school became independent institutions once again after the for-profit Tenet Healthcare purchased the hospital. The school had earlier been merged with the Medical College of Pennsylvania as MCP Hahnemann School of Medicine (see timeline). Drexel University took on managing, and then acquired, the not-for-profit medical school, and in 2002, Hahnemann University Hospital and Drexel University College of Medicine signed a 20-year academic affiliation agreement. More than 500 residents and fellows and about a third of Drexel medical students received clinical training at the 496-bed teaching hospital. But in 2018, Tenet sold the hospital to American Academic Health System, and within 18 months, American Academic announced it would file for bankruptcy and close the hospital.

What Endures

From opening to closing, through new names and locations, and over the decline of homeopathic treatment and the rise of groundbreaking procedures, Hahnemann University Hospital maintained its forward-thinking reputation as a medical leader. It provided care to its community, training to students and graduate physicians, and opportunities for its staff to offer the finest treatment available.

That's exactly the kind of legacy we pay tribute to.

1986

Hahnemann opens the city's first adult Level 1 Trauma Center • Hahnemann forms University MedEvac with Lehigh Valley Hospital Center, where Michael Rhodes, MD '70, is chief of trauma

1988

Allegheny Health, Education and Research Foundation, based in Pittsburgh, acquires MCP and its hospital

1993

AHERF acquires Hahnemann University and its hospital

1994

The medical schools are merged as MCP◊Hahnemann School of Medicine • The first class under that name enters in 1995

1996

The institution is renamed MCP◊HU Medical School of Allegheny University of the Health Sciences • Diplomas continue to be issued by MCP or Hahnemann • Allegheny establishes the School of Public Health

1998

AHERF, which now owns eight Philadelphia hospitals, including MCP, Hahnemann and St. Christopher's Hospital for Children, files for bankruptcy • Tenet Healthcare, buys the hospitals • MCP Hahnemann University is created to preserve the health sciences schools • Drexel University agrees to manage the new academic entity

2000

2002

The Drexel board votes unanimously to make MCPHU School of Medicine a subsidiary of Drexel University, creating the Drexel University College of Medicine • Hahnemann University Hospital and the College sign an academic affiliation agreement

2008

Among many joint initiatives, Hahnemann, the College of Medicine and Drexel's School of Public Health collaborate in Healing Hurt People, a violence-intervention program that is a national model

2017

Hahnemann is the country's second academic medical center to offer a transgender surgery fellowship program

2018

American Academic Health System LLC purchases Hahnemann and St. Christopher's from Tenet

2019

Hahnemann University Hospital files for bankruptcy in U.S. Bankruptcy Court on June 30 • The hospital discharges its last inpatient on July 26 • Hahnemann closes its emergency department on August 16

Welcome, Classes of 1969!

The Hahnemann and Woman's Medical College Classes of 1969 kicked off their reunion on Thursday, May 16, with a reception at the Pyramid Club on the 52nd floor of the Mellon Bank Center.

Top: WMC '69, l-r: Drs. Shirley Parker Levine, Sheila Murphey, Marilyn Ross Cahn, Nancy M. Coyne, Vivian Blotnick Pender, Sheila Margolis, Linda Cahill, Polly Anderson Graham, Anna Taback Meadows, Jo Rosen Johnson, Agatha Noely, Judith Haschak Figura, Jeanne Fastook, Sister Ellen Anderson, Johanna Del'Re Kalemba

Bottom: HMC '69, l-r (standing) Drs. Dave Williams, John Genrich, William Fike, Geoffrey Lefferts, Edward Zissman, Victor Borden, Thomas Rakowski, Anthony Zappacosta, Barry M. Farber, Frank W. Bowen Jr., Thomas Bonekemper, W. Steven Mark, Drew McCausland, Rodney Wenrich, Justin Bergman; (seated) Drs. Pasquale (Pat) Procacci, Kenneth Wildrick, Michael Weiner, Jeffrey M. Bell

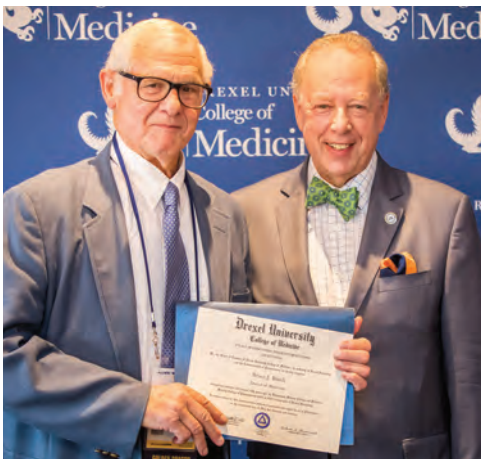
Clockwise from left: Classmates Nancy Coyne, Gail Buckley Ruddick, Judith Haschak Figura, Johanna Del'Re Kalemba, Ann Carol Vogel and Anna Taback Meadows

Robed and ready, Pat Procacci, Michael Wiener, Jeffrey Bell, Dave Williams, Ken Wildrick, Geoffrey Lefferts and Frank Bowen

ALUMNI WEEKEND 2019

Golden Dragon Society

The Classes of 1969 joined members from previous years (the Grand Classes) early Friday evening to be inducted into the Golden Dragon Society by Dean Daniel V. Schidlow, MD.



Dr. Schidlow with Bruce J. Basch, MD

… Ann Carol Vogel, MD

… Richard L. Schneider, MD

Grand Classes quartet: Drs. Mary Cote, WMC; June Greenspan-Margolis, WMC; Robert DeSilverio, HMC; and Carolyn Taylor Kitchin, WMC, all class of 1959

College of Medicine All Alumni Celebration

All College of Medicine reunion classes came together Friday night at the Hotel Palomar for a celebration featuring great city views and live music.

Alumni Awards

The College of Medicine Alumni Association Board of Directors recognized outstanding alumni during lunch at The Logan on Saturday.

Donna Antonucci, MD, MCP '84, presented the Boots Cooper, MD, Service Award to Mark S. Codella, MD, HU '84, president of the Alumni Association.

Rhonda Graves Acholonu, MD, MCPHU '01, here with Dr. Schidlow, was recognized with the Emerging Leader Award.

The Medical College of Pennsylvania Distinguished Alumnus Award was presented to Andrew W. Dahlke, MD, MCP '89.

Andrew D. Seidman, MD, HU '85, received the Hahnemann University Distinguished Alumnus Award.

Robert A. Ersek, MD, HMC '66, here with his granddaughter, won the 2019 Outstanding Alumnus Award.

Anna Meadows, MD, WMC '69, was honored with the Lifetime Achievement Award.

Reunion Reception

The 25- and 30-year classes mingled at The Logan in the late afternoon.

The terrace was perfect in the mid-May weather.

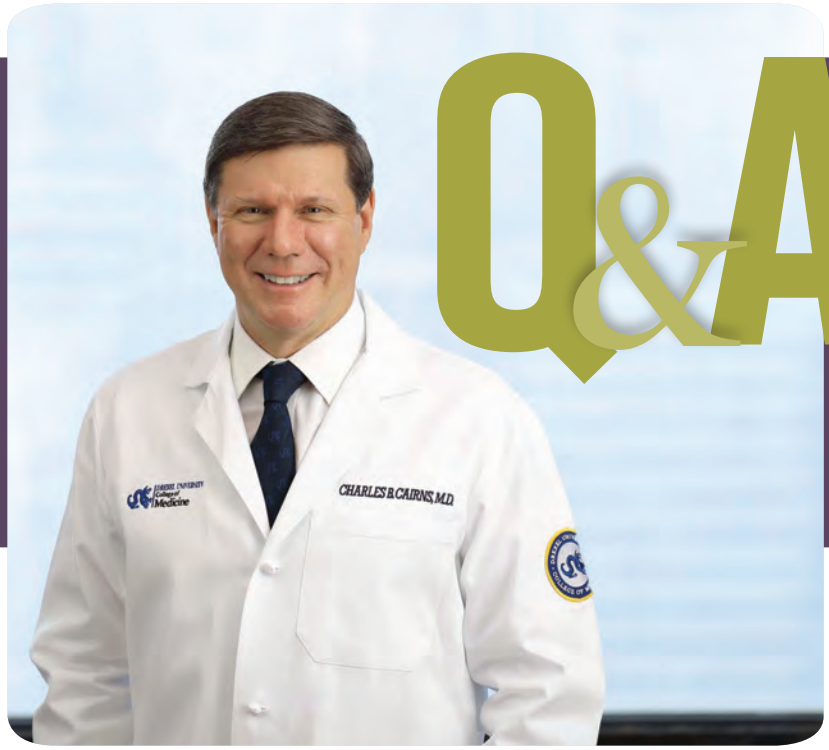
Tim Manzone, MD, MCP '89, past president of the Alumni Association

Drexel After Dark

College of Medicine alumni joined alumni from other Drexel schools for the capstone event.

Mark Codella, MD, HU '84, and his classmate Robert Davies greeted Mary Procacci, the wife of Pasquale (Pat) Procacci, MD, HMC '69.

The Great Stair Hall at the Philadelphia Museum of Art made a dramatic setting Saturday night.



Q&A

The College of Medicine's new dean took office on August 26, 2019, amid a disruptive situation: the owners of Hahnemann University Hospital and St. Christopher's Hospital for Children had declared bankruptcy, and Hahnemann was all but closed. Chuck Cairns, however, was undaunted by the challenges. He had just finished his term as the dean of medicine and health sciences at the United Arab Emirates University in Abu Dhabi. Before that, he served as dean of the University of Arizona College of Medicine–Tucson, where he helped create one of the largest nonprofit health systems in the country.

Charles B. Cairns, MD

Walter H. and Leonore Annenberg Dean
Senior Vice President of Medical Affairs

WHAT DO YOU SEE as the role of the Dean?

Clearly, the primary duty is the education of medical students — supporting the necessary faculty, staff resources, facilities, educational and clinical experiences. In addition, I've always had a commitment to developing a broader academic innovation ecosystem. In other words, making sure we embrace research, training, innovation as key components of the medical school. We can translate these educational experiences, research discoveries, new technologies and evolving care models to the benefit of the clinics, hospitals, health care systems and populations we serve.

WHAT IS THE DEAN'S ROLE in this current moment at the College?

A key aspect of being Dean is facilitating a fuller integration of the College of Medicine into the broader University and interacting with Drexel's strong programs in health-related fields like nursing and public health. In addition, we can take advantage of the unique opportunities for innovation in collaboration with engineering, especially biomedical engineering; the Center for Functional Fabrics; the Game Design program; and programs in the College of Computing & Informatics.

I also consider our place as a College in the community. We have a new clinical partner in Tower Health that brings us beyond the city into smaller urban, suburban, and rural parts of Pennsylvania. We can really take on the issues of populations who've been underserved by medicine as well as underrepresented in education, training and research. The Dean needs to serve as a catalyst for integrating the College into new partnerships, programs and projects.

The wonderful part about being at Drexel, and why I was honored to be offered the position, is the foundation of Hahnemann Medical College and Woman's Medical College, and later the Medical College of Pennsylvania. Those medical schools have had a huge impact on health care, education and research, not just in Philadelphia, but around the globe. A key aspect of my position is building upon that foundation and expanding the opportunities for impact across communities both here and around the country, if not the world.

WHAT ARE SOME immediate goals?

My first goal would be to better integrate the experiences for our medical students, our residents and our faculty with the communities we serve. Specifically, with the acquisition of St. Christopher's Hospital for Children in partnership with Tower Health, we can focus in on the needs, not only of pediatric patients, but of a population that's underserved by medicine. With our additional campus at Tower Health in West Reading, we'll be able to do the same, as well as incorporate clinical research directly into health care.

As part of this goal, we are developing a comprehensive approach to research. The eventual move of our medical education group into University City, announced in December, will give us the opportunity to intersect more easily with Drexel's other schools, so we can start to have shared programs and increase our interdisciplinary research. We can be an integral part of a biomedical innovation hub that's rapidly evolving in University City and Schuylkill Yards.

WHAT CHALLENGES has the College faced?

The bankruptcy and closure of Hahnemann University Hospital disrupted the lives of patients, faculty physicians, clinical staff and more than 500 residents and fellows. It cut off an important clinical training site for our medical students. Fortunately, our Office of Educational Affairs quickly arranged rotations at other affiliated sites for those affected. We worked with clinical faculty members to either transition to Tower Health or find appropriate practices. All of the former Drexel/Hahnemann residents are now in new training positions.

Over the years, the challenges faced by Hahnemann Hospital under for-profit owners — first Tenet and then American Academic Health System — often became challenges for us. But Hahnemann Medical College lives on in Drexel University College of Medicine.

WHAT IS YOUR VISION for the school?

This can be a time of transformation. We have a once-in-a-generation opportunity to integrate the College of Medicine with the University, our community, and additional urban, rural and suburban settings.

Imagine being at the forefront of innovation, diversity and inclusion, and directly benefiting our communities. We can be a national leader, if not a world leader, in how to address the needs of these groups.

The *future* is a place we make.

At Drexel University, the future is not a hazy glow on the horizon. It is a place our students and faculty actively create.

Your investment in the College of Medicine fuels the ambition and talent of students from all backgrounds, year after year.

By funding scholarships, you sustain our legacy of inclusion for students underrepresented in medicine. Since scholarships minimize excessive debt for graduates, you also encourage future physicians and scientists to follow their passion for primary care and other medical careers that improve quality of life for all.

Join us as we take the next leap in shaping the future of health care!

Go to Drexel.edu/futureMEDICINE and make your mark with the College of Medicine.

THE FUTURE IS A PLACE WE MAKE.

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Alumni Calendar 2020

NOW – NOV 4

Seat at the Table
Kimmel Center for the Performing Arts
See page 17 or visit women100.org/events

JUNE 19–20

SHE Leads Road Rally
From Philadelphia to Seneca Falls
Information: vision2020@drexel.edu

AUG 7

White Coat Ceremony
Kimmel Center for the Performing Arts
Information: cak332@drexel.edu

SEPT 16

Celebrating Women
Kimmel Center for the Performing Arts, 5:30–9 p.m.
A salute to trailblazing women, past and present
Celebrity appearances, music, awards, reception
Information: vision2020@drexel.edu

OCT 8

Discovery Day
Pennsylvania Convention Center, 8 a.m.–5 p.m.
The College of Medicine's annual day of research
Volunteer to be a judge!
Information: dnz29@drexel.edu

Details: Email medical.alumni@drexel.edu or call toll-free 888.DU.GRADS (384.7237)
drexel.edu/medicine/alumni/events