UNIVERSITY OF MISSOURI-KANSAS CITY SCHOOL OF MEDICINE

Wide open residencies

Program expands with rural rotations, house calls and travel opportunities

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Cover photo by Brandon Parigo





UMKCMedicine

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Where students come first

AT THE UMKC SCHOOL OF MEDICINE, we

take good care of our students. Everything we do — teaching, program development, research, recruiting, fundraising, marketing, and more — is aimed at providing the best learning environment for our students. They are our nation's future health care professionals and biomedical scientists, and many will be leaders in their fields and will play critical roles in the well-being of people from every walk of life. It's a job we take seriously.

Alumni know that completing one of our

academic programs is no easy task. But School of Medicine faculty members are, and always have been, committed to our students, ensuring that they have opportunities to achieve their full potential.

This commitment to students includes academic support, advising, degree planning, financial literacy, scholarships, a wellness program, co-curricular activities, lecture series, volunteer and outreach programs, leadership opportunities and special events, just to name a few. These comprehensive resources are designed not only to help our students succeed in our rigorous programs, but to be the best they can be.

By educating outstanding health care professionals, our medical school plays an important role in the health of our communities. In this issue of UMKC Medicine, you can read about alumni and faculty who are working to make a real difference in peoples' lives and their neighborhoods. We feature experts in environmental health and their work to gauge and combat the health effects of environmental hazards. The magazine also explores important formative experiences during residency in the development of primary care physicians and the work that is being done to prepare high-quality health care professionals for areas where they are needed most. And, this issue includes our 2016 Annual Report, which recognizes our many supporters for their generous contributions that advance the school's mission.

It is so wonderful to work with students — their passion for learning is energizing, their desire to make a difference is uplifting, and their excitement for the future is inspiring. What a privilege it is to serve as Dean of a school that plays such an important role in their lives.

henen L. Kankes_

Steven L. Kanter, M.D. Dean, UMKC School of Medicine

Preserving the vision of millions

RESEARCHERS AT THE UMKC School of Medicine Vision Research Center have received nearly \$1 million in funding to develop a drug that would protect the vision of glaucoma patients.

The five-year, \$970,325 project funded by the National Eye Institute at the National Institutes of Health will support efforts led by Peter Koulen, Ph.D., professor and Felix and Carmen Sabates Missouri Endowed Chair at the Vision Research Center, and director of basic research at the Vision Research Center.

Glaucoma is the second-leading cause of vision loss in the

United States. There is no known cure. Current therapies used to manage the disease often fail over time, so there is a great clinical need for alternative methods to treat glaucoma and prevent vision loss.

The new project addresses this urgent clinical need. Focusing on developing a new pharmacological intervention to control the degeneration of nerve cells in the retina caused by



Peter Koulen, Ph.D., working here with fifth-year student Ahsan Hussain, leads glaucoma-drug research.

glaucoma could help many. More than 3 million Americans are afflicted with glaucoma. That number is expected to increase to more than 6 million by 2050.

"The resulting medications will potentially be both preventative and therapeutic, while complementing existing treatments," Koulen said.

UMKC researchers collaborating on the study are part of a large interdisciplinary consortium of scientists with related expertise in ophthalmology, medicinal chemistry, biopharmaceutics and proteomics.

Preclinical testing of the new therapy, including drug transport and distribution studies, will determine its effectiveness in terminating or possibly preventing glaucoma-associated loss of nerve cells. The goal is to generate data to support the future clinical development and testing of the new drug and move the project to phase 1 or 2 clinical trials.

The research is a collaboration with researchers at the University of North Texas Health Science Center under NEI grant #R01EY027005.

Former residents team up on groundbreaking elbow transplant

TEXAS ORTHOPEDIC SURGEON Eric Sides initially laughed off her patient Reggie Cook's idea. Too crazy.

"I don't understand why you can't take my left elbow off and put it on my right side," said Cook, 37.

In January 2009 after a long night at work, Cook fell asleep at the wheel and crashed. He was in a coma for months. He suffered brain trauma, broke 14 bones in his neck and was left practically a quadriplegic. He lost the mobility of both arms.

Sides thought about Cook's suggestion, and it actually made sense. Cook's left arm was paralyzed by nerve damage, but the joint was undamaged. The right arm had movement, but the elbow joint had been shattered beyond repair in the accident.

Sides' thoughts then went to his friend in California, Lisa Lattanza, considered one of the world's leading elbow experts. Training together at the University of Missouri-Kansas City School of Medicine led to their close kinship and prominent surgical careers.

The two physicians recently joined forces in what's thought to be the world's first elbow-to-elbow transplant. The groundbreaking surgery offers a new hope for Cook to live an independent life.

Planning the 12-hour surgery took more than six months. On the plus side: a transplant of Cook's tissue meant no risk of the rejection that might occur with a donor elbow. And actual bone would hold up better than an artificial joint.

On the challenging side: elbows are among the most complicated joints in the body. Knees, shoulders and hips have only one connection where bones meet; elbows have three. And all of the nerves and blood vessels that serve the hand run over the elbow.

Because of state licensing restrictions, Sides did not get to scrub in to the surgery, but he participated.

"It was great to be in the operating room again with Eric," Lattanza said. "Everyone on the team performed flawlessly, and I don't think I have ever used all my skill and brainpower to this extent. It was exhilarating."

Although there will have to be a follow-up surgery to reconstruct ligaments, the elbow transplant is so far a success.

"We are cautiously optimistic, but he has a long way to go," said Lattanza. "If the elbow heals and works, he definitely will be better off than when we started."

News of Cook's unusual surgery — and the roles played by Sides and Lattanza — received national media attention. UMKC School of Medicine faculty and former residency colleagues have celebrated the medical advance.

"It makes me and all of us very proud, because this really is a first," said Mark Bernhardt, chair of the UMKC School of Medicine Department of Orthopaedic Surgery. "I worked closely with Sides and Lattanza during their four years, and they were both bright, inquisitive, talented, committed residents."



Students in the Medicine and Music elective class explored artworks at the Nelson-Atkins Museum of Art in a way that helped them develop their critical thinking.

From classroom to museum, medicine takes a different look

STUDENTS FROM THE UMKC School of Medicine stared at a large mural hanging on a wall in the main entrance of Kansas City's Nelson-Atkins Museum of Art, quietly pondering the question posed to them.

"What's going on in this piece?"

After a few moments of silence, one student finally spoke up. "It's very fluid," she said.

"There are different colors, different textures," added another. "There are a lot of elements that don't go together."

The 25 students were participating in Medicine and Music, a medical humanities elective course offered every two years at the School of Medicine. Their objective on this afternoon, explained Marilyn Carbonell, head of library services at the Nelson, was to explore selected works of art in a way that would help them develop their critical thinking. They were encouraged to find the details that go beyond the obvious.

"We view every piece of art through a medical lens," Carbonell said.

For nearly 20 years, Carbonell worked in the UMKC Library as an assistant director of collection development. At the Nelson, she has worked with the School of Medicine's humanities department to organize outings using a program called Visual Thinking Strategies. It is a national initiative that medical schools have begun to incorporate into their curriculums.

The Visual Thinking Strategies approach encourages students to deeper thinking through visual literacy and collaborative interactions.

"It's all about encouraging critical thinking skills," Carbonell said.

For the museum session, students separated into small groups and toured the gallery. They were led by docents trained to help them study the variety of artwork originating from various periods and different cultures throughout the world.

"We spent a lot of time selecting these works," Carbonell said. "These pieces we're looking at have an element of mystery, and we want the students to explore the mystery."

Stuart Munro, M.D., a past chairman of the Department of Psychiatry, now serves as chair of the School of Medicine's Humanities Advisory Committee and instructor for the Medicine and Music course. Munro said the exercise at the Nelson was designed to give students a better understanding of the important relationship between the humanities and medicine.

"We want to enhance their ability to see and understand their patients by the practice of truly seeing works of art," Munro said. "We also want them to gain an appreciation of the value of the Nelson gallery and other museums of art."

Some of the students admitted that while looking at the pieces, they didn't always immediately get the gist of what the artists were trying to express in their work. But that didn't diminish their efforts or enjoyment of the outing.

"One of the benefits of this class is that it allows us to decompress and think about medicine in a more creative light, rather than the very hard sciences as we usually do," said Jacob Lee, a sixth-year student. "You're still focused on health, but you're doing it in a more holistic way. You get to walk around and experience more of the abstract that's related to medicine rather than just the textbook stuff."

Purple docent unit settles into new home at Saint Luke's Hospital

STUDENTS ON THE PURPLE docent unit at Saint Luke's Hospital have a new place to call home.

In September, School of Medicine Dean Steven L. Kanter, M.D., and Saint Luke's Hospital CEO Jani Johnson, RN, MSN, marked the official ribbon cutting of the hospital's renovated fifth-floor medical education department, the new location of the Eleanor N. and Mary N. Little Purple Docent Unit. The Littles are sisters who, through their estate, donated to the Saint Luke's Foundation in support of medical education and patient care.

Referencing the close relationship between Saint Luke's Hospital and the School of Medicine, Kanter said, "This wonderful new unit, the Eleanor N. and Mary N. Little Purple Docent Unit, is clear testimony to what a wonderful partnership we have had."

Docent offices for the Purple Unit were in the hospital's Medical Plaza building. Moving the education offices to one site has been a convenience for students and docents.

This past spring, the School of Medicine added a fourth docent team to the Purple Unit. With the renovations at the hospital complete, two students now share each of the 24 offices in the new docent unit. The area also has a multifunctional media center that allows students to access patient



Dean Steven L. Kanter, M.D., and docents celebrated the opening of the Purple unit at Saint Luke's Hospital.

lists, obtain evidence for rounds, and scan and send documents from the unit.

"The new unit is well designed, well resourced and extremely functional in our first DoRo experience," said Doug Cochran, M.D., docent for the Purple 2 team. "There are multiple places for students to gather in small groups."

Kanter said that the docent system is key to making the medical education program at the School

of Medicine function properly, and that it is critical for docent teams to have the right space in which to work and learn.

"I want to extend my thanks to the Saint Luke's Health System, to Saint Luke's Hospital, the Saint Luke's Foundation and, of course, to all of you who have so generously supported Saint Luke's and the School of Medicine in our shared mission of educating the next generation of physicians," Kanter said.



The first 14 graduates of the Master of Medical Science Physician Assistant program marked their big day.

Physician assistants join in their first commencement celebration

GRADUATION DAY AT the UMKC School of Medicine grew even bigger this year. Fourteen members of the inaugural class of the Master of Medical Science Physician Assistant program joined the commencement ceremony on May 23 at Kansas City's Municipal Auditorium Music Hall.

In January 2014, UMKC welcomed its first class of physician

assistant students. With their degree, they can practice medicine alongside physicians and other providers, playing a critical role in a patient's health care team. Twelve members of the first graduating class have accepted positions in Missouri or the greater Kansas City area. Many are working in specialties ranging from rural and urban family medicine to emergency medicine and surgery specialties.

Kathy Ervie, M.P.A.S., P.A.-C., program director, said she was pleased that 100 percent of the class passed the national certification exam on their first attempt.

"I am excited that our inaugural class of 14 have graduated and are working to meet the health care needs of our community," Ervie said.

It was three years ago when, for the first time, the school brought together all of its graduate and professional degree recipients for one commencement ceremony. This year, 126 graduates received degrees or graduate certificates in seven programs: Doctor of Medicine, Master of Science in Anesthesia, Master of Medical Science Physician Assistant, Master of Science Bioinformatics, Master of Health Professions Education, Graduate Certificate in Clinical Research, and Graduate Certificate in Pediatric and Congenital Cardiovascular Perfusion. To date, nearly 3,500 physicians and health professionals have earned medical school degrees at UMKC since the school opened its doors in 1971.



University of Pittsburgh scientist, educator appointed associate dean of research

A. Paula Monaghan-Nichols, Ph.D., joined the School of Medicine in August as the new associate dean of research. She serves as a professor in the school's

Department of Basic Medical Science.

Nichols is an expert in the fields of genetics and neurobiology, and she has served on the faculty of the Department of Neurobiology at the University of Pittsburgh School of Medicine. She has been the director of courses in human genetics and neurobiology and has lectured in many medical and graduate courses. Nichols served as the vice chair of that school's curriculum committee and has received many teaching and research achievement awards for educating and mentoring graduate and medical students.

"The School of Medicine is fortunate to have recruited a scientist and educator with Dr. Nichols' vast experience," said Steven L. Kanter, M.D., School of Medicine dean. "We look forward to her leadership and expertise in growing our existing programs and in developing new areas of research strength."

Before joining the faculty of the University of Pittsburgh, Nichols was a post-doctoral fellow, research associate and staff scientist at the German Cancer Research Center in Heidelberg, Germany. Her research has focused on understanding the molecular and cellular mechanisms that underlie the development of the nervous system and form the basis of emotion and cognition.

Nichols earned her undergraduate degree in genetics at Trinity College in Dublin, Ireland. She received a Ph.D. in genetic engineering and molecular biology and did a post-graduate fellowship in molecular genetics and development at the Medical Research Council in Edinburgh, Scotland.

Nichols' appointment was effective Aug. 1.

Steven D. Waldman, M.D., '77, has been appointed associate dean for international programs.

Many of the school's students participate in clinical electives in other countries, while international students experience academic training at the School of Medicine. Waldman will oversee and continue the development of those programs for students and residents. He continues to serve as interim chair of the Department of Medical Humanities and Bioethics and as docent for M.D. Program students.

"The School of Medicine and especially our students are fortunate to have someone of Dr. Waldman's caliber serve in this key role," said School of Medicine Dean Steven L. Kanter, M.D.

Peter Koulen, Ph.D., professor of ophthalmology and basic medical science and the Felix and Carmen Sabates Missouri Endowed Chair in Vision Research, has been appointed to serve on one of the National Institutes of Health scientific review groups. He is part of the Bioengineering of Neuroscience, Vision and Low Vision Technologies Study Section. The group reviews applications focused on the development and use of bioengineering, materials engineering and computational approaches to study fundamental problems in neuroscience. The panel covers a broad range of technologies as applied to neural systems and all eye tissues.

Paul Dowling, M.D., associate professor of pediatrics and longtime director of allergy and immunology training, has been appointed by the Accreditation Council for Graduate Medical Education to serve on its Review Committee for Allergy and Immunology. The council oversees accreditation of about 9,600 residency and fellowship programs at nearly 700 institutions throughout the United States. Dowling is also a member of the School of Medicine's Graduate Medical Education Committee.

Reem Mustafa, M.D., M.P.H., assistant professor of medicine and docent, has been selected to the Midwest Comparative Effectiveness Public Advisory Council. She is one of 14 inaugural members of the independent, non-profit research organization that will analyze and report on the effectiveness and value of new drugs and medical services. Made up of clinicians, clinical research methodologists and public representatives, the council is one of three public bodies convened by the Institute for Clinical and Economic Review (ICER). It will debate ICER reports on new drugs, while considering public comment on the comparative clinical effectiveness and value of drugs that are under review.

Moiz Qureshi, a sixth-year medical student, has been elected vice president of the American Academy of Emergency Medicine Resident & Student Association's Medical Student Council. His one-year appointment took effect in May.

DEAN'S POP QUIZ

Since 1971, the UMKC School of Medicine has been training health care professionals who are nationally recognized leaders in research, as well as clinical medicine. Which of the following medical researchers are graduates of the UMKC School of Medicine? For the answer, see page 19.

A) A leading researcher in the field of assisted reproduction, and director and founder of the Massachusetts General Hospital In Vitro Fertilization Unit.

- B) Chief of Gynecologic Oncology at Columbia University College of Physicians and Surgeons and national leader in health services and outcomes research.
- C) A national leader in HIV/ AIDs research and treatment, and past director for the Center for Disease Control Global AIDS Program.
- D) Surgeon-in-chief at St. Louis Children's Hospital and internationally recognized leader in surgery research.

E) All of the above

CRACKING THE ON ENVIRONMENTAL

An incinerator in Hartford, Connecticut, is near areas with higher than normal asthma rates.

UMKC professor, alumni seek prevention and better treatment for an array of ailments. By Dawn Bormann Novascone

inding and evaluating environmental health hazards can seem like a scavenger hunt that has an ever growing and changing list.

Could mold spores from a leaking roof be triggering a patient's COPD? Can a patient's ZIP code — situated in the middle of a food desert — be a predictor for diabetes?

There's evidence for both, and environmental experts say the hunt must go further: Are common household products affecting a child's developing brain? Is local factory pollution causing a teen's asthma? Is the lead poisoning crisis that grabbed headlines in Flint, Michigan, happening in communities elsewhere?

The range of possible hazards is daunting, but experts think the benefits of addressing toxic environmental exposures could be far more powerful in treating health conditions than any prescription medicine on the market.

"There may be more opportunities for intervention," said Mark Hoffman, Ph.D., UMKC associate professor of pediatrics and biomedical and health informatics. "The cost of those interventions could be much less than developing a very expensive new drug." Doctors have long thought that the air we breathe, the water we drink and the soil where we grow our fruits and vegetables could hold the key to solving many complex medical problems. And never before have so many people, including UMKC alumni and faculty, publicly come together to try to gauge the health effects of environmental hazards.

At UMKC, Hoffman is pioneering an innovative use of electronic data to put valuable environmental information at health care providers' fingertips. And two UMKC graduates — Bruce Lanphear, M.D. '86, and Mark A. Mitchell, M.D. '81 — are part of a nationally recognized group of environmental health experts who joined forces to demand action and policy changes on chemical standards.

Lanphear's research on lead poisoning put him in the national spotlight when the Flint lead crisis came to light. Mitchell travels across the country educating and empowering minority communities to speak up about pollution.

"You wonder why there are so many disparities in health," Mitchell said. "One of the contributors in my opinion is the environmental injustice."



From left: Mark Hoffman, Ph.D., Bruce Lanphear, M.D. '86, and Mark Mitchell, M.D. '81, are all active in identifying environmental health hazards. Hoffman is pioneering the use of electronic data to identify possible risks. Lanphear and Mitchell are in an advocacy group speaking out against such hazards.

Rolling up their sleeves

Lanphear and Mitchell didn't know each other at UMKC but came together last year as part of an elite team of environmental health scientists and medical officials known as Project TENDR, for Targeting Environmental NeuroDevelopmental Risks. The advocacy group, calling for a new system to investigate and regulate chemical safety, said it formed because of an "alarming increase in learning and behavioral problems in children."

"Parents report that 1 in 6 children in the United States, 17 percent more than a decade ago, have a developmental disability including learning disabilities, ADHD, autism and other developmental delays," the group said in its Consensus Statement, which is on its website at projecttendr.com and was published in the journal *Environmental Health Perspectives*.

Lanphear, Mitchell and their TENDR colleagues spoke up because few others were talking. Though environmental health issues are gaining some traction in the United States, they said, change has been frustratingly slow.

"The only people I heard talking about the link between environment and health were the businesses and industries being regulated, who felt that they were being over-regulated," Mitchell said. "When in fact from what I saw it was clear that the public was not being protected from the toxic exposures from business and industry."

The mid-1970s Toxic Substances Control Act, however well-intentioned, made it nearly impossible to ban existing substances and burdensome to evaluate new ones. As a result, the statistics are eye-opening. Less than 7 percent of chemicals on the market have been tested by the Environmental Protection Agency to determine their health effects, Mitchell said, and nearly all of the others are assumed safe.

Mitchell eventually left his position as director of the Hartford Public Health Department, which gave him time to be a stronger voice for policy changes. He founded the Connecticut Coalition for Environmental Justice and Mitchell Environmental Health Associates. His first assignment was to investigate why Hartford children had the highest rate of asthma in Connecticut. State officials weren't encouraging him to find answers, and Mitchell soon learned why.

He eventually linked poor environmental health indicators — asthma, allergies, headaches and more — in the low-income city of Hartford to a local trash incinerator. It's the fifth largest incinerator in America.

"It just seems to me that if you're going to build a trash incinerator that you would want its toxins as far away from people as possible and, in particular, as far away from vulnerable populations such as those that have the highest rates of asthma in the state," he said. "But in fact, there's a correlation between the percentage of people of color and the amount of hazards that people are exposed to.

"It's not just Connecticut," Mitchell said.



To Flint and back

When the Flint lead crisis came to light, Lanphear's phone at Simon Fraser University in Vancouver, British Columbia, started ringing. He has dedicated his life to studying the consequences of lead and mercury poisoning in the developing brain. His long-term research goals are to prevent common diseases and disabilities in children including asthma and ADHD.

"The tragedy of Flint is that it was preventable," Lanphear said.

Flint has understandably received widespread attention, he said, because its problems quickly followed a change in its water supply, made to cut costs but without adequate safeguards. But Lanphear said homes all across the U.S. had lead hazards, mainly from lead-based paint — more than 23 million by one estimate, about 1 in 5 households. As a result, many larger cities such as Chicago and Philadelphia have more cases of lead poisoning than Flint does.

Like Mitchell, Lanphear also decided

to speak out more in recent years. His research and professor's job with Simon Fraser University allows him time to create educational videos and give lectures. Lanphear said he spent half of his time translating existing research work to policy.

"The tragedy of Flint is that it was preventable." –Bruce Lanphear

It's a vast change from his research role in the United States. He spent much of his career as a principal investigator working on new areas of study, he said.

"The problem came when all of a sudden we knew what to do and we weren't translating that," he said. According to Lanphear, lead poisoning is a classic example, and tainted water supplies aren't the only problem. In 1909, a warning went out to keep children away from lead paint, and some European countries outlawed it then. But lead house paint wasn't

banned by the U.S. government till 1978, and Flint pointed out how vigilance also was lacking about lead in some water supplies.

"This is why I started to shift away from the research," Lanphear said. "At some point it became clear that we actually do know enough to protect

people from a lot of these different exposures and yet we're failing to do so."

Lanphear and Mitchell said the same thing is happening with chemical companies who have covered up problems with substances including mercury and two chemical classes, BPA and phthalates, that are added to the plastics in hundreds of consumer products.

Though many researchers and environmentalists think regulators should already have enacted more stringent regulations for many pollutants, manufacturers and business groups such as the U.S. Chamber of Commerce are critical of what they see as "politically charged regulations." The National Petrochemical & Refiners Association called recent moves by the Environmental Protection Agency "overreaching government regulation" and "a clear distortion of current environmental law."

The EPA generally defends the speed and pace of its actions, saying it can be difficult to turn general mandates for

Far left: An incinerator in Hartford, Connecticut, has been a big trash collection point for decades, and asthma rates are high in nearby areas. Left: Mark Mitchell, M.D. '81, has tracked and protested — environmental health hazards such as the incinerator for years.



safe products and clean air and water into specific rules.

Data solutions

At UMKC, Hoffman is working on data-driven solutions. He's creating an electronic system that boils down complex data records to help providers better evaluate their patient's environmental health needs and risks.

Hoffman spent his career merging computer science with health data. He is constantly asking: "How can we make more effective use of large-scale data and complex analytics to improve health care at all levels?"

Hoffman, who is also the chief research information officer at Children's Mercy Hospital, has a doctorate in bacteriology but was also the computer guru in the graduate school laboratory. Those skills led him to Cerner Corp., the medical software giant based in Kansas City, where his medical background and software engineering skills allowed him to lead the genomics and public health initiatives.

Hoffman points out that scientists have made tremendous gains by studying the genome (genetic makeup), microbiome (microbes' genetic makeup), proteome (cells' expressed proteins) and connectome (neural connections). Why not do the same for environmental factors, Hoffman asked, creating what he calls the envirome.

Envirome takes into account a patient's exposure to risk factors including air pollution, water contamination and toxic chemicals. It looks at what type of access a patient has to everything from fresh produce and green space to doctors, education and transportation.

Studies have shown that the best life-expectancy predictor is a patient's ZIP code. By that standard, a patient's environment could hold the tools to improving public health, Hoffman said. The envirome could, for example, help scientists struggling to learn why thyroid cancer, food allergies and autism are increasing.

"These are not likely to be due to changes within our body but rather changes to the external things we're exposed to," he said.

The best part, according to Hoffman, is that a lot of environmental data has already been collected. To get an idea, Hoffman's UMKC students put 2010 Census data and USDA food desert information into a database that it shared with Children's Mercy Hospital. It included everything from proximity to grocers to whether

someone was more likely to own a home or rent. Another UMKC student created a database of neighborhoods that documented important factors such as whether a roof was leaking. Together, the details could tell doctors a larger story.

Hoffman created a pilot project at Children's Mercy that alerted doctors about several environmental factors needed in research.

It was a critical point for researchers.

"There are so many kinds of diseases that we

To some extent, Gulf War Illness has always

been among those mysterious diseases. But being

able to link its onset with underlying genetics

"helped refine the understanding of what it is

Gerkovich was also part of a 2012 published

study that sought

to determine what

environmental links

could be traced to

Gulf War Illness.

Besides pyridostig-

mine bromide, the

study found links

to the extensive

use of pesticides

don't know exactly what causes them," Gerkov-

Research helped define Gulf War Illness

ich said.

and put it in context."

GULF WAR ILLNESS, whose often disabling symptoms afflict one in four Desert Storm veterans, for years was misunderstood and dismissed as combat-related stress.

But that's changing, thanks in part to a medical study co-written by Mary M. Gerkovich, Ph.D., an associate professor at the University of Missouri-Kansas City School of Medicine.

Twenty-six years after the 1990-'91 war known as Operation Desert Storm, the study marks the

pills, which are designed to protect against

chemical-warfare nerve agents. The military

ordered mass use of the pills in the Gulf War,

The research team discovered that some vet-

erans with that genotype were slow to metab-

olize chemical toxicants, said Gerkovich, who

works in UMKC's biomedical and health infor-

The study helps explain why veterans with the

same exposure had different outcomes. Some

remained healthy while others experienced debili-

tating illness, said the study's principal investigator,

Lea Steele, a neuroepidemiologist and Yudofsky chair

in behavioral neuroscience at Baylor College of Med-

first time researchers have made a substantial genetic link to Gulf War IIIness. The genetic research, published in 2015, found preliminary evidence that veterans with a particular butyrylcholinesterase gen-

Gerkovich said.

matics department.

icine in Houston, Texas.



Burgan oil field in Kuwait, ablaze in 1991.

missile explosions.

ness, whose symptoms include persistent cognitive and neurological problems, widespread pain and respiratory distress not explained by established medical or psychiatric diagnosis.

Gerkovich and Steele worked on a team collecting data from 2000 to 2002 when Gerkovich worked at the Midwest Research Institute. Gerkovich helped design the study, collect blood samples, conduct data analysis and write the results. She has since gone on to other research. Steele has become a world-recognized Gulf War Illness researcher.

They expect the findings to help other researchers and cause the military to think twice before ordering the widespread use of pyridostigmine bromide again.

otype were 40 times as likely to develop Gulf War Illness after using pyridostigmine bromide

and proximity to Few veterans have recovered from Gulf War III-

10 UMKC SCHOOL OF MEDICINE « MED.UMKC.EDU "If you gauge that without having to dig around for that information, that will structure how you approach your conversation with the patient," he said.

It could also help epidemiologists pinpoint cancer clusters sooner. It often takes years for scientists to connect geographic areas to cancer risks, Hoffman said. The EPA already provides maps of Superfund sites, some chemical releases and more. What if an oncologist could automatically map a patient's home and then overlay that map with some of the public resources around chemical releases? The intervention strategies are profound, he said.

"It might not change their diagnosis, but it might help the next person in that neighborhood," Hoffman said. "If you can make that a relatively simple process through Geographic Information System mapping abilities that are userfriendly, maybe they can trigger a more rigorous investigation that will lead to an earlier intervention at the community level."

The work is challenging, Hoffman admits. Implementation is a hurdle. Medicine isn't quick to change, and doctors can get overwhelmed with too much data.

"Then it doesn't get used," he said. "You haven't accomplished anything." And that's where the extra efforts by Hoffman and his colleagues can help translate knowledge into action.

Measuring progress

Measuring progress hasn't been easy for environmental health experts. Mitchell is surprised that few physicians advocate for change.

"A lot of the physicians think that somebody else is going to be doing it," he said.

Mitchell has made it his mission to inform residents about environmental disparities and urge them to speak out.

"One of my hobbies is to visit schools that are built on dumps. Those schools are only built in low-income communities of color," he said.

It's not that proposals haven't come up in wealthy, white communities. But, says Mitchell, the proposals fail when the community learns that dumps produce volatile compounds associated with learning disabilities.

Mitchell admits the work can be frustrating and overwhelming. But there are victories.

In the village of Mossville, Louisiana, he has helped residents battle pollution, which has lingered for decades. More than a dozen chemical plants surround the community.



Mark Hoffman, Ph.D., UMKC associate professor of pediatrics and biomedical and health informatics, uses data to track people's exposure to hazards and toxins.

Researchers have measured dioxins — some of the most carcinogenic chemicals — in the fruits residents grow and the dust in their homes. Residents blame the polluters for mercury poisoning, disease and deaths.

Changes are finally taking shape, Mitchell said. A new chemical giant has offered to buy out every homeowner before building a massive facility.

"That was not their intent originally," Mitchell said. "But the community was organized enough."

Back in his home city of Hartford, Mitchell successfully advocated for an environmental justice law. It forces polluting facilities to engage community members before building in a lowincome community.

The work isn't lucrative. Mitchell survives mainly on grants and is a consultant with environmental justice organizations around the country. He also works closely with the African American Physicians and the National Medical Association.

"My philosophy is if we work to make things better for the people who are most impacted, it makes things better for everyone," he said.

Lanphear said the biggest recent changes have come from consumers, who have demanded products such as phthalate-free cosmetics.

"The public no longer trusts us. They're going out and they're buying natural cosmetics from smaller companies," Lanphear said.

Nationally, an update to the Toxic Substances Control Act was signed into law in June. But Lanphear is skeptical that it will improve matters much, though it is supposed to help the EPA test more substances and limit or bar the ones found hazardous to health.

Whether or not the law helps in the short term, Lanphear and Mitchell know this is a long-term battle, often fought community by community.

"Change doesn't happen overnight, but when it does happen, it tends to be more permanent," Mitchell said. "And it affects millions of people — not just one patient." ■

WIDE OPEN ~~ RESIDENCIES

A federal grant enables two UMKC programs to stretch, and produce more of the doctors in the shortest supply.

By David Martin

heena Spielberg, M.D., had many memorable experiences as an internal medicine resident at UMKC, including a 13,000-mile round trip to Beijing to observe the Chinese health care system.

Other recent residents also traveled to get experience, learning about rural practice in Missouri towns 40 to 75 miles away.

And Spielberg got some of her best lessons only a few thousand feet from Hospital Hill, making house calls. One day, she and an attending physician, Mat Strasser, D.O., visited a patient who lived near Truman Medical Center Hospital Hill. He weighed more than 600 pounds and used the oven in his kitchen to heat his dwelling.

"It was really interesting to see how much better care you can provide if you go into somebody's home," said Spielberg, now the medical director of the Blue Clinic at TMC Hospital Hill. "Patients come to the clinic and they don't know their medicines. They didn't bring their blood sugar log. You go out to them, and all their medicines are there. You can kind of see the way they live."

Spielberg, a graduate of the Saint Louis University School of Medicine, applied for residency programs knowing she wanted to go into primary care. She is interested in nutrition, fitness and other aspects of preventive medicine.

"Once you get to specialty care," she said, "people in general have the disease, they have the problem, and now you're coming in on the back end and trying to fix it."

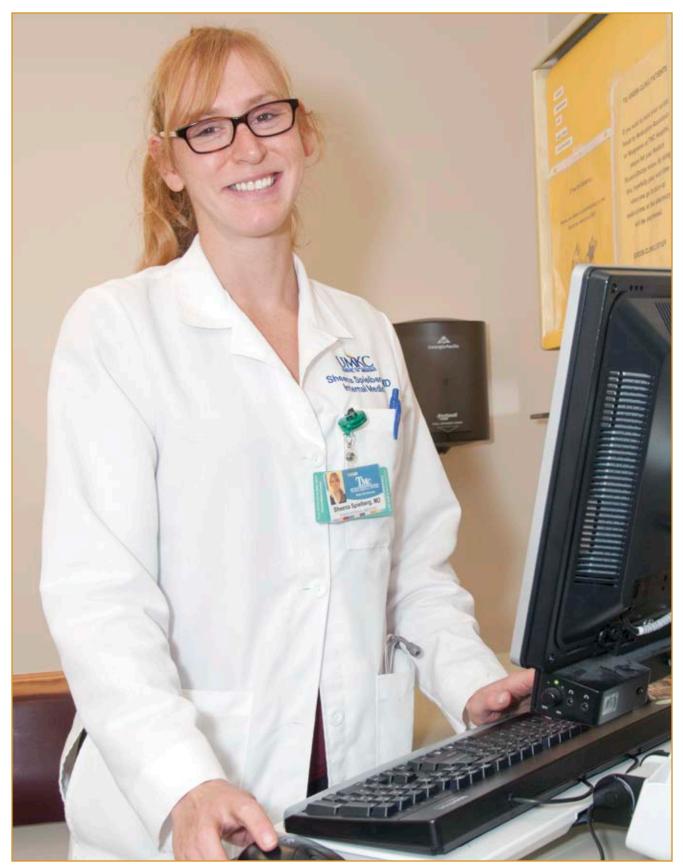
Spielberg was among a cohort of UMKC School of Medicine residents whose placements were supported by a federal program. In 2010, the Health Resources and Services Administration created the Primary Care Residency Expansion to help address the shortage of primary care physicians. According to an Association of American Medical Colleges study released last year, the United States will face a deficit of up to 31,000 primary care doctors by 2025. The program provided \$168 million over five years to fund additional residents in general pediatrics, general internal medicine and family medicine at training sites around the country. UMKC's family and community medicine and internal medicine programs won grants to add two residents each per year, starting in 2011.

The directors of the residency programs shaped their curriculums to better train the residents supported by the expansion program. Todd Shaffer, M.D., MBA, director of UMKC's family and community medicine residency program, emphasized rural experiences.

"Where do we need more doctors in the United States? It's in rural America, basically," he said.

The internal medicine residency program expanded its primary care track to include a journal club, a culturally and linguistically appropriate services curriculum, and the patient home visits.

"That's a really formative experience for the trainees, seeing [patients] **•••**



Sheena Spielberg, M.D., now medical director at the Blue Clinic at TMC Hospital Hill, got to travel thousands of miles during her residency but also learned vital lessons close by while making house calls.



Dylan Werth, M.D. '12, got a taste of practicing in rural areas during his residency. He now practices in Independence.

out of our sort of sterile environment at the hospital," says David Wooldridge, M.D. '94, director of UMKC's internal medicine residency program.

For Spielberg, the appeal of the primary care track was choice. Residents on that track have an easier time scheduling electives.

"I had a lot more flexibility to do what I wanted and really get more of an education in primary care, rather than rotating as much through some of the subspecialties or in-patient rotations," she says.

Spielberg took electives in sports medicine, orthopaedics and dermatology. She said her dermatology experience gave her the confidence to perform skin procedures that another internal medicine doctor might refer to a specialist.

And the China trip? The expansion program allowed residents to use part of the grant money to pay for travel, which allowed her to spend four weeks studying health care in the world's most populous country. The Chinese have entire hospitals devoted to certain specialties, she said, and she spent the most time in Beijing with a prominent interventional cardiologist.

"They are definitely behind when it comes to using the latest medicine," Spielberg said, but "they are very efficient. Patients are very grateful for the care they get.

"To see a regular doctor for a clinic visit, patients have to line up early in the morning and take a number; there are no appointments. When you go in to see your doctor, you are often in the room with another patient and doctor."

The hierarchy built into the culture means a patient, student or resident wouldn't question or challenge a physician, she said. That differs greatly from the U.S. questioning and debate that Spielberg prefers "because it is how we learn."

Spielberg, who joined Truman after working in private practice for a year, remains committed to primary care. She is working with the nursing director of the primary care clinics at TMC Hospital Hill on the clinics' recertification as patient-centered medical homes.

"My biggest thing is trying to get these clinics here to function in a way that is better for patient care," she says.

Pathways to primary care

As Shaffer designed the experience for residents supported by the expansion program, he had a few goals in mind.

The first was the most obvious: Train more primary care doctors.

"We are really going to be short of primary care doctors in the future," Shaffer says. "There's a huge shortage looming. All doctors in general, but especially in primary care."

The second goal: Train doctors in rural medicine. In outlying areas, the doctor shortage is even more pronounced. That's in part because residents tend to settle near where they train, and training sites are usually in larger cities.

With that in mind, Shaffer took out a map of Missouri and began marking smaller cities within a 60-mile radius of Kansas City. He remembers thinking: How do I get my people out there?

Shaffer looked for spots where he could deploy the grant-supported trainees for some of their rotations. He developed a relationship with a surgeon who works in Lexington and Richmond, towns 40 to 50 miles east of Kansas City. He also found an emergency room in Clinton, 75 miles southeast of the city, that was busy enough to keep the trainees occupied.

The Primary Care Residency Expansion program encouraged residency program directors to provide community-based clinical rotations. "The grant allowed me to get people outside of this facility and have them do a lot more of their training in a rural area," Shaffer says.

He held a separate match for the residents supported by the grant. Dylan Werth, M.D. '12, accepted one of the positions after completing his B.A./ M.D. at UMKC.

Werth says he became interested in family medicine as he started going through his clerkships in medical school.

"I liked a little bit of everything," he said. "So that led me down the family practice pathway."

While in residency, Werth did a rotation with the rural surgeon Shaffer had found. He also worked in the ER at Golden Valley Memorial Hospital in Clinton.

"Everything came there, because it was the closest hospital" in its region, he said.

In addition to the experiences in rural Missouri, residents supported by the grant were able to take courses most trainees can't afford. Werth traveled to San Diego for a week of rural medicine training. Another resident in the program took a wilderness medicine course and now practices in Montana.

Shaffer says the nine other grantfunded residents in the family medicine program practice or plan to practice in Missouri.

Cory Offut, M.D., began practicing this summer in Houston, the county seat of Texas County in south-central Missouri. Houston was one of the rural locations where Offut trained during his grant-supported residency, which he completed in 2016.

Offut said he liked the broad scope of family medicine. He was in a rural track program in medical school at the University of Missouri-Columbia and had delivered 75 babies by the time he graduated.

"I was torn in med school between OB and pediatrics, so then family practice just kind of fell into it," he says.

Werth sees patients now at a practice in Independence owned by Saint Luke's Health System. Before that he worked at a clinic in Pleasant Hill,

"I think the more diverse the group the better."

– David Wooldridge

20 miles south of Truman Medical Center Lakewood, where the UMKC Department of Community and Family Medicine is based.

Rural areas aren't the only places that need doctors like Werth. One day, he met a new patient who said she had driven 50 minutes from her home in suburban Kansas City.

"She came out to see me in Pleasant Hill because it was the first clinic that she could get in before a month as a new patient," Werth says.

Better than before

The Primary Care Residency Expansion program ended earlier this year. Residents who had been supported by the grant are continuing to train at UMKC. But this summer, the firstyear classes fell back to their pre-grant levels. Still, there are 42 family and community medicine residencies total, and 63 in internal medicine. Wooldridge, the internal medicine residency program director, said the grant made it easier to find medical school graduates who hoped to do primary care. Most applicants choosing the internal medicine program, he said, indicate they plan to enter specialties, which correlate with higher pay and more prestige.

"We want to have a diverse population of residents," he said. "I want to have people who are generalists through and through. I want to have people who want to do cardiology. I think the more diverse the group the better."

With the grant ending, Wooldridge said he worried that it would be harder for the program to attract medical school graduates who wanted to practice primary care. But he thinks the program is stronger than it was before. A Yale-designed outpatient curriculum was so popular with residents in the primary care track that Wooldridge expanded it to the larger program.

"The differential between our primary care track and the standard track is much narrower than it was a few years ago," he says. "Everyone in the program is getting a better primary care education."

Shaffer wishes that the state of Missouri spent more resources to keep primary care physicians. He's become accustomed to watching the graduates of his program go to work in Kansas and Colorado because those states have robust school loan repayment programs, which Missouri lacks.

"When people graduate from school, their biggest worry is their loan repayment," he said.

The demand for primary care, in Missouri and elsewhere, is expected to grow as the population ages and generalists retire. And "the number of primary care physicians continues to drop," Shaffer said.

Add in that training can take up to a decade, he said, and the primary care physician shortage predicted for 2025 and beyond needs to be addressed now.

"You can't just say, 'Let's flip a switch and next year we have more primary care doctors,' "Shaffer said.

ON THE HILL



Quiet study space has replaced most of the stacks in the Health Sciences Library, which has added dozens of tables and chairs and other work stations.

Library renovations create quiet study space

FROM THE OUTSIDE, the School of Medicine looked much the same to students returning this fall. But on the inside, one hub of learning was transformed the Health Sciences Library.

Once dominated by stacks of medical books and periodicals, the almost 13,000-square-foot space now is an inviting array of tables, chairs, computer stations, desks, study carrels and a few extra-comfortable lounging options.

A survey of students had found that they wanted more quiet study options, and the advent of digital resources meant far less space was needed for physical books and magazines. Also, book use by students and faculty had been fading for years.

Add in some slack elsewhere in the library budget and the availability of staff from Campus Facilities and the Miller Nichols Library, and it was the perfect time to make over the Health Sciences Library.

"We were fortunate the way everything came together," said Peggy Mullaly-Quinas, the Health Sciences Library director. "It was quite a production, because the staff at Nichols had to update every catalog entry to change each title's location. And someone had to physically handle each volume" so they would be properly stored for retrieval by the system's automated RooBot. The renovation started at the end of March, when journals were moved to the Volker Campus. It did not end till Aug. 19, the Friday before classes started, when the last new flooring was finished. In between, shelves and old carpet disappeared, along with most of the books. New carpet went down and a small wall went up, creating a conference space with a big-window south view toward the Health Sciences Building. Mullaly-Quinas said the sturdy, handsome table in the room had belonged to J.C. Nichols before it was passed on to the Nichols Library and then Health Sciences.

At the start of the semester, a sign by the library entryway notified everyone that 30 tables and 70 chairs had been added. Inside, a color-coding system tells users how to adjust their volume: green for large groups (but still with low voices); yellow, appropriate for one-toone studying and whispers; and red, for complete silence for individual study.

Mullaly-Quinas said the library had seen an immediate increase in student use, and the 20 computer stations were heavily used on weekends, when the computer lab in the Health Sciences Building is closed.

Now, only four double bookshelves remain, toward the north end of the library. Mullaly-Quinas noted that the physical books and journals that had been removed were still available by courier from the Nichols Library, "and with almost everything available digitally, students can access what they need from home, or almost anywhere."

Computer tool makes Children's Mercy radiologists readily available

THE RADIOLOGY TEAM at Children's Mercy can't be everywhere all the time. But a new computer-based video collaboration tool might make it seem that way.

With the aid of the new computer software, Polycom RealPresence, users can instantly share high quality audio and video content. In a hospital setting such as Children's Mercy, that means radiologists are available to work together on cases with other physicians whenever and wherever they're needed. The hospital's Department of Orthopaedic Surgery has used the program in situations in which surgeons collaborated with radiologists while performing procedures in the operating room. The technology allows the surgeon and radiologist to view images on their computer monitors and discuss the findings in real time. "We've proven it works," said Doug Rivard, D.O., associate professor of radiology.

For surgeons working in the operating

room, the program provides the benefit of having another experienced set of eyes and an immediate second opinion.

Rivard said he believes radiologists will find the new polycom tool equally as effective when working with other physicians in the hospital as it has been with orthopedic surgeons.

"The Polycom RealPresence tool will greatly enhance efficiency for specialty providers and for the Department of Radiology," Rivard said.

internal, external audiences

THE SCHOOL OF MEDICINE has two new videos in its tool kit for showcasing and explaining its innovative methods and supportive culture.

"The Docent System: The UMKC Approach to Medical Education" is a video highlighting what is considered the foundation of UMKC's medical education program. The docent system takes the best of apprenticeship learning and combines it with smallgroup teaching, mentoring, peer coaching and other techniques. It is one of the school's features that sets it apart from other medical programs.



Dean Kanter, M.D., puts service first in one video.

The docent video was created for a presentation by Senior Associate Dean Paul Cuddy, Pharm.D., and Dean Steven L. Kanter, M.D., at the 2016 annual conference of the Association for Medical Education in Europe, held in Barcelona, Spain. The audience included leaders in academic medicine from six continents.

Produced in-house, the video tells the docent story through the words of faculty physicians and medical students. It was created to have other applications, too, and will be used for student and staff recruitment, and promotional and educational purposes.

The second video, "UMKC School of Medicine: Our Passion Is Taking Care of You," features several students interacting with Dean Kanter. This video highlights the values of our school, showing the lengths UMKC takes to care for its medical students.

"At UMKC, we know medical school isn't easy, and being a medical student can be stressful," said Kanter. "The intent of the video is to give assurance that here, we care for our students."

The values video also will be used for recruitment and promotional purposes.

Currently, both videos can be viewed on the SOM website and the SOM's YouTube channel.

New videos showcase SOM to UMKC Paramedic Program receives full, five-year accreditation

THE UMKC SCHOOL OF MEDICINE Paramedic Program received full accreditation from the Commission on Accreditation of Allied Health Education Programs (CAAHEP) for its curriculum and training of future paramedics.

"Accreditation is verification that we've been compared to the standard for paramedic training programs and have met that," said Paul Ganss, MS, NRP, NCEE, CHSE, the school's EMS education program director. "When they come to our program, students can be assured they're going to a quality program. They will have the opportunity to gain national certification. They will have the opportunity to be licensed."

The UMKC paramedics program is part of the Emergency Medical Services section of the school's Department of Emergency Medicine.

The program received a clean report with no citations. One examiner even referred to UMKC as the gold standard for programs in paramedic training.

"There are standards that have been prepared, basically the best practices for training programs across the country," said Ganss. "Our program has been favorably compared to the best programs nationally."

The UMKC program began training emergency medical technician and paramedic students in 2012 under the approval of the Missouri Department of Health and Senior Services Bureau of EMS. Its curriculum exceeds the requirements of both the U.S. Department of Transportation and the Missouri Bureau of EMS.

UMKC currently has 11 students training in its paramedic program. A new class of trainees will join the program in January.

Matthew Gratton, M.D., oversees the UMKC Emergency Medical Services as chair of the Department of Emergency Medicine. Jay Reich, M.D., FACEP, serves as chief of the EMS section, and Erica Carney, M.D., serves as EMS education medical director.



UMKC's paramedic training, which includes emergency-response simulations such as this, earned high marks.

ON THE HILL



Students at Calvary Lutheran School learned healthy habits.

Medical students are helping younger generation get Fit for Life

IT DOESN'T TAKE LONG for medical students working in the outpatient clinics of Truman Medical Center to see the consequences of unhealthy habits. Poor nutrition and obesity are far too common.

That's why Kayla Briggs, a fifth-year student, and her student community service group, Roos on Call, are doing something to make a difference.

Combining interests in curriculum development and children's health, Briggs and her organization launched a month-long lesson plan for elementary school children called Fit for Life. Roos on Call is teaming up with teachers at Calvary Lutheran School to present lessons on healthy living to 38 fourth- and fifth-graders.

"All of us have been in the Truman clinic and have seen the effects of Type-2 diabetes and high blood pressure," Briggs said. "If there's a way we can get out there and prevent that through early education for the younger generation, we're happy to do that."

Briggs, who started Roos on Call a few years ago, created the curriculum with David Skoglund, M.D., a pediatrics resident at Children's Mercy. Skoglund developed a similar program when he was a medical student at Creighton. He shared his curriculum with Briggs and third-year student Danielle Graves, who tailored the program to fit Calvary Lutheran students.

A kickoff program had nearly a dozen School of Medicine students leading small groups of the elementary students through presentations on healthy foods to eat, heart health and fun things to do to stay active.

The month-long program consists of 20 lessons, following a theme for each week: setting goals and establishing healthy habits; healthy diets; exercise; and continuing healthy habits through good hygiene.

Students took turns leading the lessons. The school's teachers led the rest of the lessons each day, using materials and the curriculum supplied by Roos on Call.

Briggs had plenty of help. Asma Akhtar, a fourth-year student, is the program's co-chair. Logan Burrow, a fourth-year medical student, attends church at Calvary Lutheran and connected the organization with the elementary teachers. Sarah Hampl, M.D., a childhood obesity specialist at Children's Mercy, and Roos on Call faculty sponsor Sandra Smith have been instrumental in getting the program off the ground, Briggs said.

IN MEMORIAM

Mark Lowry Friedell, M.D., F.A.C.S.,

who served as chair of the Department of Surgery, died July 10, 2016.

Friedell joined the School of Medicine in 2012. Before UMKC, he was a clinical associate professor of surgery at the University of Central Florida, academic chair of surgical education for Orlando Regional Healthcare/Orlando Health and program director of general surgery for Orlando Health.

He earned his bachelor's degree from Beloit College and his medical degree from the University of Bologna in Italy, followed by a residency at University of Massachusetts Medical Center and a fellowship at Newark Beth Israel Medical Center.

Friedell is survived by his wife, Donna, and their two sons, Nicholas and Alexander.

Betty Herndon, Ph.D., associate professor of research, died on Aug. 3, 2015.

She came to UMKC in 1986 after working in medical research at Midwest Research Institute and the Department of Health and Human Services. Herndon earned a master's degree in biology/biochemistry and later a Ph.D. in pharmacology from UMKC. A collaborator and contributor to many peer-reviewed publications and abstracts, she emphasized teaching and helping students with their research presentations and education.

Karen Brown, who between 1975 and 2008 served as director of education administration, director of faculty affairs and director of graduate medical education, died on July 28, 2016.

Bob Steckmest, School of Medicine photographer since 1999, died on Aug. 31, 2016. He is survived by his wife, Susan, and his daughters, Jessica, Megan "Joey," and Morgan.



Studying what makes successful leaders

THE UMKC SCHOOL OF MEDICINE

is built upon the innovative vision of Dr. E. Grey Dimond for molding patient-centered physicians. The

school's alumni have validated the vision through decades of performance in every aspect of medicine. A study initiated by Dean Steven Kanter and conducted by Dr. Louise Arnold examines a feature of the school's graduates not previously examined – leadership.

That the UMKC School of Medicine would produce many accomplished leaders in so many realms of medicine may be unexpected for many of us but I suspect Dr. Dimond would have predicted it. He knew that leadership in health starts with professionals committed to the welfare of those we serve. He built the School of Medicine's educational model on early and frequent interaction with those the students are destined to serve throughout their professional lives – patients.

While I lacked the insight during my years in the School of Medicine to appreciate this strong foundation for our leadership, I am now immensely impressed with how our graduates have built upon this foundation. I am amazed by the leadership our alumni are providing at every level – in the clinic, in the hospital, in the community, in the nation, and literally across the globe.

Your experience and insight as a clinician and leader provide so much value to today's School of Medicine students. Please consider making yourself available to today's students by signing up as an alumnus advisor under "Volunteer" at umkcalumni.com. Please also consider coming to Kansas City in April for the reunion and alumni recognition events. Access to you as a visible and experienced leader will have an enduring and positive impact on the next generation of medical leaders.

Lt. Gen. Mark Ediger, M.D. '78, M.P.H. President, National Board of Alumni & Partners

DEAN'S POP QUIZ ANSWER E) All of the above



A) Thomas Toth, M.D. '86



B) Jason Wright, M.D. '99



C) Lisa Fitzpatrick, M.D. '92



D) Brad Warner, M.D. '82

For the question, see page 5.

ALUMNI

Expert in gynecologic oncology receives 2016 Take Wing Award

A CAREER IN OBSTETRICS and gynecology did not particularly resonate with Jason Wright, M.D. '99, as he was starting his clinical clerkships at the UMKC School of Medicine. Then he got to his Ob/Gyn rotation.

"It was a complete surprise to me. I really enjoyed that rotation," Wright said.

So much that Wright has forged a career as an internationally recognized expert in gynecologic cancers while becoming chief of gynecologic oncology at Columbia University. His work earned him the 2016 E. Grey Dimond, M.D., Take Wing Award.

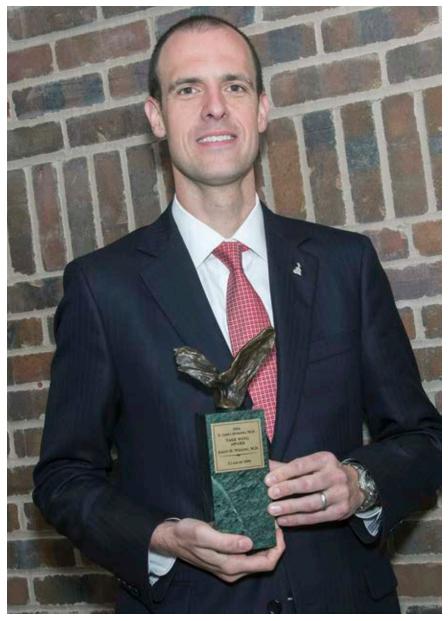
Wright received the award and presented the annual Take Wing lecture on May 23 at the School of Medicine.

In 2009, just three years after joining the Columbia faculty, Wright was named the Levin Family Assistant Professor in Women's Health, becoming one of the youngest physicians to ever receive an endowed professorship at the school. Five years later, he became the Sol Goldman Associate Professor and assumed the section chief's role.

"This is definitely my passion now," Wright said. "I'm also a clinician, so my passion is caring for my patients. I developed early on an interest in research, and that wove through my residency and fellowship and wound up with me doing the type of research I'm doing now. It wasn't a straightforward, straight-line route, but you can trace it back to my days at UMKC."

Wright followed medical school with a residency in obstetrics and gynecology and a fellowship in gynecologic oncology at Washington University School of Medicine in St. Louis.

He joined the faculty at Columbia University in 2006 and has served as chief of gynecologic oncology and director of the joint gynecologic



Jason Wright, M.D. '99, is an expert in gynecologic cancers.

oncology fellowship at Columbia and Cornell universities since 2014.

Wright says his interest in research began at UMKC. He now is the author of more than 170 peer-reviewed publications and more than 115 abstracts, with articles published in leading medical journals including JAMA and Lancet.

His work has focused on innovations in technology and the quality of care in oncology. For the past 10 years, he has studied individualized patient care by exploring large data sources to look at treatment outcomes and ways to tailor care for particular patients. "We've been able to challenge some things that are dogma in medicine and the traditional ways of treating patients," Wright said. "We have been able to shed light on some ways to improve outcomes in women's health."

Wright credits his time as a student at UMKC for laying the groundwork for his current success.

"One of the benefits of the UMKC School of Medicine is the tremendous clinical basics you get, and you can build on that," he said. "That foundation was key for me. And, I had great mentors."



Bringing palliative care to the forefront

ARIF KAMAL, M.D. '05, MBA, MHS, was in the midst of the long, exhausting hours of a medical residency at the Mayo Clinic in Rochester, Minnesota. Back home in Warrensburg, Missouri, his mother was fighting her own grueling battle with cancer.

Seeing his mother suffer convinced Kamal to specialize in oncology.

"I wanted to find a cure for breast cancer," he says.

Watching the treatment and quality of care his mother received before losing her battle with the disease, Kamal was convinced to chart a new path. Cancer treatment would still be a part of his work, but he'd focus on providing care and compassion to the person while treating the disease.

"I saw several opportunities where care could have been better, so I shifted my focus to quality of care," says Kamal, now a palliative care specialist at Duke University.

He followed his internal medicine residency with a hospice and palliative care fellowship at the Mayo Clinic and then a hematology/oncology fellowship at Duke University School of Medicine. Now an assistant professor of medicine specializing in palliative care and oncology, Kamal is also director of quality and outcomes for the Duke Cancer Institute.

Five years ago, he started Duke's first outpatient palliative care program for cancer patients.

"Now, cancer patients are seen by a palliative care physician. That physician rounds with the oncology team," Kamal said of the program. "This way both teams work together. It's a unique model."

And the idea is catching on.

Today, Kamal spends time addressing physicians and health care organizations to extol the benefits of integrating palliative care with cancer care. Since May, he has been chair of the Quality Care Committee for the American Society of Clinical Oncology. He also is the lead physician for developing quality data collection tools for the Global Palliative Care Quality Alliance, a group of health care professionals working to define and implement consensus-based standards that lead to high-quality palliative care for patients and their families.

"Palliative care has grown 150 percent in the last decade," Kamal said. "I had several mentors early on who said, 'Why do palliative care? All doctors do that anyway.' Some of the surprise is that this is actually a combination of skills that some have learned along the way. But with the skills and experience, you become humble to the fact that you need more training. You need empathy. You need to be reflective. Palliative care is a skill, not necessarily a trait, and we don't always naturally possess it."

At the core of that care, Kamal says, is asking patients three pertinent questions: What is important to you? What do you worry about? What do you hope for?

"If you ask those three things, the rest becomes pretty clear as far as what needs to be done," Kamal says. "Ninety-nine percent of people with advanced cancer worry about their spouse, their family, their quality of life. Less than 1 percent is worried about, 'I can't live two weeks longer without this therapy.' "

More important, he says, is that physicians are open to what matters most to patients and their families, and then tailor the most effective care to those needs.

"Cancer is a life-altering experience," Kamal said. "Palliative care is vitally important. We have only one chance to get it right."

Class Updates

MICHAEL ASH, M.D. '77, was named one of eight chief transformation officers to know by *Becker's Hospital Review*. An internal medicine physician, Ash became chief transformation officer at University of Nebraska Medical Center in 2014.

LT. GEN. MARK EDIGER, M.D. '78, Surgeon

General of the United States Air Force, threw out the ceremonial first pitch before the Kansas City Royals home baseball game against the Minnesota Twins on Aug. 20. Ediger leads 44,000 airmen who treat nearly 3 million military heroes and their families around the world.

MARIO CASTRO, M.D. '88, the Alan A. and Edith L. Wolff Professor of Pulmonary and Critical Care Medicine at Washington University School of Medicine in St. Louis, was named to the strategic advisory board of Therabron Therapeutics, a clinicalstage biotechnology company dedicated to advancing a new standard in respiratory care.

PATRICK DO, M.D. '95, has joined the Board of Trustees of Newman University, a Catholic liberal arts college in Wichita, Kansas. Since 2000, Do has worked as a physician for Mid-America Orthopedics, also in Wichita, and is a past medical staff president at Susan B. Allen Hospital in El Dorado, Kansas.

LANCE GRENEVICKI, D.D.S., M.D. '97,

was elected chief of staff of Wuesthoff Medical Center in Melbourne, Florida. He is a fellow of the American College of Surgeons.

SIMON KHAGI, M.D. '09, was named director of the Brain Tumor Program at the University of North Carolina Lineberger Comprehensive Cancer Center, as well as assistant professor at the UNC School of Medicine at Chapel Hill.

MATTHEW WATSON, M.D. '10, joined the Emergency Department at Mercy Hospital Washington in Washington, Missouri. He previously practiced emergency medicine at the University of Michigan.

UMKC School of Medicine

() 16Annual Report



Milestones and momentum

FORTY-FIVE YEARS and counting ... a familiar phrase at the UMKC School of Medicine in 2016.

Over the years, we've experienced amazing growth and change. Our most recent commencement class included 126 graduates from seven degree and certificate programs. Compare that with our very first graduate class of nine students, all of whom earned a doctorate of medicine, the only program offered then.

Today, we rely on new technologies, innovative research and medical advancements to improve patient care and the medical training we provide to students — developments few could have imagined in 1971.

At the School of Medicine, we celebrate both pride in our history and excitement for our future, a combination that leads to continued success. And we couldn't do it without you.

This past year, we raised more than \$1.5 million from alumni, friends, foundations, partners and organizations that share our commitment to providing one of the best medical education programs in the country. Our new Alumni Mentoring Program was launched late in the year, connecting alumni donors with current students for career guidance, while also providing funding for needed facility and program improvements. We also received generous gifts to our scholarship programs, helping students fund their medical education. In 2016, more than 100 students received scholarship support. And throughout the year, we continued to honor those supporting the School of Medicine through estate planning gifts, leaving a lasting legacy in honor of our 45th milestone. Support through estate gifts in 2016 was more than \$500,000.

Our mission — to foster excellence, innovation and scholarship in education, research and patient care — was advanced through generous donations, participation, encouragement and sponsorship. From grants, to memorial donations, to mentorship, your support played critical roles at our school. Thank you.

Although 45 years is relatively young compared with many other medical schools, our influence on the future health care of this country is no less significant. Working to prepare the next generation of physicians and health care professionals takes many forms, as well as many people. At UMKC, we are fortunate to count numerous friends and supporters in our mix.

Jay Wilson Assistant Vice President – Health Science UMKC Foundation

Daring to be different: UMKC marks 45 years of medical education

FROM THE BEGINNING, UMKC School of Medicine set out to be different.

It was the vision of founder E. Grey Dimond, M.D., who pushed for a unique way to train physicians. He called it a "rebellion in medical education": an accelerated, dual-degree program completed in six years, based on a humanistic, hands-on approach to teaching and learning medicine. It featured peer and physician mentoring through docent teams, and focused on patient-driven education.

It was not your typical medical school ... and not everyone was sold on the concept. Some called it a "bold experiment," while a few warned it was "unproven" and "anti-establishment." But in time, broad support came from community and civic leaders, hospitals and universities, trusts and foundations, the people of Kansas City, and even then-President Richard Nixon — who approved \$8.8 million in federal funding for construction. Today, with many of its original concepts and programs still firmly in place, the UMKC School of Medicine is a leader in the medical education field, serving as a model and mentor for accelerated programs across the country.

This year, the school marked its 45th anniversary of innovative medical education. To reflect on that milestone, below are some lesser-known facts from the school's anecdotal history, as told in the book *Raising a Medical School*:

- In the school's beginning, only Missouri residents could be admitted, and the cost was \$1,000 per year.
- According to Dr. Marjorie Sirridge, founding docent and former dean, because there was no regularly working elevator in the early years, and because it was determined that she was the docent whose coronaries were most adequate for making treks up and down the stairs, she was assigned to the upper floor docent unit.
- 1984 marked the first time the school's incoming class had more women than men, 54 percent to 46 percent. This trend continues.
- Reflecting his early reputation, SOM founder Dimond was profiled in a 1991 *The Journal of American Medical Association* article titled "The Counterculture Medical Educator."

For the School of Medicine, it's been a 45-year rewarding journey of introducing innovative concepts into the field of medical education: involving patients early in the students' learning process, incorporating the arts and sciences into the curriculum, and creating compassionate and knowledgeable physicians.

As the UMKC School of Medicine knows well, sometimes it pays to be different.





The School of Medicine, different from the start with its B.A./M.D. program, continued to change throughout its 45-year history. The curriculum has expanded, but the school's successful docent system remains.



Life experiences exposed her to medicine; scholarships help her earn the degree

LOGAN BURROW, scholarship recipient and fourth-year student in the six-year B.A./M.D. program, is the first to tell you that she didn't choose medicine early on. Her idea of a doctor, while she was growing up in Concordia, Missouri, was limited to the family physician she visited annually.

Her dream was to be a teacher, but that started to change when her mother was diagnosed with breast cancer. Now, thanks in part to several scholarships, she is realizing her new dream.

Burrow's mother was treated by Dr. Christopher Sirridge, M.D. '78, an oncologist at the University of Kansas Hospital (and son of UMKC School of Medicine founding docents William and Marjorie Sirridge). Burrow

got to meet him, as well as see a whole other side of medicine. Dr. Sirridge saw her mother until she was cancer-free, chatted with Burrow and her sisters during appointments, and participated in

Relay for Life events with their mom even after she fully recovered.

"He really changed my perspective," Burrow said. "I saw him be my mom's friend. I thought it was cool how the doctor you had in your life could have a role beyond just fixing the problem. They can care about you long term."

Years later, Burrow's father was diagnosed with malignant fibrous histiocytoma, and Dr. Sirridge was back in their lives again. Unfortunately, her father's cancer was aggressive and diagnosed in a late stage. After a monthlong battle, he lost his fight.

"I believe that you get pushed into the direction of where you're supposed to go based on your experiences," Burrow said. "It's also the gifts and talents that you have, and the people in your life."

Dr. Sirridge was one of those people, as was Dr. David Paul, Burrow's orthopedic surgeon. Burrow played volleyball, basketball and soccer in high school. During her sophomore year, she tore her meniscus, and Dr. Paul did her second knee surgery. Her time in a knee brace increased her interest in orthopedic surgery and sports medicine.

"I was meeting these really cool doctors who wanted to teach me about medicine," Burrow said. "I saw that, as you progress through the field, giving back through teaching is not only encouraged, but facilitated."

So the once-aspiring teacher found herself exploring a new career path. With her love of learning, the ability to handle high school science classes with ease and a passion for giving back, Burrow decided to pursue a degree in medicine. Among the first schools she considered: UMKC and its six-year program.

The B.A./M.D. program is an early-admit, dual-degree program. Burrow was especially interested in the mentorship aspects. Students are placed in docent groups from their first year and paired with a doctor and a more senior student starting in their third year. In classes, interactive learning is encouraged, and Burrows said that hands-on

"The scholarships I've gotten have honestly been really big blessings in my life." – Logan Burrow

approach enriched her time in the program.

"I like that you're not a number," Burrow said. "Teachers and faculty know your name, and if you have any problems, everyone's

approachable. I like that UMKC facilitates a place of group learning. It discourages competitiveness among students and encourages competitiveness with yourself."

Burrow also credits the school's scholarships for making the program relatively affordable. For students like her, that's important. Burrows has earned a scholarship every year so far, which has helped her get through medical school. Most recently, she received the Brian Petrie Memorial Scholarship and the Dean's Scholarship.

"The alumni that choose to give back and help support the students who couldn't do it on their own otherwise are a true asset to UMKC," she said. "That's something I want to do in the future. I want to help somebody else reach their dreams."

Burrows knows these experiences, along with her future role as a physician, wouldn't be possible without UMKC's financial support.

"The scholarships I've gotten have honestly been really big blessings in my life," she said. "Financially, they've been extremely helpful and, honestly, I don't know if I would've been able to figure it all out otherwise."

To learn more about scholarships available at UMKC and other support for School of Medicine students, visit med.umkc.edu/giving.



Fourth-year student Logan Burrow hopes to help others with scholarship aid someday.

SCHOLARSHIPS BY THE NUMBERS 2015-16 SCHOOL YEAR

100 +

Students receiving scholarships

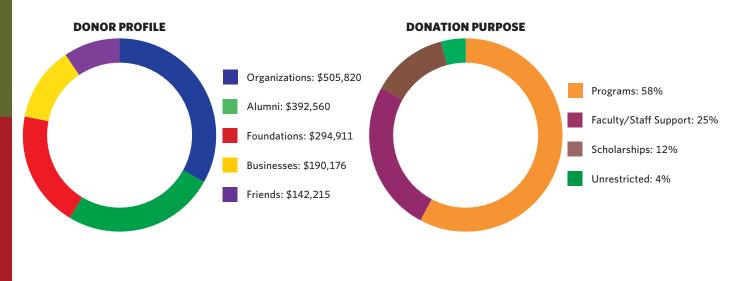
129/6 Share of total donations designated for scholarships

\$600,000+

Estimated total value of scholarships

CONTRIBUTIONS, COMING AND GOING

The UMKC School of Medicine recognizes our Honor Roll of Donors, acknowledging gifts received between July 1, 2015, and June 30, 2016. These gifts are essential in advancing the quality of medical education and research conducted at the school. These charts show where the year's contributions came from and what categories they will help finance.



THE SCHOOL OF MEDICINE BY THE NUMBERS

607

Six-year BA/MD Students

10

Degree and certificate programs

41

Residency and fellowship programs

395 Residents and fellows





2015-16 HONOR ROLL OF DONORS

\$100,000+

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Message of mercy

"THE QUALITY OF MERCY is not strained" begins the message that was set in stone on Kansas City's General Hospital, where the first School of Medicine classes attended clinics. The words come from Act IV, Scene 1, of Shakespeare's "Merchant of Venice," and the stone was preserved when the hospital was razed. Today, on the side of Truman Medical Center on Hospital Hill, they still remind students, physicians and other health care workers, "It is twice blessed; It blesses him that gives and him that takes."

ALUMNI REUNION APRIL 21-22

Make plans to join us for the 2017 School of Medicine Alumni Reunion set for April 21-22. Check the alumni website often for updated information on the reunion schedule. For more information, please contact Lisen Tammeus at tammeusli@umkc.edu. Go Roos!



Stay in touch UMKC Alumni Association (816) 235-1561 Email: alumni@umkc.edu umkcalumni.com





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Pancakes for a Purpose

Bilal Alam, a sixth-year B.A./M.D. student, kept his eye on the flapjack in May at "Pancakes for a Purpose." The School of Medicine's chapter of Global Brigades used caterer Chris Cakes for the event, which raised money for the group's annual medical mission trip, which also occurred in May. Sixteen UMKC medical students made the trip to Nicaragua, where the two most recent medical missions have been. UMKC medical students also have helped in Honduras in other recent years.

