

Outlook



Washington
University in St. Louis

SCHOOL OF MEDICINE

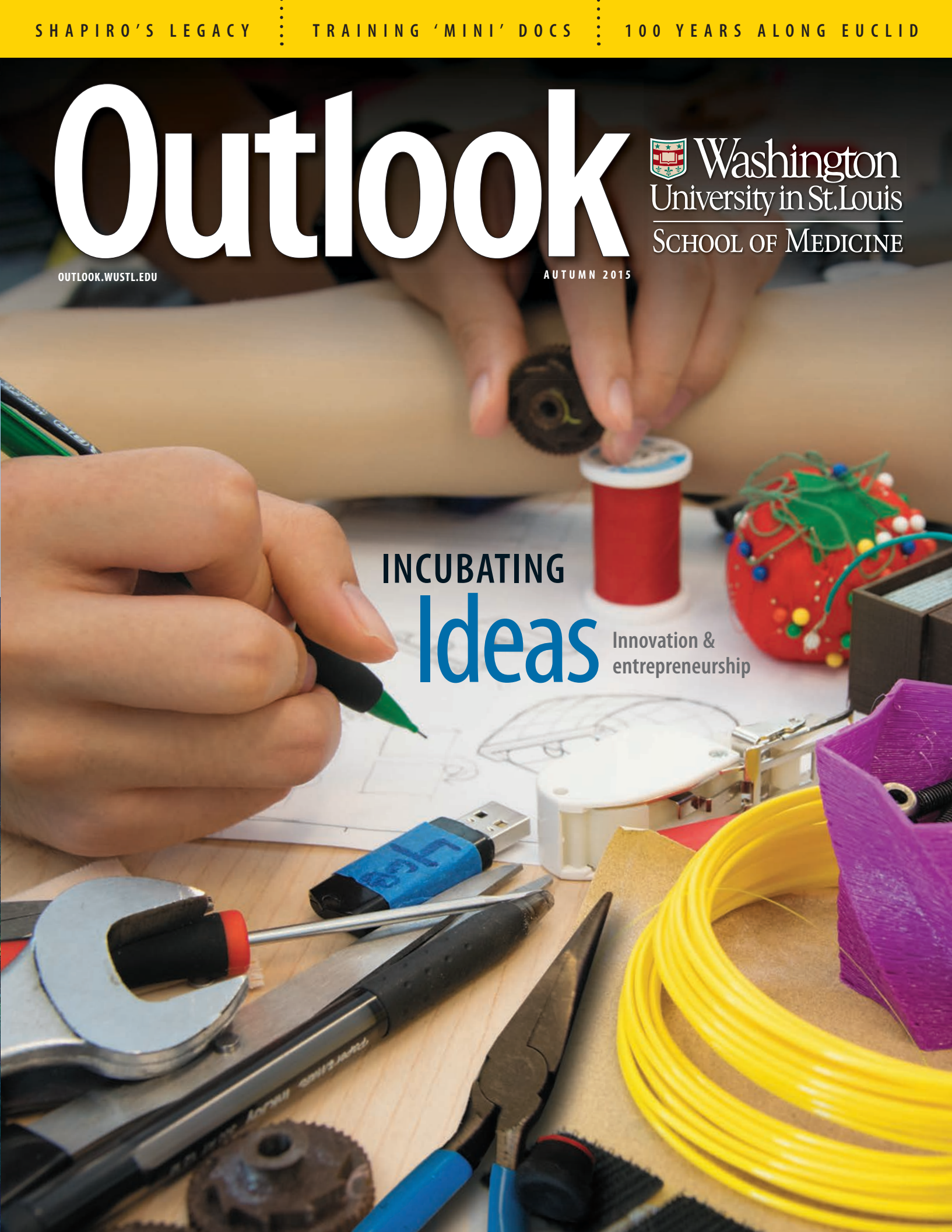
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AUTUMN 2015

INCUBATING

Ideas

Innovation &
entrepreneurship





Outlook Autumn 2015

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Published by Washington University School of Medicine,
Office of Medical Public Affairs, Campus Box 8508,
4444 Forest Park Ave., St. Louis, MO 63108 ©2015

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Science in the Park

St. Louis students visited the Washington University Medical Campus for Science in the Park, a community outreach event that brought hands-on science activities to kids in grades K-12. The event was hosted by high school and college students participating in summer research programs through the Division of Biology and Biomedical Sciences. Above, sophomore Reuben Hogan offered a hands-on anatomy lesson to curious campers.

Outlook

Washington University School of Medicine

OUTLOOK.WUSTL.EDU AUTUMN 2015



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COVER Through IDEA Labs, undergraduate, medical and other graduate students are collaborating to develop innovative, potentially marketable solutions to physician-identified problems. In its short existence, IDEA Labs has resulted in 31 prototypes and 17 startups. To learn more about this student-driven bioengineering design and entrepreneurship incubator, see page 13.

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Drug therapy at the push of a button

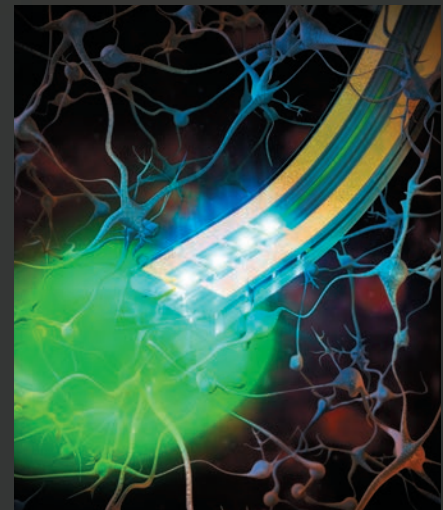
Concept illustrates potential for treating neurological disorders

A team of researchers has developed a wireless device the width of a human hair that can be implanted in the brain and activated by remote control to deliver drugs.

The technology, demonstrated for the first time in mice, one day may be used to treat pain, depression, epilepsy and other neurological disorders in people by targeting therapies to specific brain circuits, according to the researchers at the School of Medicine and the University of Illinois at Urbana-Champaign.

The research is a major step forward in pharmacology and builds on earlier work in optogenetics, a technology that makes individual brain cells sensitive to light and then activates those targeted populations of cells with flashes of light. Because it's not yet practical to re-engineer human neurons, the researchers made the tiny wireless devices capable of delivering drugs directly into the brain, with the remote push of a button.

"In the future, it should be possible to manufacture therapeutic drugs that could be activated with light," said co-principal



The hairlike tendril of the remote-control device can precisely deliver light or drugs into specific regions of the brain while reducing side effects.

investigator Michael R. Bruchas, PhD, associate professor of anesthesiology and neurobiology at Washington University. "With one of these tiny devices implanted, we could theoretically deliver a drug to a specific brain region and activate that drug with light as needed. This approach potentially could deliver therapies that are much more targeted but have fewer side effects."

The study was published in *Cell*.

Previous attempts to deliver drugs or other agents, such as enzymes, to experimental animals have required the animals to be tethered to pumps and tubes that restricted their movement. But the new devices were built with four chambers to carry drugs directly into the brain. By activating brain cells with drugs and with light, the scientists are getting an unprecedented look at the inner workings of the brain.

"This is the kind of revolutionary tool development that neuroscientists need to map out brain circuit activity," said James Gnadt, PhD, program director at the National Institute of Neurological Disorders and Stroke at the National Institutes of Health (NIH).

"It's very much in line with the goals of the NIH's BRAIN (Brain Research through Advancing Innovative Technologies) Initiative."

A leader returns

University appoints medical school dean

David H. Perlmutter, MD, has been named executive vice chancellor for medical affairs and dean of the School of Medicine. His tenure begins Dec. 1.

Perlmutter is a distinguished professor and the Vira I. Heinz Endowed Chair of the Department of Pediatrics at the University of Pittsburgh School of Medicine. He also is physician-in-chief and scientific director of Children's Hospital of Pittsburgh, of the University of Pittsburgh Medical Center (UPMC).

A former Washington University faculty member, Perlmutter succeeds Larry J. Shapiro, MD, who is stepping down after leading the School of Medicine for 12 years.

"We are thrilled to welcome David Perlmutter back to Washington University," Chancellor Mark S. Wrighton said. "He brings extraordinary vision and experience to bridge strengths across the School of Medicine, one of the world's premier medical schools. We are confident we have found an exceptional leader who will carry on the legacy of excellence cultivated by Larry Shapiro."



David H. Perlmutter, MD

Before joining Pitt in 2001, Perlmutter spent 15 years as a faculty member in the Department of Pediatrics at Washington University, where he was the first to hold the Donald Strominger Professorship of Pediatrics.

Also joining the university faculty is Perlmutter's wife, Barbara A. Cohlman, MD, who will be a professor of pediatrics in the Division of Newborn Medicine in the Department of Pediatrics. She is a professor of pediatrics at Pitt, where she directs the Normal Newborn Nurseries and the Neonatal Follow-up Clinic at Magee-Womens Hospital of UPMC.

Perlmutter earned a medical degree from Saint Louis University School of Medicine. He completed an internship and residency in pediatrics at Children's Hospital of Philadelphia, followed by research and clinical fellowships in pediatric gastroenterology at Boston Children's Hospital.

Perlmutter joined the faculty of Harvard Medical School in 1983 and came to Washington University in 1986. He later led the Division of Gastroenterology and Nutrition at the School of Medicine and St. Louis Children's Hospital before leaving for Pitt in 2001.

Perlmutter has a long history of maintaining and growing financial support for basic research and physician training, especially through funding from the National Institutes of Health (NIH).



GALIA REMEROWSKI

Change-maker Victoria J. Fraser, MD, head of the Department of Medicine, spoke at TEDxStLouisWomen, an event celebrating the impact of women in St. Louis and around the world. Held last May at Union Station, the presentations also were part of TEDWomen, a national conference focused on women and girls as creators and change-makers. The theme was momentum and bold ideas that lead to progress. Fraser, an infectious disease specialist, talked about antibiotic resistance and its evolution into a public health crisis.

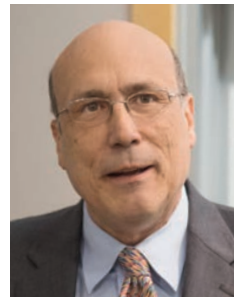
Head named for biochemistry and molecular biophysics department

John A. Cooper, MD, PhD, has been named head of the Department of Biochemistry and Molecular Biophysics.

The department has a distinguished history of scientific accomplishments at the School of Medicine, including pioneering research by eight Nobel Prize winners, a legacy that began in 1947 with Carl and Gerty Cori, who were honored for work describing carbohydrate metabolism.

"The distinguished history of the faculty, which continues to this day, makes this leadership role a remarkable privilege," Cooper said. "I look forward to continuing to assist the department in its critical roles of research, education and service to the School of Medicine and the university."

Cooper is a professor of cell biology and physiology and of biochemistry and molecular biophysics. His research is focused on understanding how cells move and change shape. Cellular movement plays important roles in disease, especially in understanding how cancer cells spread to other parts of the body and how the body's immune cells pursue and eliminate foreign invaders. Much of his work has focused on understanding the cellular skeletal system of filaments and motors, based on actin, which provides the machinery for cells to change shape, divide and move.



John A. Cooper, MD, PhD



ELIZABETH HOLLAND DURAND

Resident raptors A mother falcon — or perhaps more than one — has returned to the West Building year after year to hatch and raise chicks. Each year, after the chicks are a few weeks old, World Bird Sanctuary experts visit campus to apply identifying bands above the birds’ talons and take blood samples. They access the nest via a movable panel, slip the chicks into a pet carrier to take them to a quiet office for banding and blood tests, then return them, usually before their mother even realizes they are missing. This year, four chicks hatched. Above, Sheri Palmer, a School of Medicine public safety officer, holds one of the young falcons.

New director of Renal Division named

Benjamin D. Humphreys, MD, PhD, is the new director of the Renal Division in the Department of Medicine. He succeeds Marc R. Hammerman, MD, the Chromalloy Professor of Renal Diseases, who has led the Renal Division since 1991.

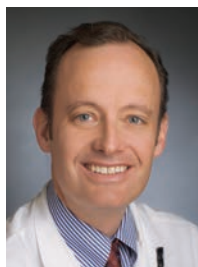
Humphreys comes from Harvard Medical School, where he was an associate professor of medicine and director of the Laboratory of Translational Research in Kidney Repair.

In his clinical practice, he treated patients at Brigham and Women’s Hospital and the Dana-Farber Cancer Institute.

His work focuses on clarifying the underpinnings of kidney injury at a cellular level and developing new treatments based on that research. In certain cases of chronic or repeated kidney injuries, the kidneys develop scar tissue that causes them to slowly and irreversibly fail.

A primary focus of Humphreys’ research is unraveling the pathways that regulate the scarring process so that drugs to slow and ultimately reverse chronic kidney disease can be developed. In combination with genetics and genomic techniques, he also uses mouse models to investigate kidney diseases that occur in people and can lead to kidney failure.

“I am passionate about the kidney and communicating the need for new therapies to help patients, and I believe that we are close to achieving clinical breakthroughs,” Humphreys said.



Benjamin D. Humphreys, MD, PhD

Alzheimer’s linked to diabetes

A disease that robs people of their memories may be affected by elevated blood sugar. Researchers have uncovered further evidence of a unique connection between diabetes and Alzheimer’s disease.

While many earlier studies have pointed to diabetes as a possible contributor to Alzheimer’s, the new study — in mice — shows that elevated glucose in the blood can rapidly increase levels of amyloid beta, a key component of brain plaques in Alzheimer’s patients. The buildup of plaques is thought to be an early driver of the complex set of changes that Alzheimer’s causes in the brain. The study is published in *The Journal of Clinical Investigation*.

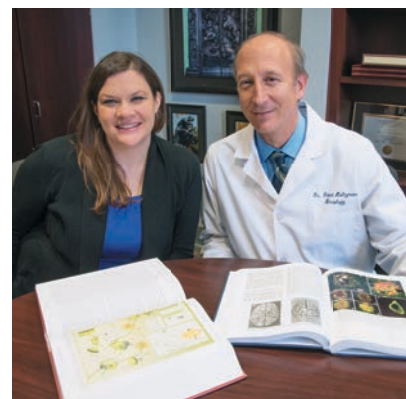
“Our results suggest that diabetes, or other conditions that make it hard to control blood sugar levels, can have harmful effects on brain function and exacerbate neurological conditions such as Alzheimer’s disease,” said lead author Shannon Macauley, PhD, a postdoctoral research scholar. “The link we’ve discovered could lead us to future treatment targets that reduce these effects.”

People with diabetes can’t control glucose levels in their blood, which can spike after meals. Instead, many patients rely on insulin or other medications to keep blood sugar levels in check.

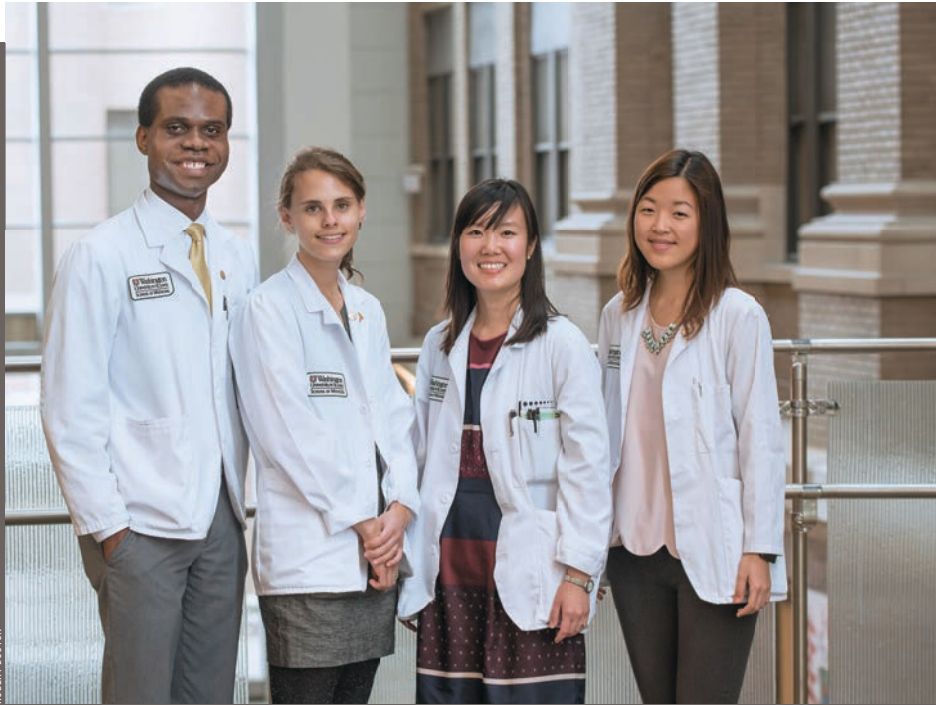
To understand how elevated blood sugar might affect Alzheimer’s disease risk, the researchers infused glucose into the bloodstreams of mice bred to develop an Alzheimer’s-like condition.

In young mice without amyloid plaques in their brains, doubling glucose levels in the blood increased amyloid beta levels in the brain by 20 percent. When the scientists repeated the experiment in older mice that already had developed brain plaques, amyloid beta levels rose by 40 percent.

The researchers showed that spikes in blood glucose increased the activity of neurons, which promoted amyloid beta production. Normal firing is how a brain cell encodes and transmits information. But excessive firing in parts of the brain can increase amyloid beta production.



Shannon Macauley, PhD, and David Holtzman, MD



ROBERT BOSTON

The fellowship recipients from Washington University are (from left) Kow Essuman, Julia Wagner, Amy Xu and Jessie Ge.

New Howard Hughes fellows

Four students at Washington University School of Medicine are among 68 students nationwide selected for the Howard Hughes Medical Institute's Medical Research Fellows Program. The \$2.8 million annual initiative is designed to develop the next generation of physician-scientists by giving students a full year of mentored research training with some of the nation's top biomedical scientists.

MICROBIOME

Antibiotic resistance in remote villagers

Scientists have found antibiotic resistance genes in the bacterial flora of a South American tribe that had never before been exposed to antibiotic drugs. The findings suggest that bacteria in the human body have had the ability to resist antibiotics since long before such drugs were ever used to treat disease.

The multicenter study focused on a tribe of Yanomami Amerindians from a remote mountainous area in southern Venezuela. Largely because the tribe had been isolated from other societies for more than 11,000 years, its members were found to have among the most diverse collections of bacteria recorded in humans. Within that plethora of bacteria the researchers have identified genes wired to resist antibiotics.

"This was an ideal opportunity to study how the connections between microbes and humans evolve when free of modern society's influences," said Gautam Dantas, PhD, associate professor of pathology and immunology at Washington University and one of the study's

authors. "Such influences include international travel and exposure to antibiotics."

Although the tribespeople had no exposure to modern antibiotic drugs, Dantas' lab was able to identify several fecal and oral bacterial samples resistant to natural and synthetic forms of antibiotics.

Long before the advent of antibiotics, soil bacteria have had the ability to produce natural antibiotics to kill competitors. Some can even swap resistance genes with their neighbors through a process known as horizontal gene transfer.

The current abundance of antibiotics in medicine and agriculture has accelerated this process, stimulating the development and spread of genes that help bacteria survive exposure to antibiotics. Consequently, strains of human disease that are much harder to treat have emerged.

"We have already run out of drugs to treat some types of multidrug-resistant infections, many of which can be lethal, raising the bleak prospect of a post-antibiotic era," Dantas said.



The scientists found multiple genes from the tribespeople that could deactivate various forms of antibiotics, including some that are reserved for the worst infections, added Dantas.

The research also suggests a link between modern antibiotics, industrialized diets and a greatly reduced diversity in the human microbiome — the trillions of bacteria that live in and on the body and that are increasingly being recognized as vital to good health.

ELIZABETH HOLLAND DURANDO



Running for science Washington University graduate student and GO! St. Louis Marathon winner Andrea Karl said running makes her a better scientist. "It helps immensely," said Karl, a student in the Division of Biology & Biomedical Sciences in the Graduate School of Arts & Sciences. She is working toward a PhD in molecular genetics and genomics on the School of Medicine campus. "You can only be productive for so many hours in a row," she said. Karl said she cared more about running a sub three-hour race than winning. Her time for the GO! St. Louis Marathon: 2:54:29.

Shearrer to lead alumni and development

David Shearrer, a leader in fundraising initiatives at the School of Medicine, has been named the university's associate vice chancellor and director of medical alumni and development programs.

Shearrer, who was appointed assistant vice chancellor of Medical Alumni and Development in 2011, replaces recently retired Pamela Buell, who has held the position since 2007.



David Shearrer

Shearrer assumes leadership of Medical Alumni and Development at a pivotal time, with three years left in *Leading Together: The Campaign for Washington University*. To date, he has helped the campaign raise more than \$900 million toward the goal of \$1.1 billion for the School of Medicine.

Among his many accomplishments, Shearrer spearheaded the William A. Peck Scholars Program, which provides scholarships for medical students. He also led fundraising efforts in the Department of Neurology, helping to establish the Hope Center for Neurological Disorders and the Charles F. and Joanne Knight Alzheimer's Disease Research Center.

Shearrer has worked in development in St. Louis since 1993. Prior to joining Washington University in 2002, he played a role in successful fundraising programs at The Salvation Army, Missouri Baptist University and St. Louis Children's Hospital.

Personalized vaccine targets melanoma

Personalized melanoma vaccines can be used to marshal a powerful immune response against unique mutations in patients' tumors, according to a first-in-people clinical trial at Washington University School of Medicine.

The tailor-made vaccines, given to three patients with advanced melanoma, appeared to increase the number and diversity of cancer-fighting T cells responding to the tumors. The finding is a boost to cancer immunotherapy, a treatment strategy that unleashes the immune system to seek out and destroy cancer.

In a new approach, the cancer vaccines were developed by first sequencing the genomes of patients' tumors and samples of the patients' healthy tissues to identify mutated proteins called neoantigens unique to the tumor cells. Then, using computer algorithms and laboratory tests, the researchers were able to predict and test which of those neoantigens would be most likely to provoke a potent immune response and would be useful to include in a vaccine.

The vaccines were given post-surgery to melanoma patients, whose cancer cells had spread to the lymph nodes, an indicator the deadly skin cancer is likely to recur. These findings set the stage for a phase I vaccine trial, approved by the Food and Drug Administration as part of an investigational new drug application. The trial will enroll six patients.

If additional testing in more patients indicates the vaccines are effective, they may one day be given to patients after surgery to stimulate the immune system to attack lingering cancer cells and prevent a recurrence.

"This proof-of-principle study shows that these custom-designed vaccines can elicit a very strong immune response," said senior author Gerald Linette, MD, PhD, the medical oncologist leading the clinical trial at Siteman Cancer Center and Barnes-Jewish Hospital.

It's too early to say whether the vaccines will be effective in the long term, the researchers cautioned; however, none of the patients has experienced adverse side effects.



Tailor-made vaccines advance cancer treatment strategies



Shriners Hospital opens on Medical Campus

Shriners Hospitals for Children—St. Louis officially opened on the Washington University Medical Campus. The 90,000-square-foot, three-story hospital focuses on care for children with orthopedic and neuromusculoskeletal conditions. The move to the Central West End is expected to enhance clinical care and research collaborations with the School of Medicine, with which Shriners has had a strong partnership since the 1920s. Most of the hospital's medical staff — including its chief of staff, Perry L. Schoenecker, MD — are Washington University physicians.

EPIDEMIC

More Americans obese than overweight

Obesity and excess weight negatively influence health and have become a significant focus for health-care professionals. Research at the School of Medicine confirms the problem is only getting worse.

The study, which used data from 2007-2012, indicates nearly 75 percent of men and 67 percent of women are overweight or obese. This is an increase from findings of a study published in 1999 that estimated 63 percent of men and 55 percent of women age 25 and older were overweight or obese.

"This is a wake-up call to implement policies and practices designed to combat overweight and obesity," said the study's first author, Lin Yang, PhD, a postdoctoral research associate in public health at the School of Medicine.

The new findings also estimate that 67.6 million adult Americans over the age of 25 are obese, and an additional 65.2 million are overweight.

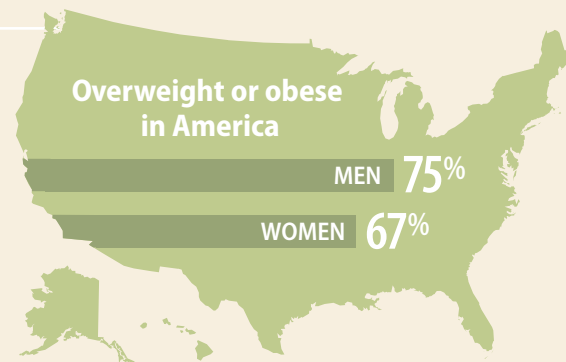
In the study, Yang and Graham A. Colditz, MD, DrPH, deputy director of the

Institute for Public Health, estimated the prevalence of obesity and those who are considered overweight, by gender, age and race/ethnicity. The sample size included 15,208 men and women aged 25 and older, which is representative of more than 188 million people.

Their data showed that African-Americans have the highest rates of obesity, with 39 percent of men and 57 percent of women considered obese. Among Mexican-Americans, 38 percent of men and 43 percent of women are obese. For Caucasians, 35 percent of men and 34 percent of women are obese.

The authors suggest that public health experts should focus efforts in three key areas to fight obesity, including: changing the physical environment (such as making cities more walkable); increasing primary care prevention and treatment efforts; and altering societal norms of behavior (such as raising awareness about weight loss cost-saving benefits).

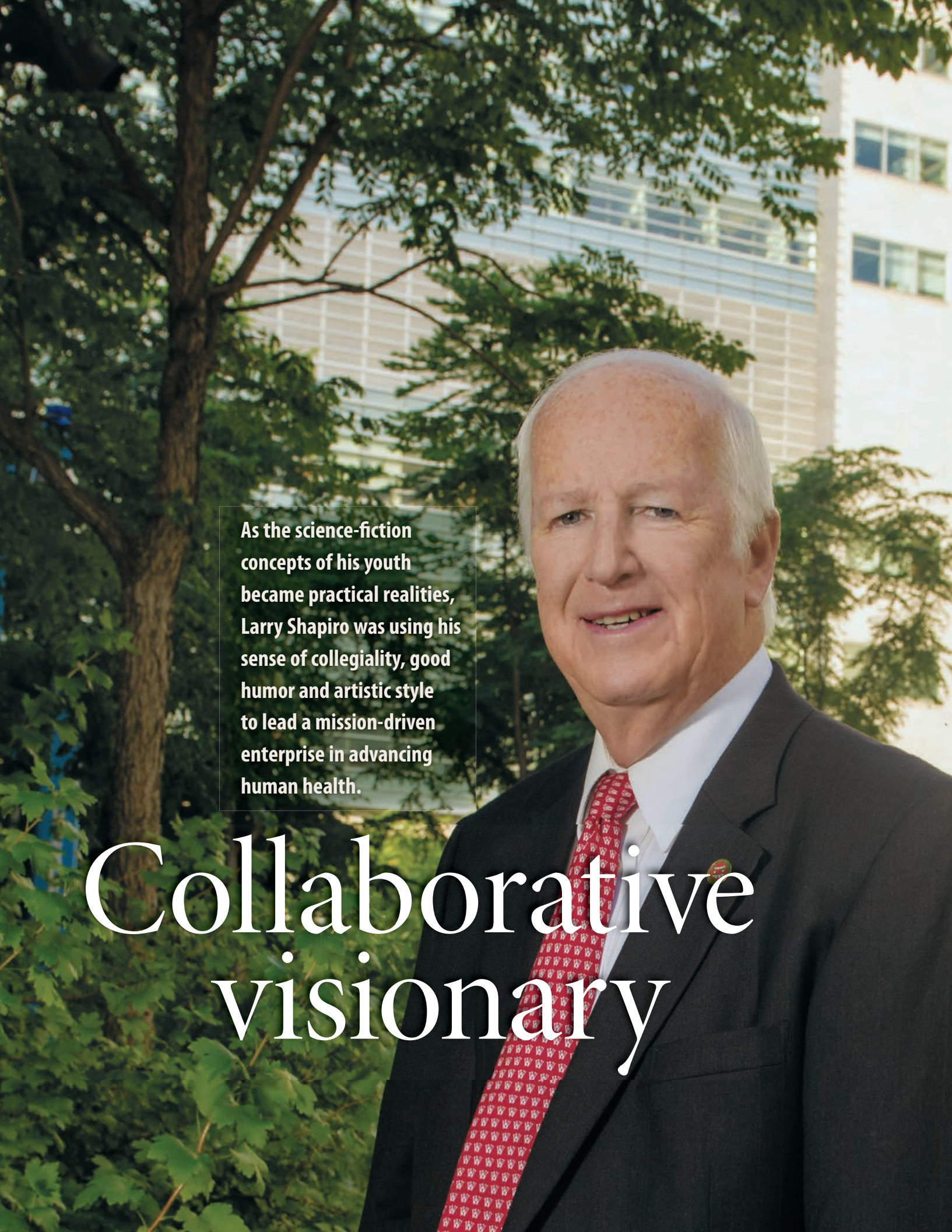
"Delivering these strategies is a priority



An unhealthy trend for the U.S. population: More and more people are becoming at-risk for weight-related illnesses.


to counter the burden of obesity on contemporary and future generations," the researchers noted.

"There are many things we can do to interrupt this worrisome and costly trend, and the benefits go well beyond what's obvious to the eye," Colditz said. "Some cancers, for example, can be prevented by eating a healthy diet, exercising and keeping weight in check. We need to do what we can to change behaviors of current and future generations to reverse this preventable societal burden."

A portrait of Larry Shapiro, an older man with white hair, wearing a dark suit, white shirt, and a red patterned tie. He is smiling slightly and looking towards the camera. The background consists of green trees and a modern building with a grid-like facade.

As the science-fiction concepts of his youth became practical realities, Larry Shapiro was using his sense of collegiality, good humor and artistic style to lead a mission-driven enterprise in advancing human health.

Collaborative visionary



IF ON THE WAY TO A MEETING there is a route — direct or winding — through Ellen S. Clark Hope Plaza, past its placid fountain and clusters of lush trees and grasses, Larry J. Shapiro takes it. There co-exist two very different representations of the legacy he leaves Washington University School of Medicine.

When Shapiro took over 12 years ago as dean and executive vice chancellor for medical affairs, the site was home to a parking garage so decrepit that just weeks into his new post, he ordered it shuttered.

Down went the garage, and up went the BJC Institute of Health, a hub for BioMed 21, Washington University's research initiative to rapidly translate basic research findings into advances in medical treatment. And at the base of the institute's tower of glass, steel and stone came the plaza, a peaceful respite crowned with a moon-shaped fountain designed by Maya Lin and dedicated to the memory of a woman who fought to protect stem cell research.

This juncture of science and nature and the people who travel through it draw Shapiro in and make him pause. "Always," said the dean, who announced earlier this year he is stepping down as head of the medical school.

"It's a reminder of how far we've come and how far we will still go. And it's a reminder that we need to find moments of peace, quiet and appreciation amid the constant motion and discovery."

BY ELIZABETHE HOLLAND DURANDO



Shapiro, Larry

STUDENT I.D.

The road back

A pediatric geneticist by training, Shapiro first arrived in St. Louis nearly 50 years ago as an undergraduate student in Arts & Sciences at Washington University. A course in developmental biology taught by eventual Nobel laureate Rita Levi-Montalcini and famed embryologist Viktor Hamburger sparked Shapiro's interest in biomedical science.

"The idea of sequencing a genome would have been total science fiction back then, and the imaging tools we have today that allow us to visualize living cells as they engage in various processes — they had none of that," Shapiro said. "But they devised experiments that were extremely elegant in their design and that enabled great insights to be drawn, and that captivated me."

He pursued a medical degree at Washington University, where a class in medical genetics — the school was one of the first to incorporate such a course into its curriculum — decided his

career path. He chose pediatrics not only because he enjoyed caring for children but because the field offered a pathway into medical genetics. Most genetic diseases studied at the time were pediatric in nature.

He completed his residency at St. Louis Children's Hospital and left the Gateway City to embark on a medical career at the National Institutes of Health (NIH) in Maryland, the University of California, Los Angeles, and then the University of California, San Francisco.

Three decades passed before he circled back to St. Louis in 2003, this time as a renowned genetics researcher, administrator and pediatrician. He took on the roles of executive vice chancellor for medical affairs and dean.

"Medicine has changed so very much since the days I was in school, but the education my classmates and I received here prepared us to embrace and participate in the changes and not be daunted by the development of new technologies, new drugs, new devices and all of the things that have happened in the subsequent years," said Shapiro, who is also the Spencer T. and Ann W. Olin Distinguished Professor. "I appreciate even more today just how wonderful that educational experience was.

"We've had a history of extraordinary people with a commitment to excellence, who also have fostered a love of this institution," he added. "That's why when I had the opportunity to come back, I knew it was what I should do. Filling these roles has been the greatest privilege of my career. It has reminded me what a remarkable place this is, made so by the amazing, deeply talented people who work, teach and study here."

Milestones

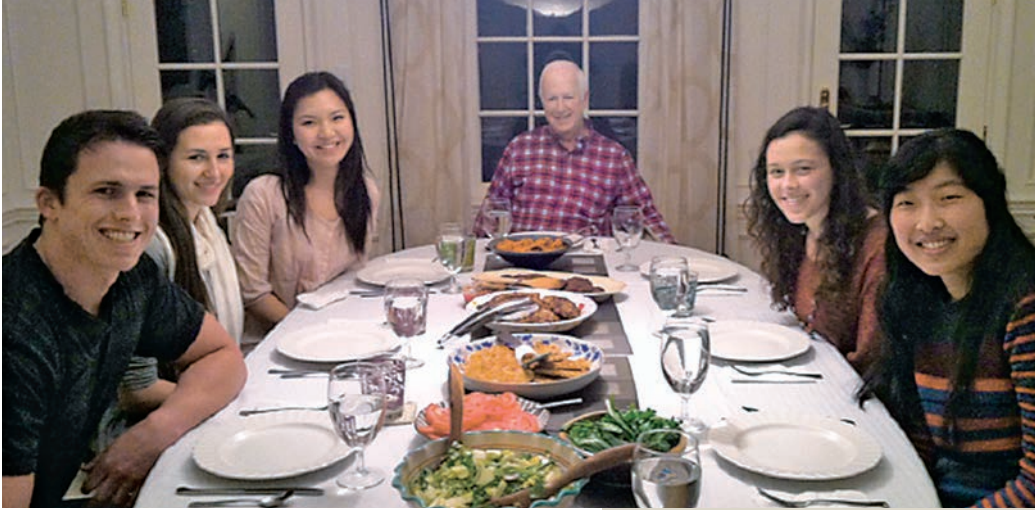
Shapiro's time at the helm has seen many of the school's greatest advances, some of which have served as valuable bridge-builders between the Medical and Danforth campuses.

"He has been very effective in serving as a leader not just for the School of Medicine, but for the entire university," Chancellor Mark S. Wrighton said. "This is manifest in the development of the Institute for Public Health, a universitywide initiative that addresses complex health issues facing the St. Louis region and beyond. The School of Medicine, and Larry in particular, have played a vital role in its development.



AS A PEDIATRICIAN, WITH DAUGHTER JENNIFER

"Medicine has changed so very much since the days I was in school, but the education my classmates and I received here prepared us to embrace and participate in the changes ..."



DINING WITH STUDENTS

“... what a remarkable place this is, made so by the amazing, deeply talented people who work, teach and study here.”

“And he has contributed to the strengthening of biomedical engineering, the Brown School and the Department of Psychology on the Danforth Campus. He has been more than executive vice chancellor and dean. He has had a deep commitment to making Washington University stronger overall.”

Among other such accomplishments that punctuate Shapiro’s tenure was the establishment of BioMed 21, the research initiative of which the dean is most proud. The enterprise, which includes faculty from the university’s Schools of Medicine, Engineering and Arts & Sciences, endeavors to make St. Louis a biotech powerhouse by bringing together basic scientists and clinical researchers from different disciplines to address important questions and rapidly translate findings into new therapies for patients.

BioMed 21 programs, along with most of the research on the Medical Campus, are funded by the NIH. And under the dean’s watch, the school has ranked fourth among all medical schools in NIH funding, opening the door to breakthroughs in research.

“The first sequencing of a cancer genome in a human occurred in the past decade, and that’s now been expanded to where many thousands of patients have had their normal tissue and cancer tissue sequenced,” Shapiro said. “The school’s ongoing leadership in imaging science, fundamental immunology, translational science and in understanding the root causes of Alzheimer’s — these all have major impact.”

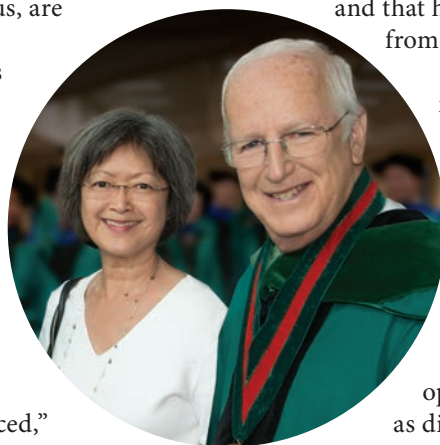
Philip Needleman, PhD, former chair of the medical school’s Department of Pharmacology and an emeritus member of the university’s board of trustees, first met the dean when Shapiro was a medical student. Years later, Shapiro asked

Needleman, who had left academia for a long, successful corporate career, to help shape BioMed 21.

“I was away for 20 years, but I was struck when I came back at how much the medical school had invested in cutting-edge technology that supports research — and not just in the flourishing McDonnell Genome Institute, but all of the departments,” Needleman said. “Despite cuts to NIH funding, the medical school has pretty wonderfully survived and continued to grow its research enterprise during the tough times, and that has required a lot of management from the dean’s office.”

Growth arguably has been most noticeable in the Washington University Physicians clinical practice. Last year, it earned \$874 million in revenue, and it has enjoyed 8 to 10 percent annual growth in the time Shapiro has been dean. Washington University Orthopedics in Chesterfield opened under Shapiro’s watch, as did, most recently, the St. Louis Children’s Specialty Care Center in west St. Louis County, which is co-owned and operated by the university and Children’s Hospital.

“Larry has strengthened the school’s relationship with BJC leadership and recruited outstanding new department chairs,” said James P. Crane, MD, associate vice chancellor for clinical affairs and CEO of the Faculty Practice Plan. “He has also been a strong advocate for diversity and gender equality at Washington University.”



Shapiro’s wife, Carol Uetake-Shapiro, has been an active member of the university community and ambassador for the School of Medicine.

Shapiro’s daughters, Jennifer and Jessica, both of Nashville, have seven children between them. The dean’s son, Brian, lives in the Los Angeles area. Jennifer, AB ’94, and Brian, AB ’02, graduated from Washington University.

Shaping new leaders

In his 12 years as dean, Shapiro has hired 18 department heads, all highly respected in their fields and three of them women. Before he took over, no department at the school had been headed by a woman.

Further, when he arrived, three women held endowed professorships. Now, 24 hold this honor. “I’m very pleased with the advances women have made in leadership in other areas of the school, too,” he said.

“He has dedicated his career here to providing outstanding educational programs, building infrastructure, garnering resources for innovative research and fostering exceptional patient care.”

— Victoria J. Fraser, MD

Overseeing the Department of Medicine, the university’s largest department, is Victoria J. Fraser, MD, the Adolphus Busch Professor of Medicine. Fraser lauds Shapiro for his dedication and thoughtfulness.

“It is obvious to all of us that he cares deeply about the mission of the school,” she said. “He has dedicated his career here to providing outstanding educational programs, building infrastructure, garnering resources for innovative research and fostering exceptional patient care. His warmth, compassion and sense of humor are hallmarks of a leadership style that promotes the collaboration and collegiality the university is so famous for.”

Those same qualities have benefited the university in the ongoing fundraising initiative, *Leading Together: The Campaign for Washington University*, said David T. Blasingame, executive vice chancellor for Alumni & Development Programs.

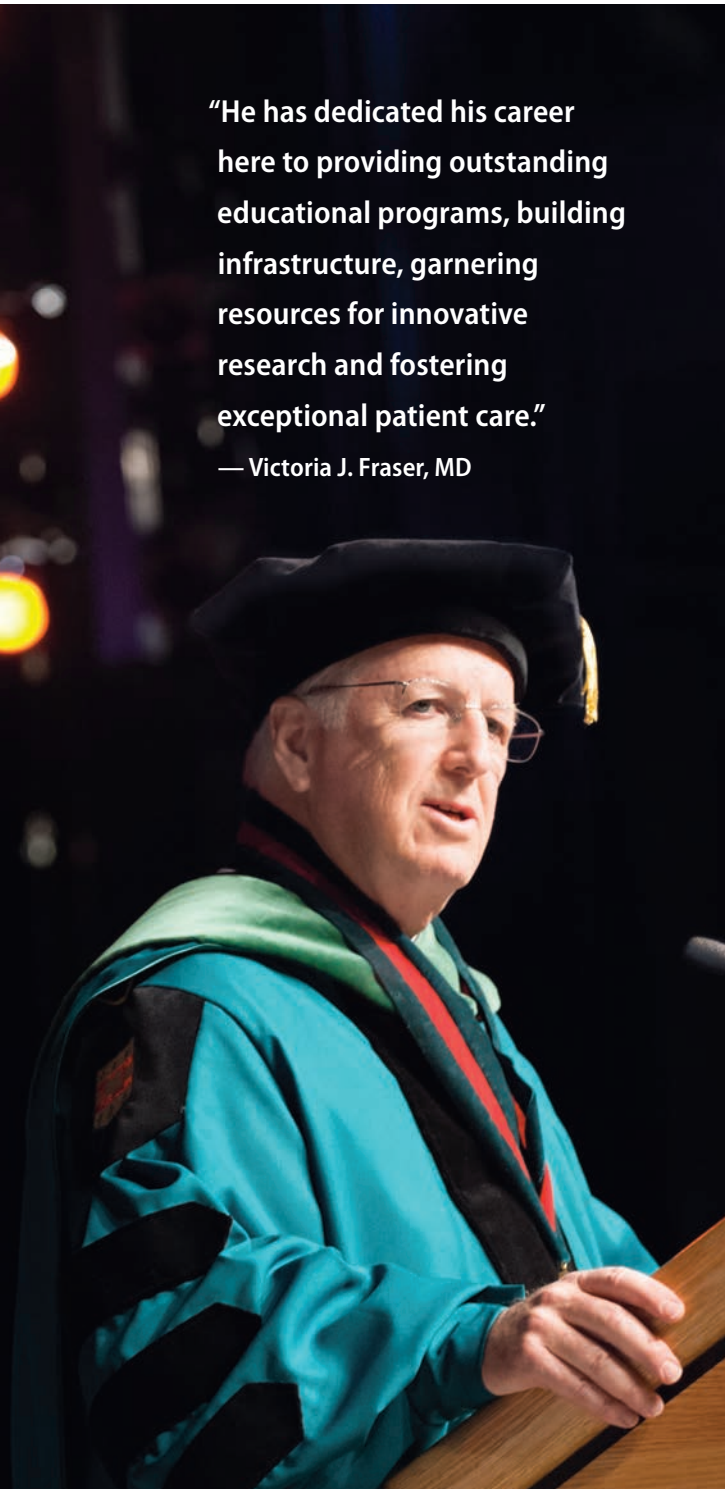
“During his tenure, Larry developed a clear vision and an impressive strategic plan for the School of Medicine,” Blasingame said. “His tireless work inspired alumni and friends to invest in every aspect of the school’s mission. Through effective leadership he has helped set the pace for achieving extraordinary success in the campaign.”

Also under Shapiro’s watch, the School of Medicine consistently has remained a top 10 medical school, according to annual rankings by U.S. News & World Report. The magazine’s most recent ranking has the school at No. 6. Further, the school has remained at the top nationwide in student selectivity, a measure of medical student undergraduate grade-point averages and MCAT scores.

Shapiro is quick to credit such accolades to the quality and drive of the students.

Undecided as to what his role at the university will be when he vacates the dean’s office — perhaps something involving harnessing entrepreneurship, or helping craft health and science policy, he said — Shapiro hopes it will allow him more frequent contact with students. They inspire him every day, he said.

“They’re amazing, and some of them have overcome enormous hurdles in life to get where they are,” Shapiro said. “Every time I start to worry about what the future has to hold, I just walk down the hall and start talking to students, and I think, ‘Everything is going to be OK. If these folks are on the job, we’ll be just fine.’” □



Student-driven IDEA Labs
sparks entrepreneurial
innovations designed to
improve medical care

That's a great idea!

Brett Gao, left, a
biochemistry and
economics major, and
Kenny Kim, a biomedical
engineering major, want
to make compression
stockings easier for
patients to put on.

“If only there were a better _____.”

Doctors say it’s frustrating when the tool, test or procedure they need to deliver exceptional patient care doesn’t yet exist. Although they may recognize these shortcomings, physicians often lack the time, expertise or means to address them. Undaunted, teams of Washington University students are bringing fresh perspectives to real-world clinical needs.

BY DEB PARKER
AND TONY
FITZPATRICK

Founded in 2013, IDEA (Innovation, Design and Engineering in Action) Labs is a student-driven bioengineering design and entrepreneurship incubator. It works in partnership with the schools of Medicine and of Engineering & Applied Science and the Skandalaris Center for Interdisciplinary Innovation and Entrepreneurship. Through this multidisciplinary program, undergraduate, medical and other graduate students collaborate to develop innovative, potentially marketable solutions to physician-identified problems.

“In the second year of medical school, we realized that a lot of clinicians would come to lectures expressing concerns that things could be

done much better in the hospital,” said Stephen W. Linderman, IDEA Labs president and an MD/PhD student. “Many of these problems seemed simple enough to solve, but there was no clear pathway for students to become engaged in solving them.”

Over the past two years, the founders have forged that pathway — building relationships across the university and St. Louis, creating a sustainable infrastructure for the years ahead and gaining national attention.

What began as a small group of students asking how they could help has since mushroomed into a movement involving hundreds of students, faculty mentors, alumni, investors and corporate sponsors.

PROBLEM Wheelchair-bound individuals who wish to drive must get in the car, remove the wheels from the wheelchair, lift the heavy chair over their body and put it in the car. This time-consuming, strenuous process limits mobility and results in overuse injuries.

CONCEPT Attach a wheelchair storage device to the roof-rack of a car. Once a wheelchair-bound person has transferred to the driver’s seat, it lifts the wheelchair and stores it behind the vehicle.

TEAM (from left) Alaric D’souza, Charlotte Guertler, Rachel Milgrom, and Yu Xiao (not shown)

Idea: STORE-EASY





At Problem Day students outline various health-care needs along with promising concepts that could yield workable solutions. Inspired by these challenges, others join the teams that will tackle each problem.

Last April, the group officially became a tax-exempt nonprofit organization. IDEA Labs has resulted in 31 prototypes, 16 provisional patents, nine national competition winners and finalists, and 17 startups. Teams collectively have raised \$2 million in outside investments.

Ideas span the gamut: the ability to access patients' medical records with a swipe of a card; a smartphone app to ward off panic attacks; an implantable device that dramatically reduces the severity of epileptic seizures; a more accurate tool for small bowel exploration; and a wireless, disposable nasal endoscope, among others.

"We are a generation that was born into an exponential revolution of mobile technology," said third-year medical student Ramin Lalezari, who serves as the IDEA Labs finance chair. "I'm optimistic about this next generation of physicians currently brewing in medical schools and residencies across the country. This generation of medical professionals is not only excited about using new technologies — they are creating them. And that's what IDEA Labs is all about."

The students consulted faculty for guidance and received startup and operational funding from the medical and engineering schools and the Skandalaris Center. Support also came from the Office of the Provost, the Office of Technology Management, the BJC Center for Clinical Excellence, St. Louis Children's Hospital and The Balsa Group, a nonprofit led by graduate students and postdoctoral fellows.

To kick things off, IDEA Labs founder and MD/PhD student Avik Som invited clinical faculty to an open mic venting session. For three hours, doctors shared their day-to-day challenges.

At that initial meeting, David B. Clifford, MD, the Melba and Forest Seay Professor of Clinical Neuropharmacology, described his interest in

developing an angle-adjustable chair for patients undergoing a lumbar puncture (spinal tap).

This lengthy and often nerve-racking procedure requires patients first to lie on their side for needle insertion and then to sit upright for spinal fluid collection. Clifford said such a chair would be economically viable, something teams consider when choosing projects. In response, students designed IdealTap, a compact chair that safely and efficiently swivels the patient without the need for extra personnel, and with just the pull of a lever. The device since has won \$25,000 in the engineering school's 2015 Discovery Competition.

The IDEA Labs group now has amassed a list of more than 150 clinical problems for which a solution can be built within one year. Problems continually are solicited through the IDEA Labs website and in partnership with the St. Louis Metropolitan Medical Society.

Student teams resolve practical issues to turn theoretical concepts into functional ones.





Problem Day is Sept. 25.

See the full schedule:

idealabsincubator.org/calendar.html

THE PROCESS

Team formation takes place at Problem Day, an intellectual jam session where “Grey’s Anatomy” meets “Let’s Make a Deal.” Each fall, students who applied to be project leaders put up posters that succinctly outline three problems. The display draws hundreds of milling students, potential partners in entrepreneurial enterprises. Business cards quickly are whisked back and forth as project leaders state their objectives and needs.

The focus for the project leader is to build a compatible and cohesive team of four to six students — ideally with backgrounds in medicine, engineering, business and other disciplines. Together, they will examine the ideas and then, in most instances, concentrate on just one. Blending their strengths, they will brainstorm, research, design, prototype and test novel devices and applications for patient care.

Over two semesters, IDEA Labs students work above and beyond their course load: shadowing

in local clinics to better understand the patient perspective; conducting a market analysis; considering intellectual property and regulatory environments; writing a business plan; thinking about necessary preclinical testing, clinical trials and manufacturing processes; and taking preliminary steps to patent and commercialize their devices. Despite stipends of \$2,000 per team provided by IDEA Labs, many aggressively fundraise to meet these milestones even faster.

The 26-member IDEA Labs executive board — consisting of students involved in their own startup projects — shepherds teams through the process, along with more than 60 faculty mentors. BioEntrepreneurship Core, the university’s biotech training and networking organization, also advises team members. Throughout the year, there are bi-monthly progress reports, training seminars and Q&As featuring startup experts.

“Here, we teach them to fail quickly and fail often,” said Vice President Ian Schillebeeckx, a



GOAL Reduce the cost of colorectal cancer screening and improve patient compliance to reduce the number of preventable colorectal deaths in this country.

CONCEPT Evaluate the mRNA in stool samples, eliminating the need for colonoscopies in healthy patients.

TEAM Erica Barnell (far left), Sein Pyo, Marianne Ligon (left), Manoj Arra, Connie Gan, Yiming Kang, Edward Poyo

ROBERT BOSTON



JERRY NAUHEIM

graduate student in computer vision. “We tell them, ‘Work on the thing that most likely will kill your idea because it will save time, money and energy, and then go on to the next thing.’ We can teach medical students or engineers the tools of business.”

Teams have access to basic machine shop tools, electrical equipment, engineering software, a 3D printer, a computer server and Google Glass, among other resources. Lab space is available on the Medical and Danforth campuses, courtesy of the dean’s offices in the medical and engineering schools, and in the @4240 Building in the neighboring Cortex district, a 200-acre innovation hub. Space at the @4240 Building is provided through a partnership with the Cambridge Innovation Center, an entrepreneurial think tank whose first expansion outside of Boston is the Cortex district. Pro bono legal advice, including LLC filing and provisional patent assistance, is shared via representatives of Husch Blackwell, which opened an office in the building.

“Students are so technically capable once they get past the intimidation factor,” Schillebeckx said. “Students can sprint if you give them the resources.”

THE PITCH

At Demo Day, the culminating event in the spring, all teams present posters. Six to eight teams with the most advanced prototypes pitch their ideas before a judging panel consisting of national leaders in the entrepreneurial and medical communities.

“Teams use this event to reveal their prototype publicly for the first time and test the waters of St. Louis and university entrepreneurship pipelines such as the Olin Cup, Arch Grants, BioGenerator and more,” said Managing Chair and MD/PhD student Josh Siegel.

For the most promising projects, development extends well beyond Demo Day. Top competitors receive additional cash prizes. All students, whether they form a successful company or not, learn volumes about entrepreneurship and multidisciplinary research.

Unlike entrepreneurship fostered in most academic settings, students retain 100 percent

of the intellectual property associated with their solutions. It’s an approach that resonates with students, and these entrepreneurial possibilities are opening a niche in medical education, broadening the impact of research and clinical care.

IDEA Labs leaders are expanding the student innovation platform into a network of biotechnology incubators at universities across the country. Washington University is leading the way in this national network of student entrepreneurs to co-develop resources, share talent and attract investors.

“As a physician, you’re limited by the number of patients you see in a work day,” Linderman said, “but if you can improve medical practice, then you can reach patients around the country and the world.” □

Talk about pressure. Standing before the panel of judges, left, and a room full of spectators — including investors looking to fund breakthrough concepts — these student presenters make 10-minute pitches, any one of which could reshape the practice of medicine.

Ideas:

See dozens more examples at: ideallabsincubator.org

EPHARMIX Already in clinics, this software has been credited with saving lives. This system sends patients automated text messages — customized, prescribable interventions — for a range of conditions. Epharmix can gauge pain, track weight and record seizures.

DATADOG HEALTH This Smartphone app uses vital signs to detect the onset of anxiety attacks and offers therapeutic interventions, such as breathing and relaxation techniques. Public release is anticipated this year.

CYSTOVUE The team is integrating a wireless camera into cystoscopes to improve bedside cystoscopy procedures and enhance teaching. The wireless camera will broadcast the image to a monitor. By eliminating cords across a sterile field, infection risk is reduced.

KINOCOM Some patients with amyotrophic lateral sclerosis, stroke or spinal cord injuries suffer from near-total paralysis. Using a gyroscope-accelerometer, the KinoCOM team is helping a stroke patient communicate via finger movement. The students were inspired to create the device after meeting the patient in class. The patient continues to help test and tweak the invention.

EPI SQUARED The team tackled the problem of providing power to implantable devices, such as pacemakers, non-invasively. Many implantable devices use batteries that need to be replaced after five years. This requires additional surgeries, each of which can cost several tens of thousands of dollars. This team now is focused on nerve stimulator devices used in epilepsy.



Eight weeks of life-and-death dramas, scientific wonders and medical



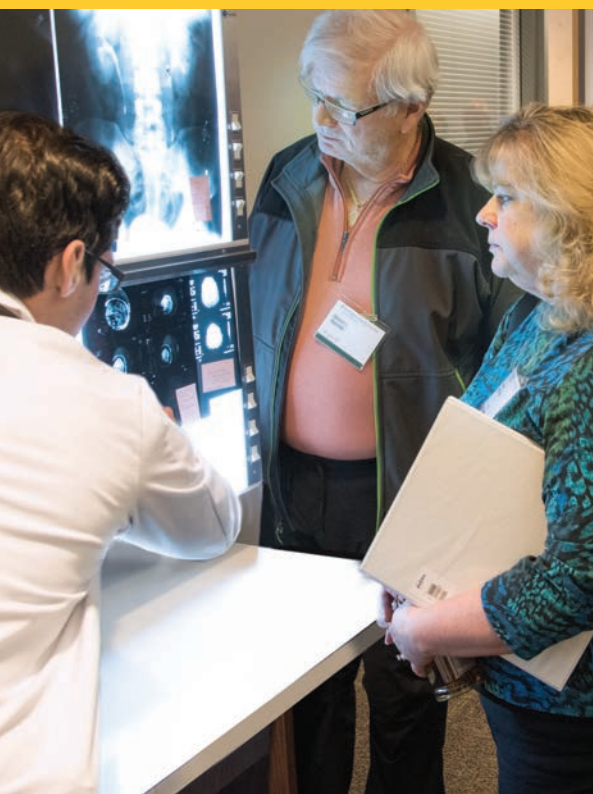
ROBERT BOSTON PHOTOS

mini M.D.



The seatbelt ripped away Ali Rankey's abdominal wall in a car accident when she was 20. In the dark months following, Ali endured constant pain, and her prospects for survival were unclear. Professor Emeritus of Surgery Ira J. Kodner, MD, recounts the case to explore life-and-death ethical decision making with enrollees of Mini-Medical School (MMS). The program provides the general public a unique opportunity to hear directly from faculty at Washington University School of Medicine.

breakthroughs: Mini-Medical School inspires students and faculty alike.



As part of Kodner's presentation, graphic images show sheets of plastic holding Ali's intestines in place. Attendees wince through the various surgical reconstructions.

But then come the photos of Ali at her college graduation, at her wedding, as the mom of a newborn, and the audience applauds. "Was this a futile case?" Kodner asks.

And then he invites Ali, seated amongst the attendees, to come to the stage. The audience cheers as she makes her way to the microphone. Forty-three surgeries later, Ali now is an elementary school teacher, who says she stresses the importance of a positive attitude to her students.

Turning to Kodner, her voice breaks as she thanks him. Kodner also wells up: "The reason for my living is to keep patients like Ali alive," he said.

This emotional moment is one of many witnessed by MMS attendees. Now in its 17th year, MMS at Washington University is one of the longest running and most comprehensive in the country.

BY DEB PARKER

mini M.D.



ROBERT BOSTON

Mini-Med students venture from classrooms to visit labs and clinics across Washington University Medical Center for demonstrations and hands-on exercises.

Launched in 1999 by Cynthia Wichelman, MD, associate professor of emergency medicine, the program began with the goal of educating the community on important health-care issues.

As medicine advances at a rapid rate, people are increasingly concerned with maintaining good health and receiving the best possible patient care. Mini-Medical School showcases the Washington University Medical Center, providing the latest information on diseases, wellness, treatments and technological innovation.

“There is a thirst for learning about science and medicine, and curiosity that is difficult to satisfy,” said David B. Clifford, MD, the Melba and Forest Seay Professor of Clinical Pharmacology in Neurology. “However, Cynthia Wichelman is a huge part of the success as she finds talented teachers to share what they know, then recruits and sets up a positive environment for learning. She has done a remarkable job building and maintaining an outstanding program.”

There are no tests and no homework, just eight weeks of easy-to-understand evening lectures from pre-eminent faculty speakers in the Eric P. Newman Education Center and an assortment of hands-on labs and medical center tours. No science background is required. All attendees who

complete an eight-week series graduate, earning the honorary title of “mini doc” as “Pomp & Circumstance” serenades.

“I tell people, ‘Just sit back and prepare to be wowed,’” said Florrey Shulman, who has four framed Mini-Medical certificates in her Olivette, Missouri, home.

Conservatively speaking, many of the attendees could be called “super fans.” “Next to having my kids, this is the best thing I’ve ever done,” said Marcie Kalina of St. Louis.

Enrollment is limited to 110 students. Through word-of-mouth recommendations, every rotation sells out and many people are waitlisted. “MMS improves good will by creating a classroom full of ambassadors for the medical center each season and turning them loose on the St. Louis community,” said Bryan Meyers, MD, the Patrick and Joy Williamson Professor of Surgery.

Due to its popularity, the program has expanded to include three different series offered in the spring and fall. The cost is \$185 for each.

Quite a few people are repeat customers, cycling through — or even retaking — Mini-Medical I, II and III, as the itinerary shuffles somewhat from year to year. “I found that I learned as much or more the second time around,

kind of like re-reading a good book,” said John R. Schott, president of EPIC Systems, an industrial engineering company and fabrication firm.

Mini-Medical students have commuted from as far away as the Missouri Ozarks. One found the information so intriguing she traveled from Chicago to attend 16 sessions, heading back after each on the 4 a.m. train.

The attendees are diverse: stay-at-home moms, CEOs, high school students, retirees, teachers, venture capitalists, artists and police officers, for example. Active and retired physicians also enroll, acknowledging that their expertise is limited to their own specialty.

Simply put, MMS offers experiences that most people aren't going to find anywhere else. In one session, neurologist Joel S. Perlmutter, MD, using a deep-brain stimulator, makes the manifestations of Parkinson's disease appear and disappear in a patient as attendees observe.

“The lay public gets a chance to see our doctors ‘up close and personal,’ making our huge medical complex less intimidating,” said Richard Brasington, MD, professor of medicine, adding, “It is the most motivated group of people I have ever taught.”

Afterward, with dessert in hand, students mingle with the speakers and ask questions.

The mini docs, particularly those who complete the entire circuit, may not be ready to practice medicine, but they are well equipped to make better health decisions and converse on a variety of medical topics. Subjects run the gamut — diabetes, cancer, health-care reform, obesity, emergency medicine, depression, heart arrhythmias, minimally invasive surgery, influenza and physical therapy — among many others.

Attendees learn to suture on foam that mimics human skin, tour the Elizabeth H. and James S. McDonnell III Genome Institute, practice the fundamentals of physical exams and handle real anatomy specimens, including brains, hearts and lungs. Highlights are plentiful, but personal stories seem to resonate the most with students, particularly as patients living with diseases such as multiple sclerosis, HIV or cervical cancer share their struggles.

Remarkably, during one such session, John C. Morris, MD, the Harvey A. and Dorismae Hacker Friedman Distinguished Professor of Neurology, invites an Alzheimer's patient and her spouse to the stage, opening the floor to audience questions that clearly illuminate where the patient's memories start and stop, and the difference between typical age-related memory loss and Alzheimer's dementia.

On another evening, Meyers introduces a 56-year-old cystic fibrosis patient named Paul Feld, who tells the story of his double-lung transplant 10 years ago and of his donor, who died at a construction site.

“It was a magical night to see what a wonderful surgical team, a compliant patient and, of course, the gift of life from the donor family, can accomplish,” said attendee Bob Steel, a retired postal worker who has taken I, II and III several times. “Mini Med has given me a brighter, more informed outlook on health care for the future.”

“I tell people, ‘Just sit back and prepare to be wowed.’”

Florrey Shulman
FOUR-TIME MMS GRAD



Mini-Medical School founder and director Cynthia Wichelman, MD, congratulates Brandeline Jungels upon completion of the program.



ROBERT BOSTON

Mini-Med showcases the passion of health-care professionals such as Ira Kodner, MD, above, who share detailed human portraits of some of their most difficult — and rewarding — medical cases, including in-person appearances by the patients themselves.

“When my co-presenter, Paul, talks about the circumstances of his transplant,” Meyers said, “especially about the details of his organ donor, the audience is totally tuned in and with him. It is a compelling part of the story that still grabs me, and I have heard it a dozen times. It is an emotional roller coaster with his discovery of the diagnosis, his decline in capacity, the tragedy of the donor’s situation and the amazing good that has come from the combination of those bad things.”

As Charles F. Zorumski, MD, explains, Mini-Medical School puts a human face on medicine. “This gives us a great opportunity to humanize what we are doing and to make our work more accessible to a bright and interested group of people.”

Zorumski, the Samuel B. Guze Professor and head of psychiatry, was so struck by the depth of interest from MMS students that he was prompted to co-author the book “Demystifying Psychiatry,” with Eugene Rubin, MD, PhD, professor of psychiatry, to clarify issues that were raised.

Arnold Bullock, MD, the Alan A. and Edith L. Wolff Distinguished Professor of Urology, said MMS has given him a better understanding of how laypeople perceive complex medical problems and, as a result, he has adjusted communication with patients in his daily practice.

Many of the faculty speakers have lectured every year since MMS began. In fact, Ralph G. Dacey Jr., MD, the Henry G. and Edith R.

Schwartz Professor and chairman of neurological surgery, gave up World Series tickets to teach at MMS. “It was the Cardinals game that went to midnight, the game one wouldn’t have wanted to miss,” Wichelman said, adding that game updates were announced throughout the evening at MMS.

“I love watching the passion of my speakers,” Wichelman said. “At Mini-Med, the doctors take a break from treating patients for a few hours.

Dr. Dacey sometimes comes straight from surgery, dressed in scrubs. The lights come down and he begins speaking and everyone is just riveted, literally taken into another world. Here is Dr. Dacey sharing his tremendous knowledge, years of training and passion. And he is just glowing. Students aren’t the only ones who are transported.”

Clifford agrees. “It gives me a time to reflect and appreciate what I am doing day in and day out. Stopping for a little and trying to explain what this is all about to a non-medical audience also enhances my own appreciation for the privilege I have to be a physician.”

Mini-Med offers “... a great opportunity ... to make our work more accessible ...”

Charles F. Zorumski, MD

The driving force behind all of this is Wichelman, who logs many hours scouring news sites and medical journals looking for timely topics, querying Washington University medical students about their favorite teachers and sitting in on lectures. “We only put the very best in the MMS lineup,” she said. “This is a real treasure for the community. They learn about medicine in a fun, applicable way, not from the media, but from our experts. We have the best and greatest teachers.”

Wichelman also teaches, sees patients at Student Health Services on Washington University’s Danforth Campus and coordinates the university’s Science On Tap, a non-medical lecture series for the general public at Schlafly Bottleworks in Maplewood, Missouri. She is present at every MMS session, introducing the speakers and shepherding her mini students in a warm, approachable style. “Cynthia is an inspired and enthusiastic advocate for the students in Mini-Medical School, and her exuberance is hard to miss,” Meyers said.

Since 1999, MMS has educated more than 6,000 people. For Wichelman, the payoff has been an engaged public and many forged friendships. She’s now recognized all around St. Louis and often gets stopped in the grocery store or emailed for doctor recommendations.



ROBERT BOSTON

Mini-Med students come to better understand some basic medical procedures as well as the frontiers of complex new therapies.

“One of the joys in my life is getting to know all of the people who take Mini-Med School,” Wichelman said. “These are my kids.”

Some of those kids, like Jason Stephenson, go on to the real thing. Stephenson had graduated from Stanford University and was teaching high school biology when he took Mini-Medical School in 1999.

Inspired by the experience, he applied to Washington University School of Medicine, later becoming class president, and completing a residency at Mallinckrodt Institute of Radiology. He now is an assistant professor of radiology at the University of Wisconsin School of Medicine and Public Health. Before leaving Washington University, he spoke at Mini-Medical School, of course, to the delight of attendees.

Most MMS graduates — whether licensed to practice medicine or not — say they now are savvier health-care consumers. “As individuals we should take primary ownership of our health and be a resource to family and friends around us in that regard,” said EPIC System’s John Schott. “There are so many things that I have learned in Mini-Med that will undoubtedly allow me to make the best decisions concerning my health over the upcoming years.” ☐

Ready to earn your Mini MD?

minimed.wustl.edu



ROBERT BOSTON

Instructors from varied specialties bring an array of health-care perspectives. Above, Suzy Cornbleet, PT, DPT, associate professor of physical therapy and of orthopaedic surgery, leads a session.

milestone





100 years along Euclid Avenue

As the 20th century dawned, Washington University cobbled some existing sub-par training colleges into a tentative School of Medicine in downtown St. Louis. A scathing 1910 report on the deficiencies of North American medical education cited the university's effort as "absolutely inadequate in every essential respect."

Undaunted, Robert S. Brookings, chair of the university's Board of Trustees, consulted national and local leaders to reimagine the School of Medicine. It would be rebuilt — from scratch. The faculty were let go; renowned researchers and clinicians recruited. A new location bordering Forest Park was chosen.

So began a grand — and ongoing — endeavor.

A Bernard Becker Medical Library exhibit, with blueprints, photos and mementos, celebrates the centennial of the school's three original buildings on what was once the "new" Forest Park campus. The North, South and Clinics/West buildings are still in use.

A streetcar in front of the West/Clinics Building, 1926.

Turning a 'gap' into a bridge

Alumnus offers practical clinical experience for students transitioning from pre-med to medical school

In increasing numbers, pre-medical graduates are taking one or two years off between college and medical school. The big question: How to make the best use of that time?

Nationally, more than 50 percent of pre-medical students take what is known as a “gap year,” explained Michael Penkoske, MD, a physician who also works as an adviser at Washington University’s Career Center. The reasons for taking a break vary, but one thing is certain — pre-meds need experiences that will help them get into medical school.

A popular gap year option among such students is medical research. For those interested in clinical experiences, School of Medicine alumnus and Boston dermatologist Louis Kuchnir, MD, PhD, is offering another choice. He invites students to gain exposure to medicine by working in his Massachusetts-based practice as patient care coordinators.



The position, which combines the roles of medical assistant and receptionist, brings students into the day-to-day operations of Kuchnir's four-office practice. In addition to scheduling patients and answering phones, pre-meds assist the practice's nine physicians and one nurse practitioner with minor procedures. Participants also attend medical lectures, accompany physicians to conferences and are expected to complete independent reading about dermatology.

What his protégés are saying

Jimmy Mao, AB '12, said the experience strengthened his clinical skills and helped him gain acceptance to medical school. Mao is now in his second year at the University of Southern California.

After earning a bachelor's degree from Washington University, Mao returned to his hometown to work as a research assistant. Although he had good grades and a solid MCAT score, he was not accepted in his first round of medical school applications because he lacked sufficient clinical and interpersonal experiences with patients and care providers. Penkoske, who was advising Mao at the time, thought Kuchnir's internship could fill that gap. Following an interview, Kuchnir hired Mao, who remained in the position until he entered medical school two years later.

"It was a very good maturation process for me," Mao said. "It gave me time to really understand medicine."

Alec Zhu, AB '14, agrees. Zhu, now a first-year medical student at Northwestern University in Chicago, worked for Kuchnir in 2014 and 2015.

"It's totally worthwhile. I wouldn't have traded it for any other experience," he said. "I was actually involved in patient care." Zhu appreciated the willingness of care providers to share their knowledge.

As a dermatology instructor at the University of Massachusetts Medical School, Kuchnir finds the role of educator a natural fit.

The idea for the program came by chance when, in 2011, he hired a college graduate (now a fourth-year medical student) whom he met through a local hospital's volunteer office. Kuchnir was impressed with the student's dedication and work ethic. "When he left to go to medical school, it hit me how much he appreciated the job," Kuchnir said.

The following year, three students, including Mao, came aboard. Kuchnir then began the annual tradition of recruiting students from Washington University and six other college campuses.

In both 2014 and 2015, he hired 12 premeds for his practice, and referred eight more to other physicians. About one-third of the program's participants are Washington University alumni.

Kuchnir hopes other alumni physicians will access what he sees as an untapped opportunity and create their own programs.

Experiencing the 'nitty-gritty'

Jim Beirne, director of external relations at the Washington University Career Center, is working with several physicians across the country to assist in this endeavor. Beirne also helped Kuchnir by vetting the program and developing a job description to make it more relevant and appealing to pre-meds.

"This is a chance for the students to be involved in the nitty-gritty administration of a private medical office and also interact with patients," Beirne said. "They've got a year's worth of knowledge that they can talk about in their medical school interviews."

Over the years, Kuchnir has demonstrated exceptional service and dedication to his alma mater. Since 2012, he has served on the School of Medicine committee for *Leading Together: The Campaign for Washington University*. In appreciation for the full-tuition Distinguished Alumni Scholarship he received as a medical student, Kuchnir gives annually to support today's recipients.

In 2014, Kuchnir took on another role: that of a Washington University parent. His son, Kenneth, is a sophomore chemical engineering major.

Kuchnir and wife, Karen, also have three daughters. They live in Southborough, Massachusetts.

"It was a very good maturation process for me. It gave me time to really understand medicine."

Jimmy Mao, AB '12

William Zhu, BS '14, observes as dermatologist
Louis Kuchnir, MD '97, PhD, treats a patient.

Cardio b

Fueling a career-starter for

Over his 50-year career, cardiologist Jerry Allison Snow, MD '65, has witnessed a 40 percent reduction in annual deaths from ischemic heart disease. New medication, new invasive treatments and a better understanding of cardiac physiology through research are responsible for this remarkable improvement in health care, he said.

A longtime supporter of the School of Medicine, Snow recently made a substantial bequest to sustain research within its Cardiovascular Division. "I would like to see the field of cardiology continue the progress that it has made in the last 40 years, and I would like to see Washington University lead the way in this endeavor," Snow said.

Jerry Snow, MD '65, visited Washington University Medical Center to celebrate his 50th-year MD Class Reunion.

ooster

promising investigators

Young researchers' dilemma

Cardiovascular Division Chief Douglas L. Mann, MD, the Tobias and Hortense Lewin Professor of Medicine, will use Snow's gift to recruit and support fledgling researchers.

"There's this critical juncture between fellowship and their first grants that I find is really difficult for young people," he said. "This gift would allow us to recruit high quality junior faculty and give them extra protected time so that they can focus entirely on their research."

Typically, new faculty are expected to cover their salaries through grants. As published research is necessary to compete for grant funding, young researchers often find themselves torn between the need to earn money and the time and effort required to obtain and publish results. A Snow "scholarship" would cover a junior faculty member's salary for several years, freeing up time to concentrate on investigative work.

While generating research dollars has never been easy, the current decline in public science funding discourages many young researchers, Mann said.

"The tragic irony is, the science has never been more interesting and exciting," he said. "The opportunity to translate findings from the bench to the bedside and develop new therapies is, in my view, unprecedented. Gifts like this enable us to maintain our legacy of having a strong research program."

Snow's research contributions

Snow's own research contributed to the revolution in heart medicine. While doing a cardiology fellowship at Boston City Hospital in the 1960s, he developed a mathematical formula that is used to calculate left ventricular heart volumes in the normal and the dilated heart.



The next generation — people such as Justin C. Hartupee, MD, left — bring fresh energy and expertise to cardiology. Starting these careers on the proper trajectory is key to furthering a legacy of strong research, said Division Chief Douglas L. Mann, MD.

"The opportunity to translate findings from the bench to the bedside and develop new therapies is, in my view, unprecedented."

— Douglas L. Mann, MD

In the 1970s, Snow worked as a cardiologist at the Veterans Administration Hospital in Washington, D.C., where his research team demonstrated the effectiveness of blood vasodilating medications in treating congestive heart failure.

After working in private practice for more than 30 years, he retired in 2011. Currently, Snow sees patients at Sibley Memorial Hospital, a private hospital in Washington, D.C., where in his early years he met his wife, Nancy Fern Snow, MD, an internal medicine specialist who now works for the Food and Drug Administration. The couple resides in Washington, D.C.

Looking back on his professional life, Snow says he is recognizing two entities that gave him great career satisfaction: the School of Medicine "for having given me a career in medicine," and the field of cardiology, "where I've spent my entire professional life."

Newly endowed ethics Professor James DuBois, DSc, PhD, talks with trainees.



Doing the right thing

The confluence of two men who've dedicated their lives to medical ethics — from the corporation to the classroom

Earlier this year, James DuBois, DSc, PhD, professor of medicine, was installed as the inaugural Steven J. Bander Professor of Medical Ethics and Professionalism at the School of Medicine.

Bander, MD, a St. Louis nephrologist, has become a driving force in medical ethics education as a result of his firsthand involvement with a national dialysis company.

“I thought that, as chief medical officer of a big dialysis company, I could find out the best way of caring for these patients,” Bander said. His later realization that the company was engaging in unethical practices instead of doing what was best for patients spurred Bander to take action.

Stopping a corporate crisis

“People started doing things just for profit,” he said. “When I would say, ‘That’s not right, that’s against the Medicare rules,’ they would say ‘We’ll worry about the business, you just worry about the medicine.’”

After initiating a whistleblower lawsuit against the company, he used the civil settlement to establish the Bander Family Charitable Foundation. The foundation has funded programs — and, most recently, the Bander endowed professorship — dedicated to medical ethics education and research.

Evidence-based ethics

DuBois shares this same focus on ethics; since 2007, he has directed the Center for Clinical Research Ethics within the Department of Medicine.

Prior to joining Washington University, DuBois had a 17-year career in medical ethics at Saint Louis University. DuBois earned doctoral degrees in philosophy from the International Academy of Philosophy in Liechtenstein and in experimental psychology from the University of Vienna in Austria.

“Jim is an outstanding social scientist who applies rigorous social science research methodology to the study of research ethics,” said collaborator Bradley Evanoff, MD, MPH, the Richard and Elizabeth A. Sutter Henby Professor of Medicine and chief of the Division of General Medical Sciences.

As an innovator, DuBois brings evidence-based methodology to the study of medical ethics. His National Institutes of Health (NIH)-funded project “Preventing Ethical Disasters in the Practice of Medicine” aims to identify which factors supply the “means, motive and opportunity” for serious misconduct to occur. The study analyzes published accounts of wrongdoing, such as improperly prescribing controlled substances or doing unnecessary invasive procedures, to determine which environmental and personal traits align with particular behaviors. With this information, DuBois hopes to inform prevention and oversight policy and strengthen ethics education.

As the creator and director of the Professional Integrity (PI) Program, DuBois coaches researchers who were sanctioned for ethical or professional lapses — in areas such as informed consent, animal care, conflicts of interest rules and data fabrication — allowing them to successfully return to research.

“It’s the first program of its kind in the nation where we offer remediation training for researchers who have gotten into trouble,” DuBois said. “The PI Program is a great opportunity for us to learn what researchers are struggling with. We really try to troubleshoot why they ended up here and what they could do differently to avoid these problems.”

DuBois also designed and helps teach the Responsible Conduct of Research Course, a mandatory series for all MD and PhD research trainees. Alison Antes, PhD, who was recruited to support the research and education efforts of DuBois’ Professional and Social Issues lab, is the current course master.

“The programs that DuBois has created go beyond what is required for regulatory compliance,” Evanoff said. “They are also much more interesting and engaging than standard online options.”



The unethical practices of a medical services corporation galvanized Steven J. Bander’s commitment to medical ethics education

Said Chancellor Mark S. Wrighton: “The generosity of the Banders will enable James DuBois to remain at the forefront of medical ethics and continue his important research and teaching.”

Impacting the physician-scientist researchers who train at Washington University is a primary motivator for Bander.

“I’m excited because we’re teaching the next generation of MD/PhD students who will be doing basic science as well as clinical research,” he said.

“We need to train people how to handle conflicts of interest. There’s always conflict. It’s how you deal with it that determines whether or not you make the right decision.”

Professionalism and integrity in research:
integrityprogram.org

As his father taught him

Instilled early on, a lifelong commitment to helping others

Ever since he can remember, John Rittmann, MD '62, a retired family practitioner in South Dakota, has been supporting worthy causes.

"In elementary school I was given an allowance and we were expected to give most of that to charity," he said. "My father instilled in us the need to give back."

In no place is Rittmann's commitment more apparent than at the School of Medicine. A few years after graduating in 1962, he began a 40-year tradition of giving to the School of Medicine's Annual Fund.

Then, in 2012, he created several two-year scholarships for students interested in family practice. Four students already have benefitted from his generosity.

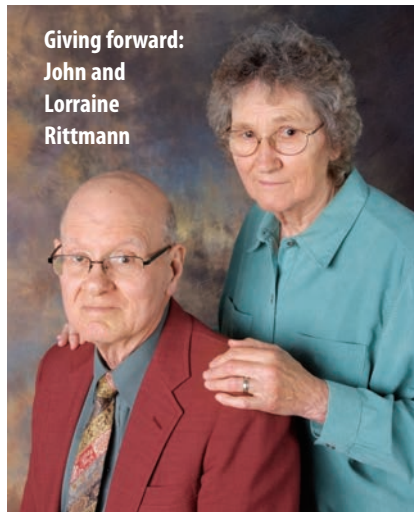
This year, Rittmann is making the gift of medical education permanent by establishing an endowed scholarship. Endowed scholarships use earnings from a principal fund to provide yearly support to students.

As a student, Rittmann thought he couldn't afford Washington University, but then he received a scholarship, as well as employment at the medical school. He spent a summer working in the anatomy lab of the late Mildred Trotter, PhD, the noted anatomist, anthropologist and professor of medicine. Later, he worked for the Department of Pathology and Immunology as a diener (corpse cleaner and performer of autopsies).

In addition to his medical education, Rittmann received another blessing at Washington University. During the first week of medical school, he met his future wife, Lorraine, a student in the Barnes Hospital nurse anesthetist program. Married in 1959, the couple now lives in Watertown, South Dakota. They have two grown children.

Before settling down in Watertown, Rittmann traveled widely, serving patients from many different cultures. After completing a medical internship at Cleveland Metropolitan General Hospital, he worked for the Indian Health Service at Pine Ridge Reservation in South Dakota, and then spent six years volunteering in India. While in India, Rittmann worked to eradicate tuberculosis and leprosy, and treated common ailments such as snakebite.

Upon returning stateside in 1971, he finished a residency in the then-new family practice specialty at Hennepin County Medical Center in Minnesota.



Giving forward:
John and
Lorraine
Rittmann

Rittmann found the nine-year gap between his medical school training and residency fortuitous, as so many new treatments were developed in that period. "When I went back for my residency in '71 and '72, interventions such as pacemakers, ventilators and defibrillators had revolutionized medical care," he said.

When he set up his own practice in Watertown, Rittmann made sure his physician colleagues were aware of new life-saving advances. "I was the new kid on the block," he said. "I introduced things like bili lights (special lights to treat newborn jaundice) and temporary pacemakers for cardiac patients. And then I got involved in introducing pulmonary ventilators."

Over the years, Rittmann has maintained a commitment to helping others through service and philanthropy. Today, he donates to more than 50 charities, many which are focused on providing health care to the underserved in the U.S. and abroad.

Among the first Rittmann scholars is Ari Huverserian, shown here working in the Barnes-Jewish Hospital Cardiothoracic Intensive Care Unit.



ROBERT BOSTON

1940s

Robert Gibb, MD 48, is president of the Western Pathologists Quality Assurance Association and emeritus clinical professor of laboratory medicine at the University of Washington School of Medicine.

1950s

John Kissane, MD 52, still works part time in the Department of Pathology at Washington University School of Medicine.

Wolff Kirsch, HS, MD 55, LA 51, is professor of neurosurgery and biochemistry and director of the Neurosurgery Center for Research, Training and Education at Loma Linda University School of Medicine.

Albert Diddams, MD 56, is enjoying retirement with his wife, Sheila, gardening and traveling to see their five children and 20 grandchildren.

1960s

Paula J. Clayton, MD 60, served as a medical director of the American Foundation for Suicide Prevention and is professor emeritus at both the University of Minnesota and University of New Mexico schools of medicine. She was awarded the Pioneering Woman Award from Washington University's Academic Women's Network in 2014 for seminal research on mood disorders and suicidality. She also was the first woman to head a U.S. psychiatry department and the suicide prevention foundation.

Richard Myers, MD 65, has traveled to all seven continents and 80 countries and is making the most of retirement by playing golf and enjoying family activities with his three children and seven grandchildren. He is proud to have become the first doctor on the Board of Trustees of Rex Hospital in Raleigh, a 500-bed community hospital acquired in 2000 by the University of North Carolina Hospitals and School of Medicine.

1970s

Marc Weissbluth, MD 70, is an emeritus clinical professor of pediatrics at Northwestern University's Feinberg School of Medicine. He recently retired after 40 years of general pediatrics, but still writes parent advice books. His book on

Winning for wellness—and the kids in Haiti

US Corporate Wellness Chief Executive Officer Brad Cooper, PT '91, below, and Colorado Rockies Announcer Jerry Schemmel teamed up to win the 2015 two-person division of the Race Across America. The Race Across America is a 3,000-plus-mile bike race that starts in Oceanside, California, and finishes in Annapolis, Maryland, with a 24/7 running clock. In the process, the team raised funds to help build an orphanage for special needs children in Haiti. Supported by a 14-member

crew, Team Enduring Hope battled through the extreme (118-degree) Arizona heat, steep Rocky Mountains and severe rainstorms. Cooper almost didn't make it to the starting line. After months of training, he was involved in a severe cycling accident six weeks prior to the race. After surgery and extensive consultations, he was cleared to continue forward. The result, he said, was beyond memorable.



infant colic, the first professional book for parents on this subject, was published in 1985, and it is still in print. His 1987 book, "Healthy Sleep Habits, Happy Child," has sold more than a million copies, and a completely rewritten fourth edition will be published in December. Translations are available in several languages. He still lectures to parent groups on the subject of helping children sleep well.

Toby Black, OT 71, enjoys work as a pediatric occupational therapist in Kentucky. She also appreciates spending time with her son, daughter and three grandchildren and has enjoyed increased travel and exploration around the U.S. and Europe.

Garrett Brodeur, MD 75, recently was inducted into the Association of American Physicians and was presented the Lifetime Achievement Award from the Advances in Neuroblastoma Research Association in 2014.

1980s

Michael Dvorkin, MD 80, was named a Baltimore magazine top doctor 2012-2014 and recently published a fiction novel and an orthopedic textbook.

Carla Cay (Niemeyer) Williams, OT 85, co-published a book, titled "Our Hearts' Desire: For Families Navigating the Journey of Sensory Processing Challenges." She is director of KidPower Therapy Associates in Albuquerque, N.M.

1990s

Jonathan W. Mink, HS 92, MD 90, GM 89, is the Frederick A. Horner Endowed Professor in Pediatric Neurology and professor of neurology, of neurobiology and anatomy and of pediatrics; pediatrics chief, Division of Child Neurology; and vice chair in the Department of Neurology at the University of Rochester. He was awarded the University of Rochester Medical Center Diversity Award.

Sherri M. Bramhall, OT 96, was nominated by Missouri Gov. Jay Nixon to serve on the State Interagency Coordinating Council to advise about care for infants

and young children with developmental delays and disabilities.

2000s

Katie Grover, OT 03, welcomed a daughter, Hailey, in 2014.

IN MEMORY

ALUMNI

William M. Anderson, MD 42

Anderson died Friday, April 17, 2015. He was 97. Anderson graduated from the College of William and Mary in 1938 before attending WUSM. He was a battalion surgeon in the European Theater during World War II and later the Army of Occupation. After discharge in 1946, he returned for his residency at The Medical College of Virginia (MCV), where he later would be appointed an assistant professor of clinical medicine. After 25 years at MCV, Anderson moved to Richmond Memorial Hospital where he retired in 1982 as the medical director. He is survived by his children, William Anderson Jr. (Elyse) and Anna Anderson; and grandchildren, great grandchildren and many nieces and nephews. Anderson was preceded in death by his first wife, Anna Anderson, his second wife, Polly Bandy Anderson, and a son, Alvin P. Anderson.

Pauline Patricia "Pat" Pence Armstrong, NU 41

Armstrong died Monday, Nov. 2, 2014, in Peoria, Ariz. She was 94. After finishing nursing school, Armstrong moved with her husband and family several times before settling in Billings, Mont., in 1953. There she was a member of First Presbyterian Church and served as president of the Women's Auxiliary of Yellowstone Valley Medical Society and the Women's Auxiliary of the Montana Medical Association. She was the president of the Billings' Symphony Society Women's Committee. In 1980, Armstrong moved with her husband to Peoria, Ariz., where she worked for a time as a realtor and was a deacon in her church and sang in the choir. She is survived by her children, Dr. Barbara

Armstrong, Susan (Gerald) Woodahl, Norm Armstrong and Gwendolyn (Scott) Lamb; six grandchildren; six great grandchildren; and two great great grandchildren.

Jewel Lorene Behrhorst, NU 50

Behrhorst died Sunday, March 8, 2015. She was 85. During her time at Washington University School of Nursing, Behrhorst met her future husband, the Rev. Wallace Behrhorst, who was employed at Barnes Hospital as an orderly filling seminary-required hospital field education. Over the years, the family moved as Rev. Behrhorst accepted ministry and teaching roles in Kingston, N.C., Norman, Okla., Winfield, Kan., and St. Louis. They returned to Winfield in 1997 after retirement. During Jewel's years of residency in Winfield, she served as a registered nurse in a number of health-care settings. The joys of her life were family, church and the opportunity to give loving and compassionate care to the sick and suffering. Behrhorst is survived by her husband; children, Carroll Behrhorst, Theodore (Beth) Behrhorst, Fritz (Shelley) Behrhorst, Kathey (Paul) Jeffries, Paula (Terry) Munder, Krystyna (David) Cliff, and Karla (Mike) Smith; her brother; 19 grandchildren and six great grandchildren.

John H. Brown, MD 59

Brown died Sunday, Nov. 23, 2014. He was 83. Brown was a founding partner of Minnesota Oncology. In his career, he has served as chief of staff of Methodist Hospital, president of the Minnesota Division of the American Cancer Society, president of the Minnesota Society of Clinical Oncology and medical director for the Virginia Piper Breast Center. He was a professor of medicine at the University of Minnesota and in his retirement found great joy in volunteering at the university's Raptor Center. He is survived by his wife, Patricia; children, Christine (Donald) Owens and Stephen (Monique Hook); grandchildren and a great grandson.

Donald Humphreys, MD 63

Humphreys died Monday, Jan. 12, 2015, in Sioux Falls, S.D. He was 78. As a young boy, Humphreys attended school in a one-room schoolhouse in Idaho. He later attended the University of Idaho, with plans to become a chicken farmer. His plans changed, though, and he earned a degree

from WUSM and completed a residency and fellowship at Indiana University (IU), serving as chief resident for one year. After finishing an infectious disease fellowship at IU and working for several years in Indiana, Humphreys joined the University of South Dakota School of Medicine (now Sanford School of Medicine) in 1976, eventually becoming chief of infectious diseases. He also served at the Sioux Falls VA Hospital and was a member of the leadership board of the American Lung Association in South Dakota. Humphreys was the first infectious disease physician in the state of South Dakota and opened the way for the discipline. He is remembered as an astute clinician, an excellent diagnostician and compassionate physician. He is survived by his siblings, Dick Humphreys (Jerri) and Josie Weatherly; nieces, nephews and many other relatives and friends.

Ralph H. Jones, MD 46

Jones died Sunday, Feb. 22, 2015, in Santa Fe, N.M. After enlisting in the Army Air Corps, he went on to obtain a medical degree from WUSM in 1946. Jones went into general practice, working in the Missouri towns of Sweet Springs and Marshall, where he cofounded the Marshall Medical Clinic. In 1958, he was accepted as a surgical fellow at the Mayo Clinic. Upon graduation, he moved his family to Santa Fe, where he resided until his death. He is survived by his children, Carolyn (Tom) Minton and Suzanne (Art) Verardo, son, John Jones (Janice); five grandchildren; and five great grandchildren. His wife of 64 years, Mary, preceded him in death.

James S. McLean Sr., MD 48

McLean died Sunday, Aug. 24, 2014. He was 93. McLean was a corporal in the U.S. Army during World War II and a first lieutenant, U.S. Air Force, during the Korean War. A general surgeon for more than 30 years, he was president of staff at both St. Margaret's Hospital in Hammond, Ind., and St. James Hospital in Chicago Heights, Ill. McLean is survived by his children, Ellen McLean, Mary (Tom) Olinger and James McLean Jr. (Alice); grandchildren and great grandchildren. His wife, Irene (nee Egnatz), preceded him in death.

FACULTY

David C. Beebe, PhD

Beebe, the Janet and Bernard Becker Professor of Ophthalmology and Visual Sciences, died at his home in St. Louis on Friday, March 27, 2015, from complications of amyotrophic lateral sclerosis (ALS). He was 70. A longtime leader in the Department of Ophthalmology and Visual Sciences, Beebe headed the Cataract Research Center. His research focused on the early development of the eye and the causes and potential prevention of nuclear cataracts and glaucoma. Also a professor of cell biology and physiology, he was the recipient of a School of Medicine Distinguished Educator award in 2014. Last year, he was honored with the creation of an endowed lectureship in his name. Beebe joined the Washington University faculty in 1995. During his tenure, he was very involved in the Association for Research in Vision and Ophthalmology (ARVO), serving in various capacities over the past 20 years. He served on its board of trustees from 1996-2002, and in 2000 was elected the organization's president. He also served as editor in chief of the ARVO journal *Investigative Ophthalmology and Visual Sciences*. Beebe recently was chosen to receive ARVO's highest service award, the annual Joanne G. Angle Award. Beebe earned a bachelor's degree in zoology from the University of Rhode Island and a master's degree in biomedical sciences at Brown University. He then earned a doctorate in biology at the University of Virginia. After a postdoctoral fellowship at the National Institutes of Health (NIH), he took a faculty position in the Department of Anatomy at the Uniformed Services University of the Health Sciences in Bethesda, Md. He eventually became chairman of the Department of Anatomy and Cell Biology. Beebe is survived by his wife of 37 years, Anne-Elizabeth; three children, Peter (Fay Bouman), Colin (Jennifer Sullivan) and Jessica (Philip Quitslund); and four grandchildren.

John W. Olney, MD

John W. Olney, MD, the John P. Feighner Professor of Psychiatry and a professor of pathology and immunology, died Tuesday, April 14, 2015, at his home in St. Louis after a battle with lung cancer and amyotrophic lateral sclerosis. He was 83. Olney remained active in research until the last few days of his life. He studied neurotransmitters in the brain and how they can become toxic under certain circumstances. He was the first scientist to propose that when high concentrations of the neurotransmitter glutamate were released from brain cells, the glutamate could overexcite cellular receptors and destroy cells through a process he named "excitotoxicity." The mechanism Olney described later was found to be involved in nerve cell degeneration in traumatic brain injury and brain disorders such as stroke and epilepsy. Olney came to Washington University in 1964 as a resident in psychiatry and joined the faculty in 1968. He started his medical training at age 28, leaving a job in the U.S. Army to pursue a medical degree when his sister was diagnosed with multiple sclerosis. Born in Marathon, Iowa, Olney earned bachelor's and medical degrees from the University of Iowa. In addition to working with glutamate, Olney studied the effects of anesthetic drugs, such as ketamine, on the developing brain. He did important and much-cited research into fetal alcohol syndrome, concluding that if a pregnant woman consumed as few as two drinks, the alcohol could cause nerve cells in the fetal brain to die. And Olney found that as the brain continued to develop in the years after a baby was born, anesthetic drugs also had the capacity to do damage. Consequently, he recommended that elective surgery be avoided in very young children whenever possible. Olney is survived by Elfriede Olney, his wife of 57 years; two children, Margaret Ann Olney and John M. Olney; and six grandchildren. Another son, Stephen James Olney, passed away in 1984.

Submit Classnotes online:
wumcnews.org/classnotes

John C. Morris, MD

Harvey A. and Dorismae Hacker Friedman Distinguished Professor of Neurology; Director, Charles F. and Joanne Knight Alzheimer's Disease Research Center

Childhood dream:

To play for the Cleveland Browns in the National Football League

Guess that didn't work out. What did?

Wrestling — Athletic Hall of Fame inductee, Ohio Wesleyan University

What are you most grateful for?

After my family, it is all the talented faculty, staff and dedicated volunteers of the Knight ADRC!

Favorite honor:

One award with great personal significance is the Dr. Neville Grant Award for Clinical Excellence from Barnes-Jewish Hospital and Washington University Physicians. It means my peers consider me a good doctor!

Proudest moment:

Most recently it is the birth of my first grandchild, Jack, as he represents the next generation of what is most important — my family.

I support the School of Medicine because:

Washington University has been so supportive of me, and I am most pleased to give back.

Like Dr. Morris, consider supporting Washington University School of Medicine through an estate gift, life income plan or other planned gift.

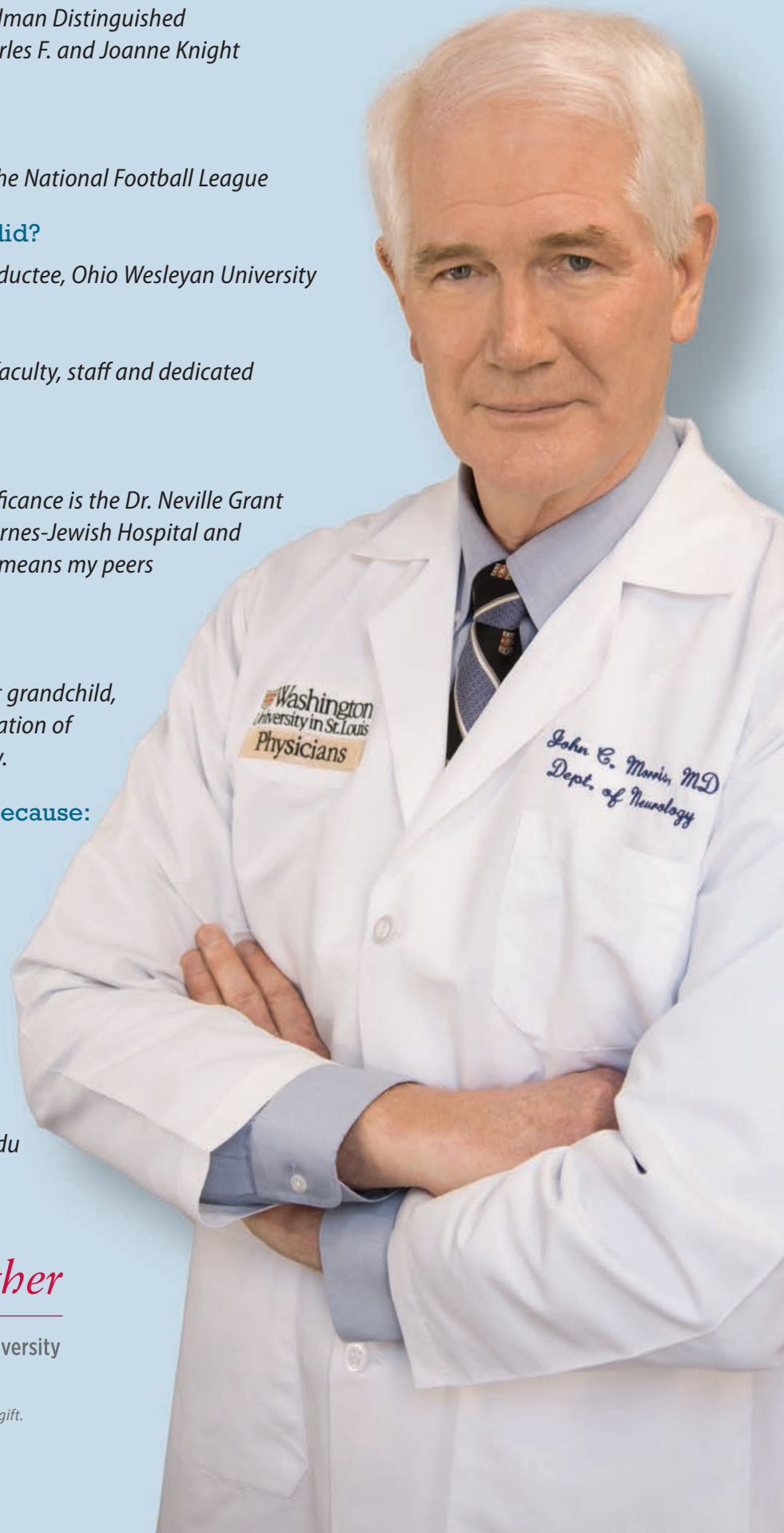
To learn more, visit plannedgiving.wustl.edu or call 800.835.3503.



LEADING *Together*

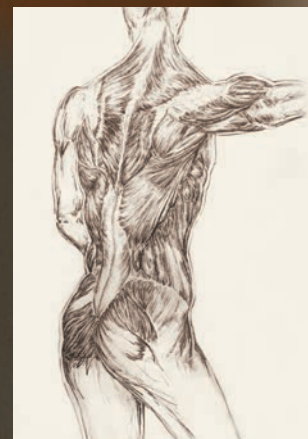
The Campaign for Washington University

Consult with your legal or tax adviser before making a charitable gift.



Lasting legacy

Music, artwork, poetry and reflections by medical students honored the people who donated their bodies to the School of Medicine for anatomical study. At the annual year-end ceremony, one numbered candle was lit in memory of each of the anonymous donors. The gross anatomy instructors instill a sense of respect from the first day of class. These are the students' "first patients," explains course master Glenn Conroy, PhD. Thousands of future patients will one day benefit from lessons learned through the intensive study of each body.

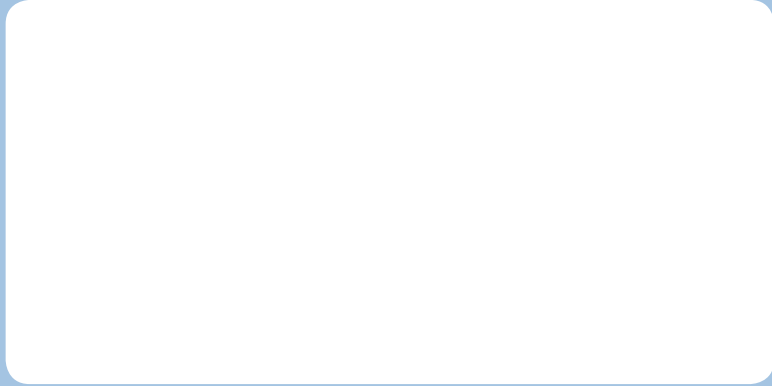


Student drawing



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Evening respite Washington University Medical Center's oasis offers an illuminated feature best revealed in this bird's eye view. The platform that is part of the infinity pool in the Ellen S. Clark Hope Plaza is embedded with tiny lights depicting the stars in the night sky on the day that Ellen Clark was born. She is remembered as a true champion and supporter of biomedical research at the School of Medicine. The plaza's natural landscaping and artistic features adjoining the BJC Institute of Health at Washington University School of Medicine are among the collaborative achievements of Larry Shapiro's administration. See page 8 for reflections on Shapiro's journey from medical student to transformative leader at the medical school.

