MU Health Care translates research and innovation into better patient care.
In an academic health system, patients have access to clinical trials. That advantage helps a former firefighter avoid a painful side effect of cancer treatment.

CARDIOVASCULAR

MU Health Care’s AFib patients who can’t tolerate blood thinners have a new treatment option: a left atrial appendage closure.

ORTHOPAEDICS

Vertebral body tethering is the right choice to help a wrestler get back on the mat after a scoliosis diagnosis.

OBSTETRICS

The CenteringPregnancy program gives expectant parents a support group of peers.

MEDICAL EDUCATION

Fayette physician Andrea Schuster, MD, credits MU’s Rural Track Pipeline Program for giving her the map to her dream job.

PARTING SHOTS

MU Health Care photographer Justin Kelley shares his favorite winter photos.
LETTERS

Share your happiness. Our patients inspire us, and sharing your story can inspire others. If you would like to share your story, we’d love to hear from you! Visit muhealth.org and click “Feedback” at the bottom of the page, email social@health.missouri.edu or send a letter to: MU Health Magazine, Office of Communications, 1 Hospital Drive, DC 401.00, Columbia, MO 65212.

VOLUNTEER MAKES A DIFFERENCE

I recently visited the Ellis Fischel clinic. I noticed while I was there that one of the volunteers, Judy Prewitt, made the rounds to everyone and got them water or coffee. She was very friendly and got to know people as they waited.

She seems like a very thoughtful and caring person, and I am glad you have her! I just want her to be recognized for her super attitude and willingness to help others. Thank you for what you do, Judy.

Amanda Shuck
HUNNEWELL, MISSOURI

STAFF ASSISTED WITH RECOVERY

On May 11, 2016, I experienced a life-threatening health challenge. I had returned to work at a law firm in Columbia for a few hours following an afternoon appointment. Without much warning, I felt dizzy, short of breath and blacked out. Luckily, I was in the mailroom with some coworkers, and thankfully, they performed CPR until the ambulance arrived.

I later found out I had a pulmonary embolism that caused cardiac arrest. I was without oxygen for long enough for there to be anoxic brain injury.

I was in intensive care at University Hospital for a week and in the hospital until Memorial Day weekend, and then they moved me to Rusk for rehabilitation. I’m extremely grateful for the skill of everyone at the MU Level 1 trauma center for saving my life and everyone at Rusk for helping me recover.

True, authentic self-discovery can be a challenge, but that’s a big purpose of everyone’s life. I hope to encourage people to know that recovery is possible.

Paige Speers
COLUMBIA, MISSOURI
Lorna Moseley has been the face — and voice — of the Missouri Orthopaedic Institute. She greets patients from behind the check-in desk with her charming English accent and a welcoming smile. It’s her job to make them feel welcome.

When patients come in for their appointments, they are in good hands. She has a way of making each person feel like the most important person she will see that day. Whether it’s giving a returning patient a hug or walking a new visitor to the place they are looking for, she always puts herself out there for the good of the patient.

“People come in, and they don’t necessarily want to be here for whatever reason, and I don’t see it having to be a bad experience,” Moseley said. “Everybody’s got a story, and if you just take a few minutes out of your day for each person, and it makes a little bit of a difference, then it’s worth it.”

Moseley, originally from the town of Guildford in southeast England, realized how her team felt about her last year when she passed the test to become a United States citizen.

“I was very overwhelmed by the love and support that everybody had,” she said.

Moseley said helping people is the most rewarding part of her job.

“It works both ways,” she said. “I actually go home with a great deal more than I give.”
Hallsville Boy Pursues Passion While Fighting Cancer

Jackson Morton is the 2019 Children’s Miracle Network Champion Child.

Two years ago, during one of his frequent appointments at University of Missouri Health Care’s Children’s Hospital, Jackson Morton passed the time watching YouTube videos. He came across one of a man trying to program a vintage “Snake” computer game in just 15 minutes.

The crushing headache, the Blood Disorder and Cancer Unit door, the acute lymphoblastic leukemia diagnosis, the chemotherapy treatments that sapped his strength — all the terrifying milestones of his new life — receded in his mind.

Jackson had one focus: He would learn to code a video game.

Now a 15-year-old freshman at Hallsville High School, Jackson has created six games. The most recent, which he completed with a friend, is his favorite. It’s called “Pocket Bandits.”

“It’s a pickpocket game,” he said. “You go up to people on the street and steal certain items in a certain amount of time. We made the art style kind of silly and messy, so it’s a really funny game.”

Jackson is still in the thick of his battle with leukemia, with treatment continuing until the spring of 2020, but he’s planning way ahead. He researched the entrance requirements of the universities with the best computer science programs, and he took his first crack at the ACT college admissions test as an eighth-grader so he will be prepared to post a big score later in his high school career.

“Ever since he was diagnosed, he’s been super positive,” said his mother, Becca Crossgrove. “He’s pretty much kept me going, saying, ‘Mom, everything is going to be good.’ That’s kind of the way he lives his life.”

That positivity endeared Jackson to his Children’s Hospital nurses, who nominated him as the hospital’s 2019 Children’s Miracle Network Champion Child. For a year, he will tell his story and spread the word about the importance of donating to the Children’s Miracle Network, a national organization that raises money for children’s hospitals with the help of corporate partners and local fundraising events.

“All of the money raised through CMN stays local, supporting a variety of needs at our Children’s Hospital,” said Kristen Fritschie, senior coordinator of Children’s Miracle Network for Children’s Hospital. “Some of it is used for life-saving equipment, such as new ambulances, as well as programmatic needs, like Child Life specialists and music therapy equipment.”

Jackson missed the second semester of his seventh-grade year while he underwent intense chemotherapy treatments. When he returned to school in August 2017, he said his friends initially weren’t sure what to say to him. He quickly learned to diffuse the tension with humor and then explain his illness. He is one of the guys again. In fact, he played Benny Southstreet last fall in his school’s production of the musical “Guys and Dolls.” He also competes on the Quiz Bowl team and devotes his free time to creating quirky new video games.

“He’s not one who loves attention, but he’s come into his own since he’s gotten sick, talking to people about what he’s gone through and raising awareness. He really appreciates that this is the card he was dealt, and he’s going to make the most of it and share his experiences.”

— BECCA CROSSGROVE
Patrick Belton, MD, left, is a fourth-year resident in MU Health Care’s Division of Neurological Surgery, where he learns from N. Scott Litofsky, MD, the division chief. Belton also contributes to better patient care. His published research on the use of antibiotics to treat certain neurosurgery patients led Litofsky to change his surgical protocol and could influence surgeons at other hospitals to do the same.
Resident Physician’s Research Leads to Improved Patient Care

Patrick Belton was living the upwardly mobile professional dream. He parlayed an Ivy League education into a job on Wall Street. For 14 years, he analyzed market risk, traded stocks and managed hedge funds. The tasks suited a man with a mind for math who could see patterns in complex statistics.

Belton traveled on business for weeks at a time in Latin America and Asia. He climbed the corporate ladder. Then he realized his head was in finance but his heart wasn’t.

“Initially, it was very appealing,” Belton said. “Gradually, it became less spiritually rewarding. I thought, ‘What else could I do?’ ”

That question led him, at age 36, to walk away from his job as the chief operating officer of a hedge fund and enroll in medical school. After earning his MD, he came to University of Missouri Health Care to serve the seven-year residency required to become a licensed neurosurgeon.

Belton continues to ask important questions. One of his questions led to a change that could help neurosurgery patients avoid serious infections.

THE PROJECT

Part of MU Health Care’s mission as an academic health system is to train the next generation of doctors. After graduating medical school, doctors spend the next three to seven years as residents, learning more from attending physicians. But residents aren’t just sponges who absorb knowledge from attending physicians. They add brain power to the teams that treat each patient. Their questions help attending physicians stay on the leading edge of patient care, providing better treatments and safer procedures.

Belton, who is now a fourth-year resident, wondered whether patients who needed surgery for brain or spine trauma were being treated with antibiotics unnecessarily. When patients were tested before surgery, the presence of asymptomatic bacteriuria — bacteria in the urine without symptoms of an infection — forced the surgeon to decide whether to treat the condition with antibiotics to guard against a surgical site infection.

“It was always a discussion of, ‘Do we treat these patients and what do we treat them with?’ ” Belton said. “I felt like there could be more context to the conversation. If we had more data and better analyzed it, we could have a more informed discussion.”

The problem was nobody had studied whether bacteriuria actually caused wound infections in neurosurgery patients. The decision to use antibiotics carried its own risk. Because antibiotics kill the body’s good bacteria as well as the bad, patients who receive antibiotics are susceptible to an infection known as Clostridium difficile (C. diff). It causes diarrhea that can sometimes be life-threatening, particularly in older patients.

“Sometimes decision-making is not based on scientific evidence as much as it is based on, ‘That’s the way I was taught how to do it,’” said MU Health Care Chief of Neurological Surgery N. Scott Litofsky, MD. “Those practices need to be questioned. Young people tend to be a little better sometimes at asking questions. They want to know why. If we don’t have good answers, then maybe we need to go back and decide if we’re really doing it the best way.

“That’s how Patrick got on to this particular topic. He wanted to know why we were treating these people and does it make a difference.”

THE PAYOFF

Belton knew the problem, but he wasn’t sure how to solve it. Then he attended a presentation by Abu Mosa, PhD, director of research informatics at the MU School of Medicine. Mosa described a new computer program available to MU researchers called i2b2 — short for Informatics for Integrating Biology and Bedside. It would allow them to analyze data from the medical records of MU Health Care patients, whose identities remain anonymous.

At a private hospital, Belton’s research project would have been an impractical exercise requiring checking individual medical records. But at an academic health system with access to thousands of records through i2b2, he had the tools he needed. His familiarity with complicated math and statistical analysis from his previous career helped him solve the problems that arose.

Belton looked at the cases of 3,563 neurosurgical trauma patients over an eight-year period dating to 2009. Of the surgical patients who had asymptomatic bacteriuria, about half had been treated with antibiotics. In those patients, he found that antibiotics did not reduce the risk of surgical site infections compared to the untreated group but did increase the rate of C. diff.

In other words, it did more harm than good to treat patients with antibiotics.

Belton completed the project in one year, and in October 2018, it was published in Neurosurgery, the official journal of the College of Neurological Surgeons. Litofsky said Belton’s research convinced him to not give antibiotics to patients with asymptomatic bacteriuria, and it could well convince neurosurgeons elsewhere to do the same.

Belton found the spiritually rewarding answer to the question he asked himself during his Wall Street days. He’s learning complex skills from seasoned surgeons, and he’s helping provide better care to patients.

It’s just one example of how an academic health system such as MU Health Care can provide the best of two worlds. “Dr. Litofsky has been doing neurosurgery since the 1980s and has been an innovator in the field,” Belton said. “He has a wealth of experience from that and a wealth of knowledge. That’s a resource we have here. But, also, it’s a research institution. In order to advance the field, you have to develop questions and figure out how you’re going to answer those questions, think about how you might do things differently. Sometimes trainees are in a good position to do that. So you have those things married together — the experience and also the potential to innovate.”
“Ideally, if we were able to predict who is not going to recover well functionally, is there an intervention we can do beforehand to improve their recovery and lifestyle after surgery?”

— KATIE MURRAY, DO
When Katie Murray, DO, meets a new patient, she expects to make an unforgettable first impression. There is no worse conversation starter than the one she often has to offer. But she also knows a great long-term relationship is waiting to happen.

"The first time you meet me, we're going to talk and ask questions back and forth, and you are probably not going to like what I have to tell you," she said. "I'm going to give you all this bad news. But, a few years from now, this is all going to be behind you, and you're going to be seeing me every three to six months. Instead of our whole conversation being focused around cancer, we'll spend a small amount of our clinic time talking about cancer — with me hopefully giving you good news — and then you're going to be telling me where you went on vacation this summer and about your grandkid's basketball game."

Murray grew up in Farmington, Missouri, thinking she would become a family physician and return to her hometown, where she would treat friends and neighbors for generations. Her father, who owned a trucking company and was never off the clock, instilled in her a tireless work ethic. Her mother, who examined every homework assignment to make sure her daughter was always giving her best, honed her competitiveness.

In medical school, Murray veered from family medicine to urology. Then she went about as far from Farmington as possible — at least in terms of lifestyle — when she completed her fellowship at the internationally renowned Memorial Sloan-Kettering Cancer Center in New York.

With that specialized surgical training, Murray could have written her ticket to any number of hospitals as a urologic oncologist. She wanted to go someplace where, even as a specialist, she could cultivate patient relationships like a hometown doctor. She wanted the chance to conduct research that directly improved the lives of her patients.

Murray found the perfect fit at University of Missouri Health Care, an academic health system where doctors treat patients and are also mentors, teachers and researchers.

MU Health Care has the resources to help young academic physicians, such as Murray, to learn about grant-writing to fund their research, as well as helping them learn the skills to mentor and teach Missouri's next generation of physicians.

Clinically, Murray treats patients facing cancers of the urologic system. She has focused her research on bladder cancer. More accurately, she has focused her research on people with bladder cancer.

"She is interested in functional status, meaning the ability of a person to do basic tasks of daily living — things like bathing and dressing," said David Mehr, MD, one of MU's experts in geriatrics and outcomes-based research. "That's hardly been explored at all in urology. People can be better informed and make the right choices."

Murray gives her bladder cancer patients pedometers to learn about their activity level before surgery so she can do a post-surgery comparison. She is studying to what degree patients who work with physical therapists, occupational therapists and nutritionists to get into shape before surgery respond better afterward.

"It's all about managing expectations," Murray said. "Ideally, if we were able to predict who is not going to recover well functionally, is there an intervention we can do beforehand to improve their recovery and lifestyle after surgery?"

It goes back to the conversations she has with new patients. Murray's goal is to help them reach the best outcome, so when they meet in the future, they will be able to talk about so much more than cancer.

With Treatment and Research, Murray Builds Long-Term Bonds

Urologic oncologist focuses on bladder cancer research.

Katie Murray, DO, a urologic oncologist, wanted to work at a place where she could cultivate patient relationships and wanted to do research that directly improved the lives of those patients. She found the perfect environment at MU Health Care, where she develops close relationships with her patients and conducts outcomes-based research on bladder cancer.
Zhengou Liu, MD, PhD, grew up in a tiny Chinese village of about 50 people, where his family lived off the rice and vegetables it grew on a small farm. Modern medicine played little role in the villagers’ lives.

It was an unlikely launching pad for an international expert on heart disease.

“Not many people sought medical attention there,” Liu said. “People would die for unknown reasons. They would just be gone. Nobody would know why.”

He could have been one of them. As a teenager, any physical activity — even a brisk walk — left him breathless. For someone who had to walk two hours to another village to attend high school, it was a major problem. By the time Liu saw a doctor and was diagnosed with anemia, the amount of oxygen-transporting hemoglobin in his blood had dropped dangerously to one-third the normal level.

That health scare sparked in him an interest in medicine that ultimately led halfway around the world. In November 2017, Liu took over as the chief of University of Missouri Health Care’s Division of Cardiovascular Medicine. Liu established the goal to expand MU Health Care’s

Liu Brings Passion for Heart Health to Missouri

Doctor studies cardiovascular disease from all angles.
capability to treat patients with even the most complex heart conditions and to elevate the cardiovascular research program.

As an academic health system, MU attracts leaders in their field with a passion for research that translates into better patient care. Since Liu arrived, MU Health Care has added six cardiologists and can now perform almost any heart procedure except a transplant.

“We provide all services in cardiovascular medicine,” Liu said. “We do not have to send patients out to St. Louis or Kansas City for complex procedures. We’re able to do it here.”

Liu, who spent 13 years at Ohio State University before coming to MU, plays an important role in four active projects that are funded by the National Institutes of Health. He is the principal investigator on two and the co-investigator on the other two. All of them are R01 grants, the major research awards issued by the NIH.

“To get an R01 grant, you have to be doing some important research. To get multiple R01s, that’s off the charts,” said MU Health Care interventional cardiologist Arun Kumar, MD. “That really raises the portfolio and says the MU cardiovascular program is the real deal.

“There are a lot of connections between leading-edge research and great patient care in the clinic. It leads to an emphasis on evidence-based medicine when you’ve got researchers who are really in tune with contemporary practices.”

In the clinic, Liu is an electrophysiologist — a cardiologist who works on the heart’s electrical system — and his primary niche at MU Health Care is implanting pacemakers and other devices in patients with heart-rhythm problems. In the lab, Liu is studying heart disease on the front and back end in ways that could directly help patients.

His ultimate goal is to define the important causes of atherosclerosis, the hardening and narrowing of arteries that restricts blood flow and leads to heart attacks and strokes.

“The majority of the population is going to have atherosclerosis,” Liu said. “We know lipids, diabetes and smoking are not good things, but even though we control those conditions, people still develop atherosclerosis. Why is that? One of my projects is to address the question why people develop this condition. If we find the factors that contribute to this disease, we can eliminate those while they’re at the reversible level. That would change everything.”

Liu is studying air pollution’s effect on atherosclerosis and trying to isolate which air particles are harmful to heart health. He also is exploring the link between heart disease and the bacteria in the gastrointestinal tract. He thinks this link could explain why young people sometimes develop cardiovascular diseases.

On the back end of the problem, Liu is exploring ways to regrow heart tissue after a patient has suffered a heart attack. The areas of the heart damaged by a heart attack do not naturally regenerate, leaving the muscle weakened forever. However, Liu is exploring whether adult stem cells — which are found in bone marrow and many other organ systems — can rebuild heart muscle or new blood vessels.

“For the last 10 to 20 years, a very active area is to find a way to regenerate heart muscle,” Liu said. “Lots of work has been done, but more studies are needed to find the effective ways to regenerate heart muscle and make it functional again.”

From growing up on a family farm in a tiny Chinese village to trying to conquer one of the world’s deadliest diseases, Liu has come a long way. His motivation is to help people live longer and healthier lives.

“Patients deserve the best,” Liu said. “If we don’t provide the best, we’re not doing our job. That’s always my philosophy. And I like to do research so I know what’s the best and what’s coming 10 or 20 years from now. If you do really good research, you can change the whole field. That is my vision.”

“We know lipids, diabetes and smoking are not good things, but even though we control those conditions, people still develop atherosclerosis. Why is that? One of my projects is to address the question why people develop this condition. If we find the factors that contribute to this disease, we can eliminate those while they’re at the reversible level. That would change everything.”

— ZHENGOU LIU, MD, PhD
Orthopaedic surgeon Richard Ma, MD, understands the thinking of young athletes who want to return to action as soon as possible after injuries. He is focused on finding ways to keep his patients healthy and minimize their time on the sideline when they are injured.
When Richard Ma, MD, treats injured athletes who are desperate to return to their favorite sports, he can empathize. Athletics played an outsized role in his own identity. After he immigrated from Taiwan to the United States as a 7-year-old boy, Ma felt out of place. That changed when he joined his high school’s football and soccer teams. “Sports are a big part of who I am,” he said. “My natural instinct, coming from another country and initially having a language barrier and not having a lot of friends, you tend to be a little more introverted. Athletics was a big part of building my confidence. I came out of my shell. I enjoyed the camaraderie of team sports. “When I see injured athletes in clinic, my experience with athletics helps me understand why it’s so hard for them when they can’t play. I can identify with that. Although I have the privilege of taking care of Mizzou athletes, the vast majority of individuals I take care of are the athletes out in our community. That was me.”

Now a surgeon at MU Health Care’s Missouri Orthopaedic Institute, Ma’s focus in the clinic and laboratory is helping people return to their favorite activities as soon as possible after an injury — or, even better, preventing the injury. As an academic health system, MU Health Care employs physicians who actively conduct research that leads to innovation in patient care. In fact, the whole reason Ma joined MU Health Care five years ago was because patient care and research are so intertwined at MOI.

“When you get the scientists and the clinicians in the same building, we have a chance to have a conversation,” Ma said. “That’s pretty powerful but hard to do since research scientists and their laboratories are often in a separate location from clinicians. But at the Missouri Orthopaedic Institute, we are all working under the same roof.”

Ma specializes in arthroscopic repairs of shoulders and knees. Arthroscopy is a minimally invasive technique. Small incisions are made for a camera and surgical instruments. The camera allows the surgeon to see inside the joint on a monitor and make repairs without making big incisions and disrupting muscles, tendons and ligaments. The recovery period is typically far quicker than more invasive surgeries, although often not quick enough for eager athletes.

In the field of sports medicine, there is always a question of when an injury is truly healed. Ma often fixes torn anterior cruciate ligaments — one of the four stabilizing ligaments in the knee — and he wondered if secrets to a better ACL surgery could be found at the cellular level.

ACLs usually are repaired with tissue from a patient’s patellar tendon, quadriceps tendon or hamstring tendon, and occasionally with donor tissue. Ma is trying to determine if there is a best choice among those grafts based on the individual needs of a patient. “Biologically, the cells of all those tissue types behave differently under different mechanical stresses and stimulus,” he said. “If you understand those differences, then maybe you would choose tissues that best match the person’s activity level, or you adapt their rehabilitation after surgery to the particular tissue that was used.”

Traditionally, doctors determine when ACL patients are ready to resume full activity based on the length of time since surgery and the stability and functionality of the knee. Those benchmarks alone might not give a full picture. To better understand when a repaired ACL is fully healed, Ma is conducting a clinical study of more than 30 patients who had the surgery in the last year.

“We all have a baseline chemical body composition,” he said. “If we have an injury or we have surgery, there is probably a disruption of that chemical balance. When do you reach that balance again? And does that balance reflect what’s going on in the knee in terms of healing from the surgery? In the study, we are collecting urine from patient volunteers and looking at the chemical composition to see if we can identify specific proteins and their levels that might correspond to how your knee is doing after surgery.”

“We’ll follow these people to a year out and start analyzing samples and then bring some of these kids back and get MRIs of their knees. We’ll see if the MRI picture of the knee and ACL graft fits with specific patterns we see in the chemical profile of the urine we collected. If you have a simple noninvasive test you can do in the clinic that tells you how that person is doing biologically after knee reconstructive surgery, that might be an important piece of information that would cut down on the re-injury rate.”

One of Ma’s mentors is James Cook, DVM, PhD, OTSC, the director of MU’s Thompson Laboratory for Regenerative Orthopaedics. Cook is doing similar research on biomarkers related to osteoarthritis. He said Ma’s project could ultimately identify athletes prone to noncontact ACL tears before they are ever injured and determine methods for prevention.

“Most of the predictive work done on risk for ACL injuries is based on body mechanics,” Cook said. “It’s really important to look at the biomechanics, but we also have to look at the biology. Currently, there’s nothing that looks at the biology of risk for ACL. That’s what Dr. Ma’s innovative research potentially could do.”

It all goes back to his desire in the lab and clinic to find ways to help patients keep doing what they enjoy.

“What I love about him is that he’s a true clinician-scientist,” Cook said. “Those two words have to go together to significantly advance health care in real time. To me, that’s the way it should be. His clinic feeds his science, because that’s where his ideas come from. His science feeds his clinic, because he wants to practice evidence-based medicine.”

“His patients absolutely adore him. I think they understand that he’s trying to do patient-specific, evidence-based care to help them accomplish their goals. He’s trying to do the best thing for them based on real science.”

His Goal is Getting Patients Back in the Game
Orthopaedic surgeon focuses on injury prevention and recovery.
Clinical Trial Offers Relief to Former Firefighter

Dean Martin participated in a clinical trial during his treatment for throat cancer and avoided the painful mouth sores that often accompany chemoradiation. Martin’s cancer now is in remission.

Dean Martin spent his professional life running toward danger and helping others. He served in the Army and Navy before starting his career as a firefighter. When terrorists crashed planes into the World Trade Center towers, Martin was part of the Missouri Task Force 1 team that landed in New York on the evening of Sept. 11, 2001, and performed search-and-rescue missions at ground zero.

In May 2018, during a routine checkup, Martin’s primary care physician noticed a lump in his neck. That lump turned out to be throat cancer. When he learned the news, Martin’s thoughts immediately turned to others.

“I was concerned about my kids and my wife,” said Martin, 55, a father of three who was a Columbia Fire Department division chief for 22 years until his retirement in 2011. “As a firefighter, you feel invincible. You run into a burning building when everyone else is running out. I always said that I’m not afraid of anything, but one of my biggest fears was being diagnosed with cancer. I started worrying about my kids and what would happen to them.”

After getting over the initial shock, Martin focused on getting well. That meant chemotherapy and radiation. Often, patients undergoing chemoradiation treatments for squamous cell carcinomas of the head and neck develop painful swelling and sores in their mouths. When Martin learned that MU Health Care’s Ellis Fischel Cancer Center offered a clinical trial of a drug called SGX942 that prevents the sores from developing, he quickly agreed.

As an academic health system, MU Health Care offers patients the opportunity to take part in research studies that test new drugs, devices and therapies. MU offers more than 500 clinical trials, including more than 70 cancer studies. Participation in any clinical trial is voluntary. All MU Health Care patients will receive the standard treatment for their condition and can choose to take the extra step of participating in a clinical trial if they qualify.

“In clinical trials, we test the agents that have shown the most promise in preclinical studies,” said Kevin Staveley-O’Carroll, MD, PhD, director of Ellis Fischel Cancer Center. “People who have participated in clinical trials have often enjoyed tremendous results.”

Martin received 18 infusions over a two-month period and never developed any mouth sores during his treatment. Four months after his diagnosis, Martin was declared cancer free. He and his wife celebrated by going out for a steak dinner. He said he could barely taste the steak because his taste buds hadn’t bounced back from the effects of chemoradiation, but it was still a celebration to remember.

Other than trying to regain some of the 70 pounds he lost during his illness, Martin is back to his old self. He and his wife are able to travel and visit their three daughters and grandchildren. His decision to participate in a clinical trial was a win-win. His treatment for cancer was less painful than it otherwise might have been, and he contributed to the scientific discovery that could help future patients. So he’s not quite done playing the hero.

“We owe everything we do now in cancer care to the thousands of people who have participated in trials. Those are true heroes who have helped us advance cancer care to the state we appreciate now. In a very real sense, people who participate in those trials now are heroes who help shape treatments so future generations can get the best care they can.”

— KEN BAKER, RN

Clinical trials are conducted in phases.

PHASE 1 TRIALS often include a small number of healthy volunteers, although in cancer care, they generally include patients who have no other treatment options. Phase 1 trials help researchers determine the appropriate dosage and identify side effects.

PHASE 2 TRIALS test a product’s effectiveness on people with the illness or condition in question.

PHASE 3 TRIALS compare the safety and effectiveness of the new product compared to the current standard treatment.

PHASE 4 TRIALS gather more data about the safety of products that have been approved by the Food and Drug Administration.

“We owe everything we do now in cancer care to the thousands of people in the past years who have participated in trials. Those are true heroes who have helped us advance cancer care to the state we appreciate now. In a very real sense, people who participate in those trials now are heroes who help shape treatments so future generations can get the best care they can.”

— KEN BAKER, RN

Learn about MU Health Care’s active cancer clinical trials at muhealth.org/cancer-trials

MU HEALTH
Atrial fibrillation is an irregular heart rhythm that can lead to blood clots and devastating strokes. AFib patients are prescribed blood thinners to guard against strokes, but about 10 percent of them cannot tolerate the medication.

Now, there is a solution for those patients. MU Health Care is the only hospital in the region to offer a left atrial appendage (LAA) closure procedure. It’s a minimally invasive surgery that drastically reduces the chance of strokes for patients with nonvalvular AFib. Sandeep Gautam, MD, and Hemant Godara, MD, perform the procedure.

“It’s an excellent technology,” said Gautam, a cardiologist who specializes in the heart’s electrical system. “It has great promise. I would encourage people to think of it as an alternative if they have problems with their blood thinners, but I do not want them to think of it as something they can switch to if they’re doing fine with their blood thinners.”

The left atrial appendage is a small pouch connected to the upper left chamber of the heart. Gautam said 90 percent of clots in AFib patients form in that pouch. The Watchman device serves as a small umbrella, blocking the left atrial appendage. The procedure takes less than two hours and is conducted under general anesthesia. A catheter is inserted in the femoral vein in the groin and threaded to the heart. The cardiologist, with the help of ultrasound imaging, guides the catheter tip to the left atrial appendage and deposits the device.

Patients are required to stay in the hospital overnight. Other than avoiding heavy lifting for a week, they have no other post-surgery restrictions. After six weeks, patients have a follow-up visit to make sure the heart’s lining has grown over the device, forming a solid barrier so clots can’t escape. At that point, patients are weaned to the gentle blood thinner Plavix for a few months and then stop taking blood thinners altogether.

“By definition, when the procedure is done properly and works perfectly, it will prevent 90 percent of strokes from atrial fibrillation,” Gautam said.

For more information about MU Health Care’s LAA closure program, contact nurse clinician P.J. Thomas at alenthomasp@health.missouri.edu.

Above, Sandeep Gautam, MD, a cardiologist who specializes in the heart’s electrical system, performs left atrial appendage closures to prevent strokes in patients with atrial fibrillation who cannot tolerate blood thinners. Right, the umbrella-like device, known as Watchman, is implanted to block the heart’s left atrial appendage, where 90 percent of clots form in AFib patients.
“What played heavily for us was him retaining his flexibility and having the option to return to wrestling, which is what he loves, and also protecting his organs and health.”

— ANN BROWN
During a physical exam early in Terence Brown's sophomore year of high school in New Albany, Indiana, he was diagnosed with scoliosis. His mind immediately raced to one thing.

“I wondered if I could wrestle again,” Brown said.

At his father's suggestion, Brown had started wrestling in fourth grade. In his first year, Brown won only one match, but he stuck with it and got better, learning to love the sport in the process. He was getting ready for his first season as a varsity starter … and now this.

Brown was relieved after seeing a specialist in Louisville, Kentucky. The X-ray showed a spine curvature of 35 degrees, which was too much to be corrected with a brace but not enough to require surgery.

While Brown got busy with wrestling season, his mother, Ann Brown, joined a few Facebook groups for parents of children with scoliosis. That's how she heard about a procedure called vertebral body tethering (VBT).

VBT is a minimally invasive alternative to fusion for scoliosis patients who are still growing and have spinal flexibility. Screws are affixed to the outside of the vertebra in the curved area of the spine. A polyethylene cord connects the screws and provides tension that straightens the spine.

“So often, what happens is these kids are active, have an X-ray done and are confronted with the issue of needing some intervention for their scoliosis,” said MU Health Care pediatric orthopaedic surgeon Dan Hoernschemeyer, MD. “Observation doesn’t really seem to impede a kid in their activities, nor does a brace because they can take those off, but when you’re talking about surgery, the traditional surgery is spinal fusion, and many worry that limits the amount of flexibility a child will have when they’re doing high jump or wrestling or gymnastics. Tethering is a way to correct the scoliosis and modulate normal growth instead of stunting and fusioning it.”

VBT is not approved by the U.S. Food and Drug Administration for the treatment of scoliosis. It is a physician-directed alternative usage of a device that is approved for another condition — lumbar fusions in adults with degenerative disorders. Only a handful of medical centers in the country perform the procedure for scoliosis, and MU Health Care is one of them. Hoernschemeyer has done more than 50 VBT surgeries.

Intrigued, Ann emailed Hoernschemeyer.

“The next morning, I checked my email, and he had emailed me back after midnight,” she said. “He was like, ‘I’m sorry for my delay. I was in surgery.’ We weren’t even his patient, and he didn’t owe me anything. I was really impressed.”

She sent Hoernschemeyer her son’s X-rays. He concurred with the Louisville specialist that the curve needed to be monitored but wasn’t significant enough to require surgery.

In October of the next year, Brown’s condition took a turn. His spine’s curve had increased to 48 degrees. He needed surgery. The question was whether it would be fusion or VBT.

“What played heavily for us was him retaining his flexibility and having the option to return to wrestling, which is what he loves, and also protecting his organs and health,” Ann said. “He was only 16, and we were looking for something that would allow him to make his own decision down the road if he needed to. Fusion was such a permanent decision.”

Brown had the VBT procedure in December 2016. The surgery went well, and after following the Team Integrated Enhanced Recovery protocol, he was released from the hospital six days later. He had to sit out the rest of his junior season of wrestling, but three months after surgery, he was cleared to resume full activities.

“It got back to normal fast,” Brown said.

He was back on the mat as a senior. Brown said he had no concerns about how his back would hold up to all the twisting of a wrestling match. His mother was worried before his first competition.

“I was sitting on the sidelines on the edge of my seat,” she said. “When I realized he won, I just started crying.”

Brown went on to win sectional and regional titles in the 113-pound weight class. Late in the season, he received a wrestling scholarship offer. He accepted and is continuing to do what he loves in college.

“We really thought high school wrestling was going to be it, then he got recruited for college,” Ann said. “Mind blown. We’re just grateful and thankful.”
Expectant parents now can navigate pregnancy with their peers in University of Missouri Health Care’s CenteringPregnancy program.

CenteringPregnancy combines three important components — medical appointments, education and support — into 10 discussion-based group sessions. Each group includes eight to 12 pregnant women, beginning in their second trimester. Each meeting lasts two hours.

“The first 30 minutes are devoted to making sure all of the babies are doing well,” said Courtney Barnes, MD, an obstetrician at Women’s and Children’s Hospital. “Each mom goes behind a privacy screen for a brief examination. During this time, they can ask questions or voice concerns they would rather not share with the group. Then, the remaining 90 minutes of the session are dedicated to education and group discussion.”

Barnes said each discussion begins with a predetermined topic, but the group is welcome to steer the conversation in any direction. The doctor’s role is to facilitate and provide advice.

“The best part about being in a group setting is that people will ask questions you aren’t thinking of,” said Alicia Nettrour, a physical therapist at MU Health Care who completed the CenteringPregnancy program. “You’re getting a lot of information in that two-hour time period, some of which you might not learn during an individual appointment.”

CenteringPregnancy is an evidence-based national program. Research has shown group prenatal care reduces the risk of premature birth and postpartum depression and increases breastfeeding success. Barnes said these benefits occur because of the bonds that form between attendees.

“Each session felt like the best doctor visit ever with the added bonus of a support group,” CenteringPregnancy graduate Allison Young said. “My husband and I met all these wonderful couples who were going through the same thing at the same time. There were a few sessions where we talked about difficult subjects, and everybody in the group was just so supportive.”

Though group prenatal care might not be for everyone, Barnes said she encourages all healthy pregnant women to try it. She also said future CenteringPregnancy groups will be catered toward women with higher-risk pregnancies.

“Enrolling in CenteringPregnancy doesn’t mean you have to stay in the group the entire time,” she said. “We do encourage people to try two or three sessions because it can take a little time to get comfortable. But you can absolutely switch to a traditional model if you decide group care isn’t for you.”

To learn more about CenteringPregnancy, visit muhealth.org/centering
Andrea Schuster, MD, plans ahead. She mapped her career out before she started kindergarten. “I knew I wanted to be a doctor since I was 5,” she said.

Schuster knew the destination but not the route. No one in her family had worked in health care, and growing up in Pilot Grove, Missouri, she had no connections to doctors who could serve as mentors. She didn’t even know how to begin the process of applying to medical school.

During Schuster’s freshman year at the University of Missouri, a counselor alerted her to the MU School of Medicine’s Rural Track Pipeline Program. The program is designed to address the state’s physician shortage, which is most glaring in rural counties, so every Missourian has convenient access to health care.

“The long-term goal of the Rural Track Pipeline Program is to increase the number of rural physicians in areas of need, regardless of specialty,” said MU Associate Dean for Rural Health Kathleen Quinn, PhD. “Obviously, primary care is what most of the physicians in a rural community practice, but general surgeons, OBs and psychiatrists are very much needed in those small towns. We also work with the communities to recruit the rural students into the pipeline that might not realize they can become physicians or other health care providers.”

The first part of the pipeline is the Bryant Scholars Pre-Admissions Program. Students who are accepted as Bryant Scholars are guaranteed a spot in the MU School of Medicine. As medical students, they participate in the Rural Scholars Program in which they learn on the job with physicians in rural Missouri.

Schuster said her stints working in the clinic of Julie Burdin, MD, a family practitioner in Macon, Missouri, shaped her vision of what she wanted to become. “She was really part of that community,” Schuster said. “Plus, she did prenatal care, which I never realized I wanted to do before.”

Rural Track graduates aren’t required to practice in Missouri or in small towns, but most do. Quinn said 70.2 percent of the students who began as Bryant Scholars practice in the state and 59.6 percent of them are in rural Missouri.

Schuster is one of the success stories. After finishing her residency in 2017, she accepted a position at MU Health Care’s Family Medicine Clinic in Fayette. Schuster now owns a house and 10 acres in Fayette, which is just 27 miles from the hometown where her dreams of becoming a doctor began.

She got a little help from the Rural Track Pipeline Program to show her the way. “I am so grateful to get that guidance,” Schuster said. “It truly is a pipeline. It helps get people where they need to be.”

To learn about the Rural Track Pipeline Program, visit medicine.missouri.edu/rural.
Marianne McClain, PsyD, and Laura Schopp, PhD, of the MU School of Health Professions held workshops to teach about 120 behavioral health care professionals how to help patients with cystic fibrosis.

“We saw a need to train mental health providers who were already a part of these rural communities in the specific needs of CF patients.”

— LAURA SCHOPP, PhD
Patients Get Mental Health Help

Project Helps Cystic Fibrosis

In June 2017, University of Missouri School of Health Professions and School of Medicine faculty were awarded a grant from the Cystic Fibrosis Foundation for a project that provides mental health services to adults with cystic fibrosis (CF).

Through this collaboration, a network of about 120 Missouri behavioral health care providers learned more about the disease.

Cystic fibrosis is a progressive, genetic disease for which there is no cure. It causes persistent lung infections and limits the ability to breathe. These chronic symptoms come with hospitalizations and rigorous treatment plans that make it hard to complete school or hold down a job with regular hours. The Cystic Fibrosis Foundation estimates 40 percent of people with CF have secondary symptoms, such as anxiety and depression.

“If you can't breathe, that's pretty stressful, and there are other associated challenges in people with CF,” said Laura Schopp, PhD, the chair of the School of Health Professions' Health Psychology Department. “For example, males with CF are infertile, and CF patients who have received lung transplants are on immunosuppressants, which can make things like flu season especially complex if accommodations need to be made at work or school. So anxiety and depression among this population are relatively high. Yet there are very few mental health providers who are well-versed in CF.”

Melissa Kouba, MD, former director of MU Health Care’s Cystic Fibrosis Center, had already added a social worker to the care team she oversaw to screen every CF patient at the center for anxiety and depression.

“Our patients are very medicalized already,” Kouba said. “They have to do breathing treatments for a minimum of 45 minutes twice a day, up to four times a day. They must learn how to clean, manage and travel with their equipment, and most patients take many pills several times a day. So asking them to add another appointment to their already busy schedules to discuss management of life with a mental health professional isn't ideal, especially if this professional doesn’t know about CF and they have to spend time explaining their disease to them.”

Geography is another obstacle. There are only three CF centers in Missouri — MU Health Care's Cystic Fibrosis Center and facilities in Kansas City and St. Louis. Because of its location, Columbia's center sees patients from rural areas all over the state.

Through the efforts of MU faculty collaborators funded by this grant, physicians at the CF centers now have a referral list of psychologists, social workers, psychiatrists and nursing professionals located all over Missouri who can help patients locally so they don’t have to travel long distances for their mental health appointments in addition to their physical ones.

“We saw a need to train mental health providers who were already a part of these rural communities in the specific needs of CF patients,” Schopp said. “What's unique about this grant is we were able to build in sustainability and accessibility. Now a local person is prepared to support a patient's mental health needs, rather than someone who would be assigned to that area with grant dollars and then have to leave when the grant funding ran out. We wanted to create a team of people with those skills so that we can provide access today and access tomorrow.”

After receiving the grant, Schopp and Marianne McClain, PsyD, a postdoctoral fellow in the Department of Health Psychology, spent about six months shadowing Kouba to learn more about the disease. Next, Schopp and McClain developed a four-hour workshop designed for mental health professionals they presented at federally qualified health centers throughout the state.

In addition to mental health professionals, several nurse care managers attended the workshops. Nurse care managers are often the health professionals closest to CF patients, as they facilitate care among pulmonology, nutrition, respiratory therapy and physical therapy appointments and seek out mental health treatment where they can.

“We got a lot of feedback from the nurse care managers that the workshops were very valuable to them, and not just in learning more about the mental health needs of CF patients, but also brief intervention strategies that they could perform themselves.”

— MARIANNE MCCLAIN, PsyD
At the Match Day ceremony on March 15 at the MU School of Medicine, fourth-year medical students opened envelopes that revealed where they would begin their careers as resident physicians. Katherine Caldwell celebrates with Sarju Panchal after learning they would both serve their residencies at the Hospital of the University of Pennsylvania.
ABOVE: Kristen Fritschie, the senior coordinator of Children’s Miracle Network for Children’s Hospital, accepts a check for $243,453 that was raised during the Missouri Credit Union Miracles for Kids Radiothon in February. The money will cover the costs of lifesaving equipment and support programmatic needs.

LEFT: After nursing school, Erin Kelley, RN, knew she wanted to work in a procedural area where she could experience new challenges every day. She found the perfect fit at MU Health Care, where she is now the surgical coordinator for the neurosurgery department.

ABOVE: Triplets Atticus, Temperance and Serenity Turner spend their first Valentine’s Day together at Children’s Hospital.
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