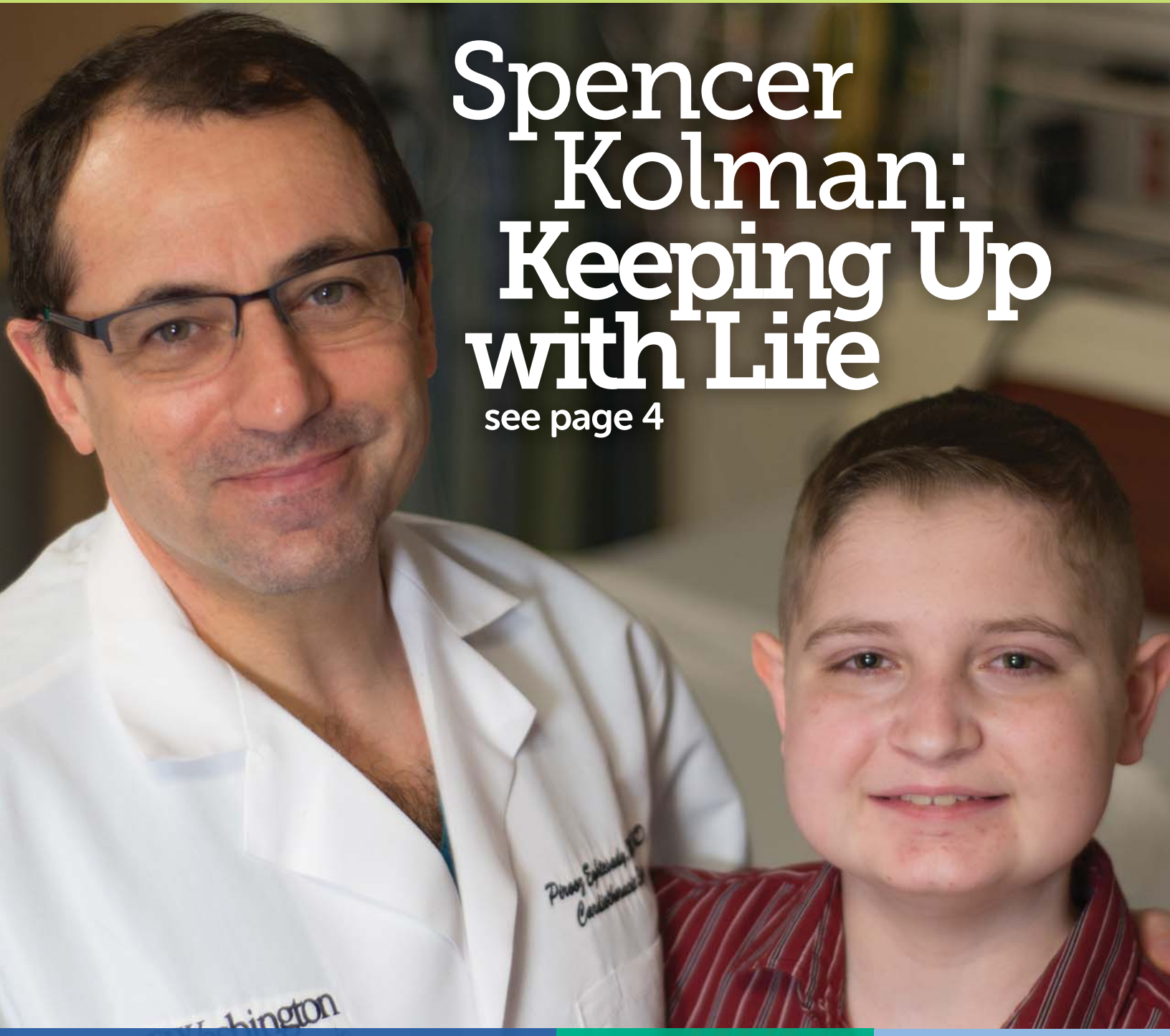
Fall 2017

Guardians for Physicians

Stories of Discovery, Innovation and Care from St. Louis Children's Hospital



Spencer Kolman: Keeping Up with Life

see page 4

Children's HOSPITAL • ST. LOUIS
BJC HealthCare

Washington University in St. Louis Physicians

Guardians

Stories of Discovery, Innovation and Care
from St. Louis Children's Hospital

St. Louis Children's Hospital
One Children's Place
St. Louis, MO 63110
800.678.5437

StLouisChildrens.org

MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

BEST CHILDREN'S HOSPITALS U.S.News RANKED IN 10 SPECIALTIES 2017-18

To our physician partners:

From the moment you choose to specialize in pediatrics, you join an elite team that defends children against society's most pernicious adversaries. We know childhood illness does not discriminate by geography, economics or lifestyle. And it is our collective calling to protect current and future generations from the devastating consequences of cancer, heart disease, neurological disorders, birth defects and all of childhood's darkest enemies—through clinical excellence, research and innovation.

We challenge convention and pursue innovations to unlock the genetic origins of pediatric cancers, or to develop new immunologic or pharmacologic strategies to prevent brain tumors or seizures. We use innovative surgical techniques to cure birth defects in utero.

At St. Louis Children's Hospital, we are Guardians of Childhood™. Along with our partners at Washington University School of Medicine in St. Louis, we recognize that doing what's right for kids means protecting their right to be kids.

Whether that's precision medicine based on sequencing the human genome, much of which was unraveled here on our Medical Campus; the development of an experimental brain tumor vaccine funded in part by our Children's Discovery Institute; or the creation of new, non-invasive cardiac interventions conducted via holograms—we will be relentless in our pursuit of better medicine, better health and a better future for all children and their families.

In June, we were honored to once again be nationally ranked in all 10 categories of *U.S. News & World Report*'s Best Children's Hospital survey.

At St. Louis Children's Hospital and Washington University School of Medicine, we are proud to lead some of the most significant medical advances on the journey toward child health. We are Guardians of Childhood. And we hope you'll join us.

With gratitude,

Joan Magruder
President,
St. Louis Children's Hospital

Gary Silverman, MD
Pediatrician-in-Chief

3,334
Employees

818
Physicians

116
Interns, Residents and Fellows

85 (expanding soon to 147)
Neonatal Intensive Care Unit (NICU) Beds

45
Pediatric Specialties

10,467
Inpatient Admissions

10,534
Outpatient Surgeries

St. Louis Children's Hospital

By the numbers

for year ending 2016

52,029
Emergency Department Visits

$50 million
in Scientific Grants Awarded by the Children's Discovery Institute

500,000
Free Community Health Care Screenings

$374 million
National Institutes of Health Funding to Washington University School of Medicine in FY2016

51,000
Kid Care App Downloads

Spencer with his cardiothoracic surgeon, Dr. Pirooz Eghtesady

Spencer Kolman:

Keeping up with life

In 2016, the only pediatric heart-lung transplant in the U.S. was performed at St. Louis Children's Hospital.

At 15, Spencer Kolman had a list of "I want to..." dreams:
I want to continue as an Eagle Scout.
I want to go back to playing trumpet.
I want to play hockey again.
I want to rejoin the theater group.
I want to keep up.

Spencer's inability to "keep up" was rooted in the treatment he received as a toddler for rhabdomyosarcoma, a cancer of the connective tissue. Although chemotherapy, surgery, radiation and more chemotherapy resulted in his cancer going into remission, the treatments also eventually led to Spencer developing breathing problems. In January 2013, he collapsed while playing ice hockey due to shortness of breath and exhaustion. Although asthma and walking pneumonia were considered, the correct diagnosis was pulmonary fibrosis caused by his cancer treatments. His condition progressed to the point where he constantly needed oxygen, and breathing became so hard he was fatigued all the time. He had to drop his extracurricular activities and, even though he began using a mobility scooter to get around school, he was so tired he could only manage a half-day.

Spencer's lungs were in terrible shape and so was his heart from working so hard to compensate for his damaged lungs. His doctors told Spencer and his family that he needed a heart-lung transplant.

"We're from the Chicago area, and there are no hospitals around us that do pediatric heart-lung transplants. I was given a list of five hospitals in the whole United States that do this sort of surgery," says Spencer's father, Ken Kolman.

Physicians at other hospitals thought Spencer's deteriorating condition made it too risky to operate. Despite that prognosis, the family wanted to give Spencer every chance possible to survive. That's when they contacted St. Louis Children's Hospital.

> "About 75 percent of the cases we do are 'redo' lung transplants after an initial transplant fails."

Extreme distress

When I saw Spencer, he was in extreme distress," says Washington University physician Pirooz Eghtesady, MD, PhD, co-director of the St. Louis Children's and Washington University Heart Center and chief of pediatric cardiothoracic surgery. "Although physicians at the other institutions thought the surgery was prohibitively risky and extremely difficult, that was not my assessment. I don't completely fault the other institutions because Spencer had dense scar tissue. But many of the surgeries we perform are difficult and complicated; about 75 percent of the cases we do are 'redo' lung transplants after an initial transplant fails."

According to Washington University pulmonologist Stuart Sweet, MD, PhD, medical director of the hospital's lung transplant program, Spencer was not a typical case.

"By the time he got to us, he was a little sicker than we would like," he says. "We do consider other peoples' opinions when we evaluate patients, but we have our own set of criteria upon which we base our evaluations. Our criteria reflect our determination that a patient will benefit from the operation we're providing them and take into account any significant risks."

He adds, "The concerns raised elsewhere didn't apply to our expertise or our approach, so it really was not a difficult decision for us medically. The main question really was would we be able to get him organs in time to transplant."

The lifesaving donation

The answer to that question came quickly. Spencer was admitted to Children's Hospital on November 11; on November 29, a heart and lungs became available.

"This was an en bloc transplant, meaning the heart and lungs were transplanted together rather than separately," says Dr. Eghtesady. "At one point during the procedure there was nothing in the chest cavity. Even for those of us involved, it is hard to fathom that someone is being sustained alive with a heart-lung machine, which is what we need to do."

During surgery, Dr. Eghtesady and his colleagues removed the great vessels of the heart, as well as the roots of both lungs. The lungs and heart were then removed and the new organs implanted. The surgeons also worked to fix Spencer's airway and the circulation to his heart. The surgery lasted five hours, although these complicated surgeries can take up to 12 hours.

"Just seeing him the next day—the first day—and how well he was doing. He was already looking like he was ready to have the breathing tube removed. We were delighted," says Dr. Eghtesady.

Spencer has improved steadily since receiving his new organs and shows no signs of rejection. Of all organ transplants, lungs have the highest failure rate, with 50 percent failing within five years.

"The hope is, you'll beat the odds if you make it to five years, and you'll be really lucky if you make it to 10 years," says Dr. Sweet. "We like to think that children who survive 10 years are likely to continue to do well."

For now, Spencer is catching up on his "I want to" list. In late February, he returned to his Chicago-area home. In a letter thanking his donor family, he wrote that he now will be able to earn his Eagle Scout award, he is back to playing trumpet and he hopes to return to hockey soon. As a healthy teenager, it's certain his to-do list will keep expanding.

Gabe Scalise shows the positive attitude that sustained him and his family throughout his treatment for a brain tumor.

Game changers

in brain tumor treatment

Improvements in childhood brain tumor survival rates have led to an increasing emphasis on quality of life after treatment. Cognitive deficits caused by the tumor itself, its removal, or radiation therapy or chemotherapy are the greatest detractors from that quality of life. For years, physicians have monitored and measured the cognitive damage that occurs in the brains of children after tumor treatment. Sometimes that damage is minimal. Sometimes it's devastating.

One patient's challenges

Gabe Scalise, diagnosed in September 2015 at age 15 with a brain tumor, fell somewhere in between those extremes. A promising young baseball player and the fastest runner on his team, Gabe suddenly began having trouble keeping his balance.

"When he started having trouble hopping and running, we really became concerned," says his father, Jeff.

A confirmed diagnosis seen clearly on an image taken at St. Louis Children's Hospital began a long, hard-fought battle that included brain surgery, MRIs, radiation, setbacks and challenges. Weeks of dizziness and nausea, a year of weakness and double vision (finally repaired with corrective surgery)—all were met by Gabe and his family's positive attitude, optimism and celebration of each therapeutic milestone reached.

Gabe with his family

And when the small amount of tumor left in Gabe's brain grew slightly and required treatment with proton beam radiation, Jeff Scalise wrote on Gabe's CaringBridge page, "St. Louis is one of only 12 places in the United States that has this technology, and it is right here in our backyard. Gabe is going to be just fine."

Today, Gabe is making good grades, but he struggles with short-term memory and retention issues he never before experienced. In addition, lingering double vision keeps him sidelined from baseball.

Researching the biomarkers of cognitive deficits

Earlier this year, the Children's Discovery Institute (CDI), a research partnership between St. Louis Children's Hospital and Washington University School of Medicine in St. Louis, funded research to identify the biomarkers of cognitive deficits in brain tumor survivors like Gabe. This study aims to develop the necessary tools to enhance cognitive recovery.

The co-principal investigators of this research are Washington University pediatric neuro-oncologist Joshua Rubin, MD, PhD, and Bradley Schlaggar, MD, PhD, the A. Ernest and Jane G. Stein Professor of Neurology and neurologist-in-chief at St. Louis Children's Hospital. Together, they are calling on the expertise from the Washington University School of Medicine's departments of pediatrics, neurology, neurosurgery, radiology and radiation oncology, and the Washington University School of Engineering and Applied Sciences biomedical engineering program.

"That is what it takes to do the computational work necessary to make predictions about individual patients," says Dr. Schlaggar. "It's a highly aspirational study, but that's the beauty of the CDI and its willingness to take risks on new and possibly game-changing ideas. With the imaging and computational capabilities available here, we are uniquely positioned to assess how brain tumors and their treatments contribute to cognitive deficits."

> "St. Louis is one of only 12 places in the United States that has this technology, and it is right here in our backyard."

The researchers will gather neuro-images of the approximately 52 brain tumor patients diagnosed at or referred to Children's Hospital for confirmation of their diagnoses per year. By delving deeply into the data generated from the images, they hope to begin making more accurate predictions regarding who will be at risk for developing learning or communication problems.

"It's all about personalized medicine and being able to say to a patient 'this is exactly where you stand in the continuum of risk for a particular outcome, and this is how we are going to change that trajectory,'" says Dr. Schlaggar.

Gabe and his family hope these CDI investigators hit it out of the park.

NICU study highlights need

to reduce loud noises, boost beneficial sounds

In a study focusing on premature infants' exposure to sound in the neonatal intensive care unit (NICU), researchers at Washington University School of Medicine in St. Louis found:

- Preemies may be exposed to noise levels higher than those deemed safe by the American Academy of Pediatrics (AAP).
- Preemies may not get enough exposure to beneficial sounds such as language and music that can improve early development, especially those in private rooms where there may be longer periods of silence compared with rooms that have multiple cribs.
- Many of the sounds in the NICU are mechanical in nature and therefore very different from the beneficial sounds of the human voice.

The study was published February 8, 2017 in *The Journal of Pediatrics.*

"We know that some exposure to sound—even among preemies—can be beneficial," says first author Bobbi Pineda, PhD, a Washington University occupational therapist at St. Louis Children's Hospital. "But sounds don't occur alone. When parents talk to their newborns, they often also hold and caress their babies—all things that help promote healthy development."

Sounds in a busy NICU are mechanical in nature and different from the beneficial sounds of the human voice.

> We know that some exposure to sound—even among preemies—can be beneficial.

Working with Bradley L. Schlaggar, MD, PhD, the A. Ernest and Jane G. Stein Professor of Neurology, director of the Division of Pediatric and Developmental Neurology, and neurologist-in-chief at St. Louis Children's Hospital, Dr. Pineda and her colleagues focused on sound because her previous research indicated that, compared with children in open hospital wards, babies in private rooms in the NICU had poorer language development at age 2.

Using bedside digital language-processing devices, Dr. Pineda's team measured the amount of sound in the environments of 48 premature infants in the NICU at St. Louis Children's Hospital—33 in an open ward and 25 in private rooms. All of the babies were born at 28 weeks of gestation or earlier, and the recordings were gathered within two weeks of each preemie's birth, again at 30 weeks, at 34 weeks, and then at about 40 weeks, when babies are considered full-term.

The researchers found that the average noise level in the NICU was just under 59 decibels, with peak noise levels reaching almost 87 decibels. The AAP recommends avoiding levels above 45 decibels.

Dr. Pineda explains that avoiding higher levels can be difficult, especially when using ventilators, which are used around the world as a necessary, life-saving intervention for some preemies.

Additional findings included:

- As preemies in the study approached the dates at which they were supposed to have been born, the noises they encountered often decreased.

Parents talking with their babies while holding them helps promote healthy development.

- Language exposure increased over time, but in general there was very little exposure to meaningful language: only 30-35 minutes during a 16-hour period.
- During the 16-hour periods measured, babies in private rooms experienced, on average, almost two more hours of silence.
- Babies were exposed to more language when their parents were present.

In conjunction with Joan Smith, PhD, RN, Dr. Pineda has now completed a pilot study and launched a randomized clinical trial to evaluate the effects of specific noise levels and other stimulation, based on the infant's medical course and age, that might help premature babies flourish as they struggle through their first several weeks or months of life outside the womb. The intervention focuses on engaging parents in providing appropriate sensory exposures for their infants since the involvement of parents can be a powerful aid to healthy development.

Pineda R, Durant P, Mathur A, Inder T, Wallendorf M, Schlaggar BL. Auditory exposure in the neonatal intensive care unit: room type and other predictors. The Journal of Pediatrics. *Published online Feb. 8, 2017.*

This work was supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the National Institutes of Health (NIH), grant numbers K12 HD055931 and U54 HD087011. Additional funding was provided by The Foundation for Barnes-Jewish Hospital and the Washington University Institute of Clinical and Translational Sciences Clinical and Translational Funding Program, grant NIH/NCATS UL1 TR000448. The current project is funded by the Betty and Gordon Moore Foundation and the University Research Strategic Alliance.

The future

of augmented reality is here

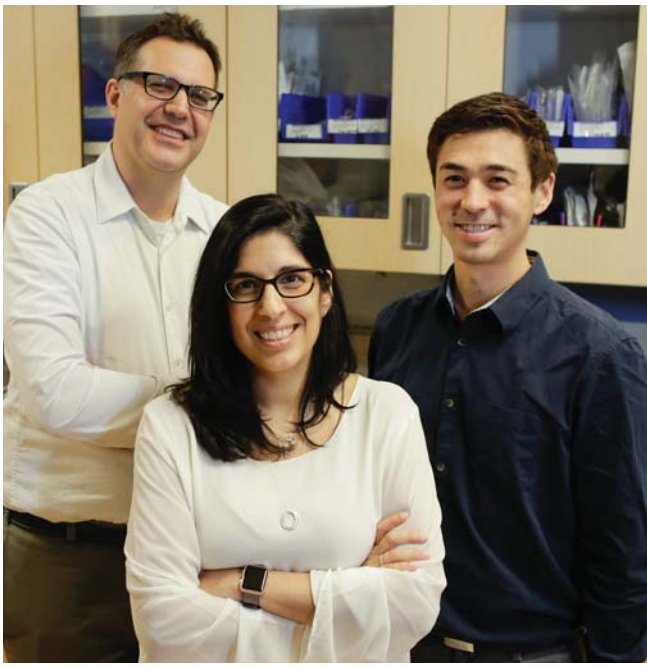
When Washington University in St. Louis biomedical engineer Jon Silva, PhD, was at a recent Microsoft conference, he saw a demonstration of the Microsoft Hololens, the first self-contained hologram computer. This technology enables its user, who is looking through specially designed goggles, to interact and engage with three-dimensional holograms in their three-dimensional space. They call it augmented reality.

He called his wife and, after explaining what he'd just witnessed, asked, "Do you think you could use this in your lab?"

His wife is Jennifer Silva, MD, Washington University pediatric cardiologist and director of pediatric electrophysiology at St. Louis Children's Hospital. Dr. Silva spends her days performing minimally invasive procedures on children and young adults with heart rhythm abnormalities. Often, her work involves threading catheters up through blood vessels into the heart and ablating the heart tissue to prevent abnormal electrical signals from moving through the heart. Currently, she watches her work on a two-dimensional display from which she has to create a mental three-dimensional model based on her knowledge of heart anatomy. This method has its limitations, given that children with abnormal heart rhythms very often have abnormal heart anatomies and no two hearts are the same.

So, her answer was yes, and when could she get her hands on it?

Dr. Jon Silva flew home and went to work on what he calls the enhanced electrophysiology visualization and interaction system. He wrote a computer program that connects the heart mapping systems used to construct point-to-point maps of the heart's interior surface to the holographic display software. The result, as hoped, is a hologram of a heart with which Dr. Jennifer Silva will be able to interact. They have created prototype holograms of past patients. While wearing the Hololens goggles, Dr. Jennifer Silva can see a visualization of a patient's heart floating in mid-air in front of her. She is able to move around it freely and collaborate with those assisting her with a



Dr. Jon Silva (left), Dr. Jennifer Silva and Mike Southworth are developing technology that produces holograms of the heart.

Dr. Jennifer Silva, Dr. Jon Silva and computer engineer Mike Southworth learn how to interact with the software.

procedure. As a catheter moves around the heart in real time, she can see where it's going and what it's touching. With this technology, she will be able to provide the therapy needed more precisely and quickly.

"I have spent years looking at images of the heart, whether they be through electro-encephalography, X-ray or fluoroscopy in the cath lab. And, I have never seen the heart the way I've seen it through this system," says Dr. Jennifer Silva. "What's amazing is that I learn something new about the heart's anatomy every time I interact with the holograms. That's good news for my future patients."

To take the technology to the human prototype stage, the Silva team proposed and was awarded a three-year grant from the Children's Discovery Institute (CDI), a research partnership between St. Louis Children's Hospital and Washington University School of Medicine. In that time, they hope to complete a proof-of-concept study of pediatric patients undergoing ablation procedures. The CDI funding has allowed them to hire Mike Southworth, a computer engineer with advanced degrees in electrical engineering and computer science from Johns Hopkins, who worked at Boeing prior to joining the team. He will further refine the computer programming needed to bring the 3-D holograms to life.

"It seems futuristic, but it's happening right now," Dr. Jon Silva says. In fact, the research team anticipates being approved for a human clinical trial by the end of 2017.

Dr. Jennifer Silva marvels at the speed with which they've been able to create a prototype to test. "Typically, when you start a research project, you know it's going to take years before you have a work product, whether that be a manuscript or a clinical trial," she says. "Because we already have a prototype we can work with in augmented reality space, it seems like a whirlwind. We are already learning how to interact with a patient-specific hologram and can watch a catheter work inside that hologram, that heart, with such clarity."

But, she adds, this is bigger than how it affects the work in her lab. "We think we have a real opportunity for Children's Hospital to be a destination for procedures that are informed by augmented reality, not just in the cardiac cath lab, but throughout the hospital."

> "What's amazing is that I learn something new about the heart's anatomy every time I interact with the holograms. That's good news for my future patients."

Savoring the challenges

of epilepsy surgery

As a licensed pilot, Matthew Smyth, MD, understands the lure of flying—the freedom of the open skies, the challenge and reward of controlling a powerful machine that acts as a magic carpet to destinations near and far.

Dr. Smyth uses advanced neurosurgery techniques to change the lives of patients like Chloe.

As a Washington University pediatric neurosurgeon at St. Louis Children's Hospital, Dr. Smyth understands the significance of a person obtaining a pilot's license despite having undergone epilepsy surgery. There are only a handful of pilots in the world with such a medical history, and Dr. Smyth performed epilepsy surgery for one of them. The young man's ability to accomplish what could have been an unattainable goal is why Dr. Smyth savors the challenge of performing complex surgeries for children and adolescents with epilepsy.

"Epilepsy is a common and terrible disease. But for the majority of patients who do not respond to medical management, there is an epilepsy surgery that may improve or cure their condition," says Dr. Smyth, the Appoline Blair Professor of Pediatric Neurological Surgery and co-director of the Washington University Pediatric Epilepsy Center at St. Louis Children's Hospital. "For me, performing these surgeries is intellectually stimulating because of the complexities inherent in working in and around the critical functions of the brain. But for the patients, the outcomes are extraordinary. You're not relieving a temporary health problem; rather, you are impacting in a dramatic way the quality of their lives for years to come."

Dr. Smyth's interest in neuroscience began in high school and continued at Cornell University, Ithaca, N.Y., where he completed a bachelor of arts in neurobiology and behavior. Although

he considered pursuing a doctoral degree in neuroscience research, in the end working with people was more appealing than spending time in a laboratory. As a third-year medical student at the University of California-San Francisco School of Medicine (UCSF) and then again as a resident, he became fascinated by pediatric neurosurgery.

"I discovered what most physicians working with children appreciate—kids are resilient, they heal quickly and it's truly rewarding to help improve their health," he says.

After completing residencies in neurological surgery at the University of California-Irvine School of Medicine and UCSF and a pediatric neurosurgery fellowship at Children's Hospital of Alabama at Birmingham, in 2003 Dr. Smyth joined the faculty at Washington University School of Medicine in St. Louis.

Within weeks of arriving, Dr. Smyth met 5-year-old Peyton Womack. Peyton's parents, Gary and Debbie Womack, had been told Peyton would never walk or communicate. But he walked at age 3 and by 4 was communicating through sign language and a few words. Still, the right hemisphere of his brain was large, malformed and in a constant state of seizure.

That's when Dr. Smyth suggested Peyton undergo a hemispherotomy, a surgical procedure in which one cerebral hemisphere causing seizures is removed or disconnected. At that time, Dr. Smyth had performed five of these procedures, all with good outcomes. The Womacks decided to place their faith in Dr. Smyth.

Today, Peyton is 19 and seizure free. He has finished school and is planning for his future. And Dr. Smyth has gone on to perform 85 more hemispherotomies, helping to make the Washington University Pediatric Epilepsy Center a national leader in epilepsy surgery.

"There have been so many significant advances in epilepsy treatment over the past 20 years—new anti-seizure drugs, improved surgeries that are less invasive and painful, and advanced uses of magnetic resonance imaging," says Dr. Smyth. "Historically, our program was built on the foundation established by Dr. Sidney Goldring, who is considered one of the fathers of epilepsy surgery. Today, our Epilepsy Center offers in-depth expertise by leading epileptologists and pediatric neurosurgeons, as well as every treatment and diagnostics available to children with epilepsy, whether it's medicine, diet, testing, imaging or surgery."

> "You are impacting in a dramatic way the quality of their lives for years to come."

Dr. Smyth has particular expertise in two of the most recent advances: the ROSA™ robotic surgical assistant and laser ablation surgery. ROSA serves as both a surgical assistant and GPS for the brain during stereotactic electroencephalograms. Laser ablation uses an MRI-guided, high-intensity laser probe to produce heat and permanently ablate brain tissue causing seizures.

"Both of these new technologies have the potential for significantly changing how we identify and treat areas of the brain in which seizures occur," he says. "We also are among the earliest in the nation to use NeuroPace, a technologically advanced, implantable pacemaker for the brain that records seizure activity from implanted electrodes. The device senses and predicts seizures in real time, and then aborts them with little pulses of electricity. Currently, NeuroPace is approved for use in patients 18 and older, but we are hopeful it eventually will be approved for patients as young as 12 years old."

Advances in epilepsy treatment develop from research into the disorder, and Dr. Smyth and his colleagues in radiology are using MRI to conduct resting state functional connectivity studies and gain insights into how the brain resonates intrinsically. Their research has added significantly to the understanding of how the brain functions.

But, for Dr. Smyth, beyond the technology and surgical advances are the patients and the reminders of how their lives have changed—the photo of a young woman rock climbing, a little girl in a pink T shirt that says "Dr. Smyth is my McDreamy," a note from a grateful patient marking a 10-year, seizure-free anniversary and expressing the joy she feels daily in having peace of mind. Dr. Smyth may savor the challenges of epilepsy surgery, but he appreciates his patients' amazing lives much more.

For this young patient, Dr. Smyth is her McDreamy.

Building excitement

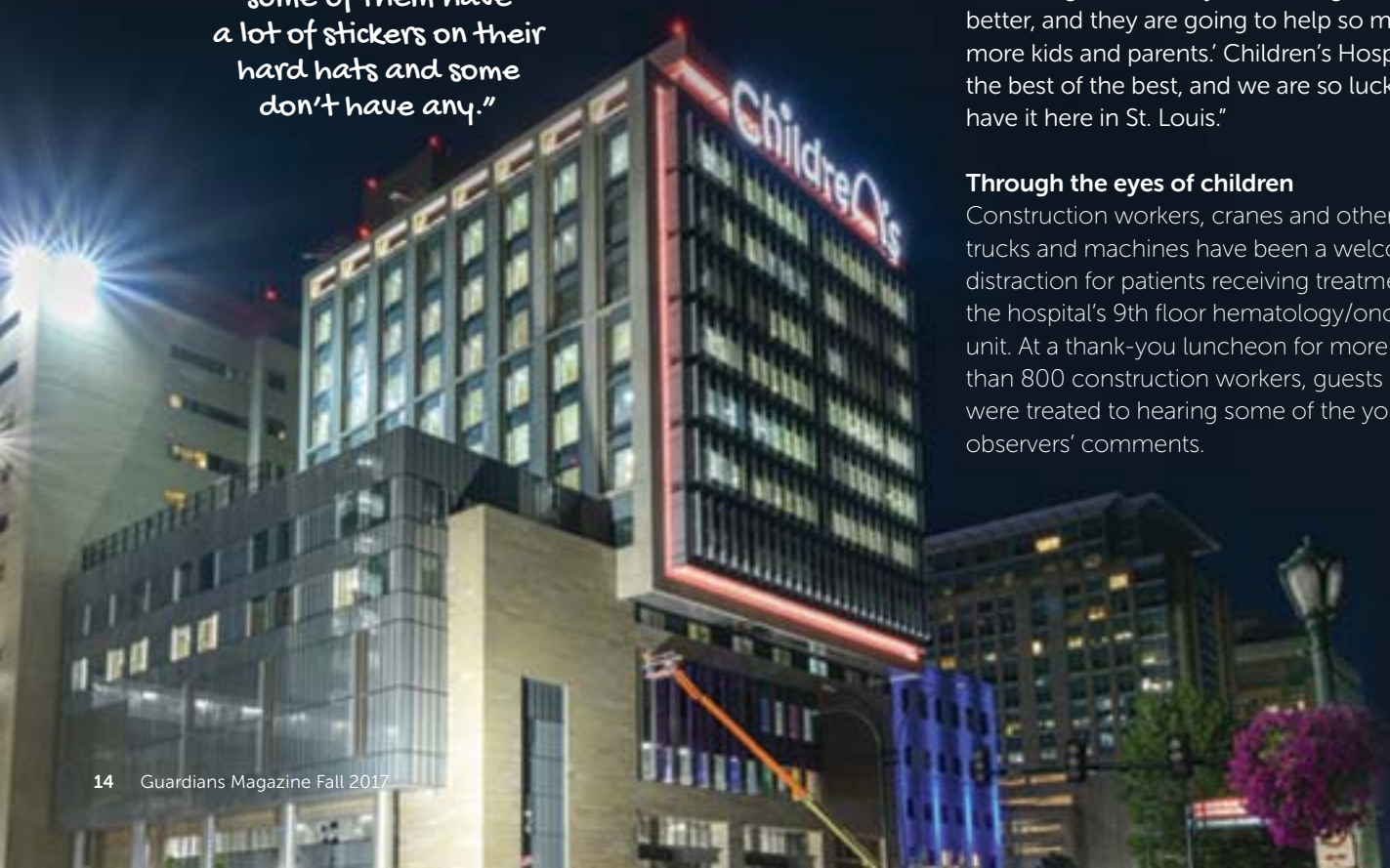
St. Louis Children's Hospital Expands to Meet Growing Needs

Any recent visitor to St. Louis Children's Hospital has likely noticed some major construction happening on the medical campus. The hospital is undergoing a major expansion project as part of a larger, multi-year BJC HealthCare Campus Renewal Project. Overall, the campus encompasses St. Louis Children's and Barnes-Jewish Hospitals along with Washington University School of Medicine in St. Louis.

"I like to look out my window at night and pretend the workers are playing hide and seek."

"I try to find the girl construction workers."

"I want to know why some of them have a lot of stickers on their hard hats and some don't have any."



The 12-story, 222,000-square-foot Children's Hospital expansion features a new bed tower. The facility will add 96 private inpatient beds, increasing the number of private beds, and space to accommodate a growing demand for diagnostic and treatment services. The newborn intensive care unit (NICU) will add new/renovated beds, eventually bringing the total to 147.

As part of the expansion, the women and infants program, in partnership with Barnes-Jewish Hospital, will provide families with a higher level of care. A high-risk baby delivered at Barnes-Jewish Hospital will be steps away from Children's Hospital's Level IV NICU, and mom will remain close by.

"Our new patient care facilities will be attractive and welcoming for our patients. More importantly, however, they are designed to incorporate the most advanced approaches to patient care, comfort, health and safety, while supporting the discovery and educational missions of Barnes-Jewish Hospital, St. Louis Children's Hospital and Washington University School of Medicine," says Joan Magruder, president, St. Louis Children's Hospital.

The feedback from those watching both inside and outside hospital walls is peppered with excitement and anticipation for what's to come. One patient's mother stated, "When I see the construction and how big it's becoming, I think 'they are making it so much better, and they are going to help so many more kids and parents.' Children's Hospital is the best of the best, and we are so lucky to have it here in St. Louis."

Through the eyes of children

Construction workers, cranes and other trucks and machines have been a welcome distraction for patients receiving treatment in the hospital's 9th floor hematology/oncology unit. At a thank-you luncheon for more than 800 construction workers, guests were treated to hearing some of the young observers' comments.

St. Louis Children's Hospital Expansion

Part of the campus-wide renewal project

Expands the newborn intensive care unit (NICU), which connects to Barnes-Jewish Hospital labor and delivery

Increases private inpatient beds

Includes diagnostics and outpatient clinic space

By the Numbers

222,000
square feet

12
stories

147
total new/renovated NICU beds

96
new private rooms

1
new additional rooftop garden

Van Hare Serves as President of Heart Rhythm Society

In May, George Van Hare III, MD, the Louis Larrick Ward Professor of Pediatrics and co-director of the St. Louis Children's and Washington University Heart Center, began his one-year term as president of the Heart Rhythm Society. Dr. Van Hare is the first pediatrician to lead the organization in three decades.

Fetal Therapy Think Tank Hosted in St. Louis

In May, Michael Bebbington, MD, MHSc, a Washington University fetal surgeon and director of the Fetal Care Center at Barnes-Jewish and St. Louis Children's hospitals, hosted the Fetal Therapy Think Tank. This was the fourth in a series of think tanks designed to brainstorm future directions for fetal care.

Heart Center Again Earns National Excellence Honor

The St. Louis Children's and Washington University Heart Center met clinical qualifications to maintain its status as an Optum Congenital Heart Disease Center of Excellence. St. Louis Children's Hospital is one of just 25 centers nationally with sufficient patient volume and experience to meet the Optum criteria.

Gutmann Awarded International Fellowships

David H. Gutmann, MD, PhD, the Donald O. Schnuck Family Professor and director of the Neurofibromatosis (NF) Center at Washington University School of Medicine in St. Louis, has been awarded the Alexander von Humboldt Professorship, Germany's highest academic award for researchers outside the country, and has been named an Einstein Visiting Fellow by the Berlin Institute of Health.

While continuing to lead his laboratory and the NF Center at the School of Medicine, Dr. Gutmann will collaborate with Helmut Kettenmann, PhD, at the Max Delbrück Center for Molecular Medicine in Berlin. They will co-lead a team investigating the relationship between a type of brain cell, known as microglia, and neurological diseases, including brain tumors and autism.

Children's Discovery Institute Approves More Than $3.7 Million in New Grant Funding

The Children's Discovery Institute (CDI), a multidisciplinary, innovation-based research partnership between St. Louis Children's Hospital and Washington University School of Medicine in St. Louis, recently announced funding for 13 new and wide-ranging pediatric research studies. Four of the studies take aim at childhood cancers; of those, two are clinical trials. In four other studies, researchers will tackle serious disorders of the gastrointestinal tract in children, including necrotizing enterocolitis (NEC). Learn more about CDI funding at ChildrensDiscovery.org.

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EPILEPSY SHOULD NEVER INTERRUPT SWIM CLASS

That's why we have iMRI technology on our side.

At St. Louis Children's Hospital, we believe childhood shouldn't be interrupted by serious conditions, like epilepsy. So our team uses the very latest pediatric insights and innovations, including intraoperative MRI, to treat epilepsy patients like Elsie who suffer from daily seizures. This unique technology allowed doctors to see images of her brain in real time during the surgery, for pinpoint accuracy in removing her lesions. Now Elsie is seizure free. Which means Elsie can get back to being a kid. Because we're not just experts in our field, we're Guardians of Childhood.

Meet Elsie and other inspirational patients at **StLouisChildrens.org/Elsie**

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