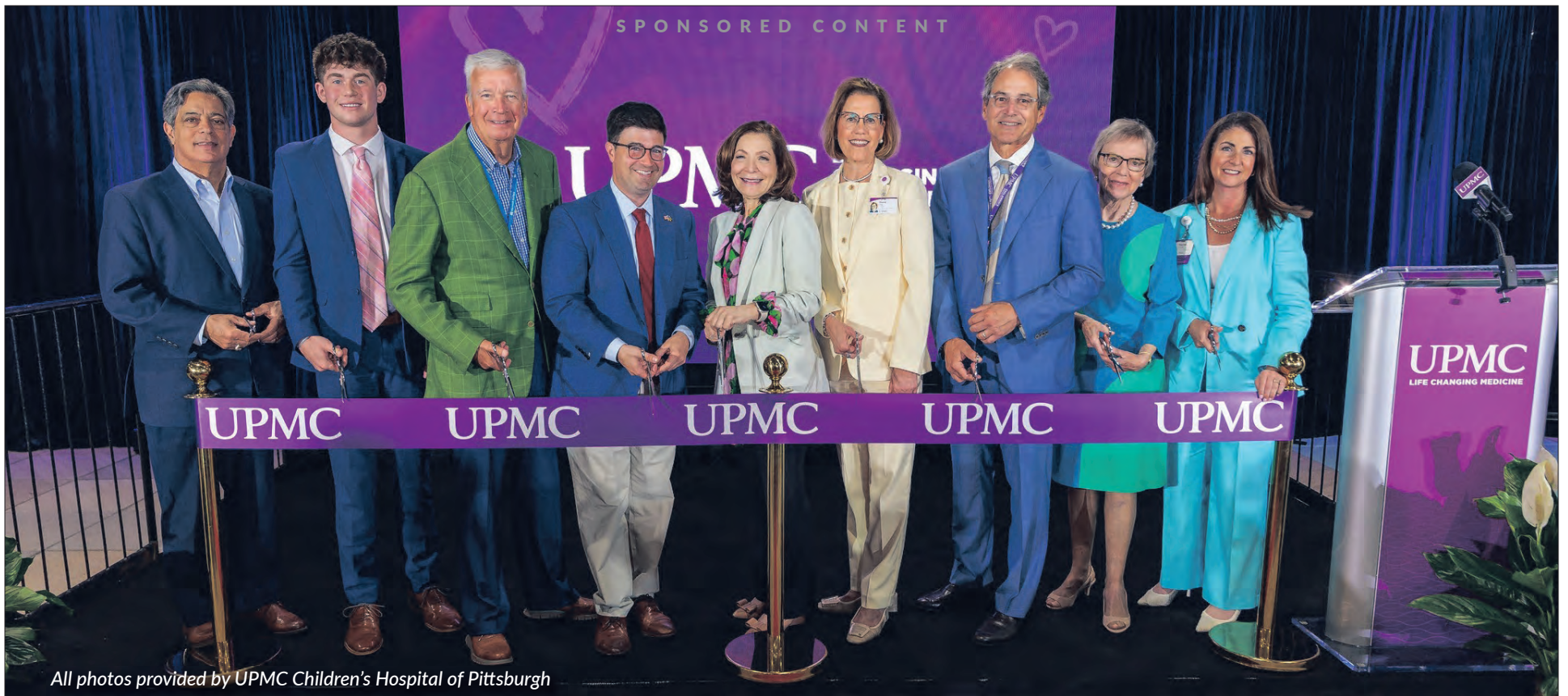




All photos provided by UPMC Children's Hospital of Pittsburgh



The new UPMC Children's Hospital of Pittsburgh Heart Institute provides state-of-the-art technologies and collaborative space as programs continue to grow

For generations, UPMC Children's Hospital of Pittsburgh has been a leader in treating childhood heart conditions and developing new cardiac therapies for families locally, nationally and globally. That's why it's important that the new Heart Institute be the "destination location," if you will, for

the best heart health services and research with all the familiarity of an established institution.

Each year, more than 20,000 patients are seen by the Heart Institute, including patients traveling from across the country and internationally.

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"Twenty-five percent of our congenital surgical volume comes from outside of Pennsylvania," says Katie Scollon, director of Heart and Vascular Services who has worked on the facility's design team for six years.

What originally started as a need to address equipment upgrades and expanded work areas grew into a much larger vision to create one multidisciplinary facility that consolidates all UPMC Children's heart care professionals and services, including cardiac MRI, cardiac catheterization, electrophysiology, procedural prep and recovery, cardiac anesthesia support and more, previously spread throughout different hospital locations.

"If I had one word to describe the space, it's 'collaboration,'" Scollon says.

Half of the funding for the \$85 million structure comes from the UPMC Children's Hospital Foundation.

A bridge from UPMC Children's Hospital's cardiac OR and ICU units connects the main hospital to the three-story, 50,000 square-foot facility. On the third floor is the revolutionary conference suite equipped for daily care planning meetings, multidisciplinary conferences, international symposiums and educational opportunities.

The center floor is home to procedural care, including the prep and recovery unit, with nine private rooms, and three innovative catheterization labs, one of which is directly connected to a cardiac MRI suite with CiMRIS (Cardiac Interventional Magnetic Resonance Imaging Suite) technology. The new



MRI suite is one of only a handful in the United States.

Opening in the spring of 2027, the top floor will feature outpatient services, including cardiology clinics, the echocardiogram lab and a congenital cardiac rehab gym and exercise lab.

The new facility was designed by HGA architecture and design firm with input from UPMC Children's officials and clinicians.

"The idea for the new building was that we give it a modern look, but it still feels like UPMC Children's Hospital of Pittsburgh," Scollon says.

Ultimately, patient outcomes improve when you have multidisciplinary activity happening in real-time for patient care."

KATIE SCOLLON, PA-C
Director of Heart and Vascular Services

Color choices align with those of the main hospital's bright primary colors and are mixed with subtle splashes of vivid plum, sunshine yellow and lime green. Much of the donated custom artwork is cardiac themed. For example, the Heart Institute logo is embossed into the plaster along the hallways of the first and center floors. And a nine-foot tall by 11-foot wide anatomically designed heart made of frosted polymer panels adorns the corridors on those same floors.

"These cardiac kids and congenital patients usually don't come here just

once; they have a lifelong condition so they are coming multiple times," Scollon says. "It's important to make them feel comfortable."

ADVANCEMENTS IN INTERVENTIONAL CARDIOLOGY

At UPMC Children's Hospital of Pittsburgh Heart Institute, patients with congenital heart disease receive care throughout their lives, from birth to their eighth and ninth decades. And the team at the UPMC Children's Heart Institute offers the most sophisticated technologies and new therapies to diagnose and treat more than 800 patients each year with pediatric and congenital heart issues.

"We've more than doubled the number of patients who receive interventional heart catheterizations each year since 2019, and we anticipate continued growth in both the interventional program and the overall cardiac catheterization program as we open this new space and offer new efficiencies," says Bryan Goldstein, MD, director of Cardiac Catheterization at UPMC Children's Hospital of Pittsburgh.

The new procedural floor features an imaging infrastructure that expands patient care. Adjacent to a dedicated cardiac MRI imaging machine, the catheterization suite includes three multi-functional labs that can be used for cardiac surgery, if needed. One of those labs functions as an electrophysiology lab; the other two suites are interventional, offering biplane fluoroscopy.

"That physical connection between the two allows us to do some procedures that most centers in North American can't do," Dr. Goldstein says.

For example, surgeons can see precise catheter location while doing a procedure with MRI-generated detailed images of the heart's tissues combined with the "bony" catheterization lab imaging. With this new treatment model, patients, under anesthesia, undergo the MRI and, that same day, can be moved into the catheterization lab for their interventional procedure.

Many patients with congenital heart disease require recurrent invasive procedures to evaluate cardiac



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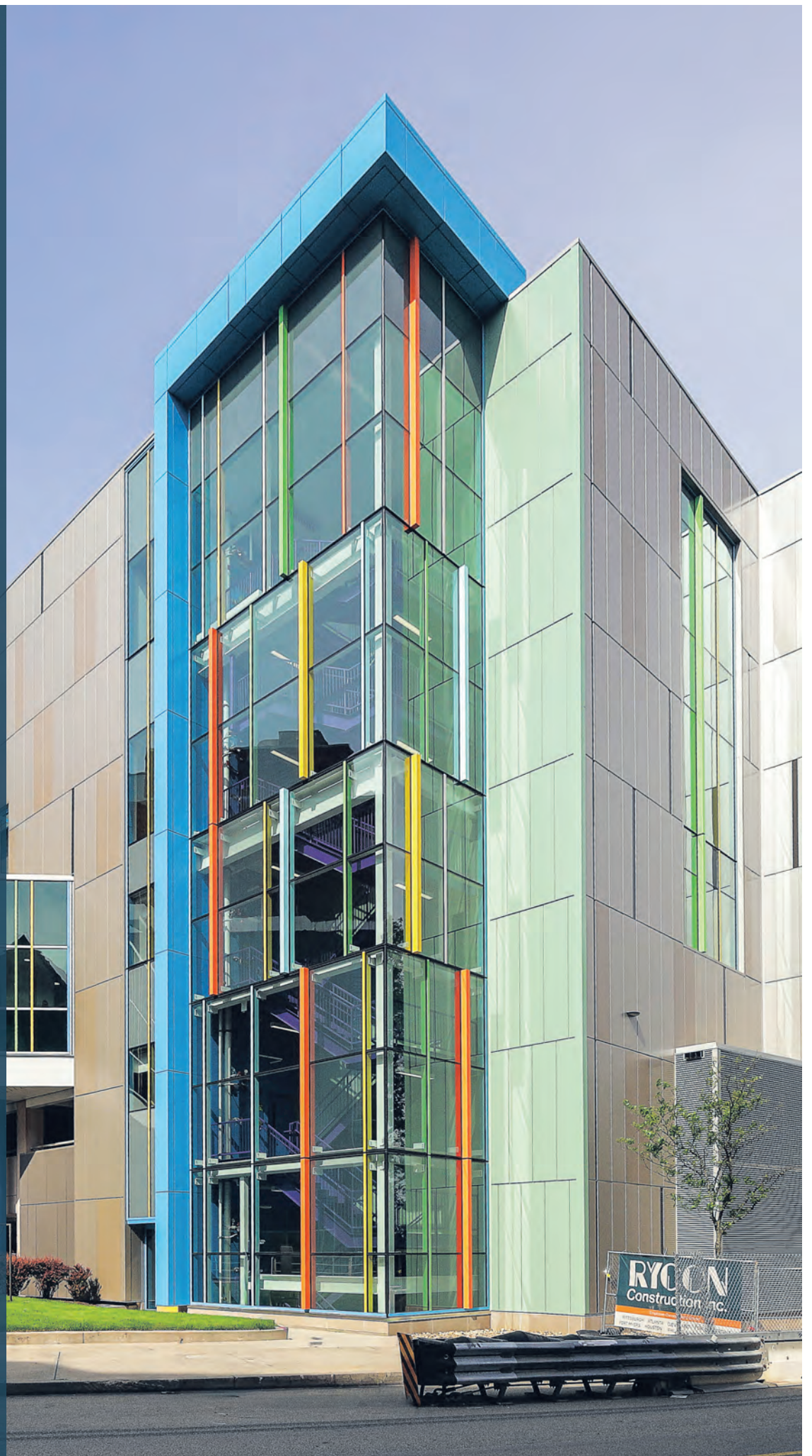


CONSTRUCTING HEALTHCARE EXCELLENCE

Rycon extends our appreciation to the entire team who helped plan, design, and construct the Children's Heart Institute. This project required extensive coordination, innovation, and commitment, all made possible through the efforts of our trade partners, vendors, and project team. Together, we delivered a complex healthcare facility in an active campus environment, creating space dedicated to advancing specialized care for children.



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function and/or treat residual disease. Historically, cardiac catheterization, which uses ionizing radiation, has been a mainstay surveillance and treatment tool.

In the new model, regular access to cardiac MRI reduces the use of ionizing radiation in cardiac assessment. Patients can undergo initial MRI to define a “roadmap” and then undergo limited catheterization to intervene with problems, all during the same procedure and anesthetic. In some special cases, whereby patients can undergo cardiac catheterization using MRI instead of X-ray for guidance, the use of ionizing radiation will be eliminated altogether.

“It offers a solution from beginning to the end of the experience in a safer, more efficient, more collaborative way,” Dr. Goldstein says.

Conditions commonly treated at the Interventional Cardiology Program include:

- Aortic Valve Stenosis.
- Atrial Septal Defect.
- Coarctation of the Aorta.
- Patent Ductus Arteriosus.
- Pulmonary Artery Stenosis.
- Pulmonary Hypertension.
- Pulmonary Valve Stenosis.
- Pulmonary Vein Stenosis.
- Tetralogy of Fallot and other conditions with RVOT dysfunction.
- Single ventricle heart disease, including Fontan circulation.

“This space is going to enhance the way we take care of patients. It will give us more confidence in the procedures that we do and that we can offer the most ideal solution.”

BRYAN GOLDSTEIN, MD

Director of Cardiac Catheterization at UPMC Children’s Hospital of Pittsburgh

treats all types of congenital heart disease, from the simplest to the most complex defects, serving a population that extends far beyond western Pennsylvania.

The transplant program – the third largest in the country – includes, not only surgical, research and medical expertise in heart lung transplants, nationally ranked surgeons also offer advanced heart care for heart and liver related issues, as hypoplastic left heart syndrome (HLHS), for patients who, as they grow, develop liver complications.

The new catheterization electrophysiology (EP) lab also enhances the treatment of unique electrophysiological scenarios in patients with congenital heart disease.

The DaSilva Center at the Heart Institute is the country’s busiest program for treating patients with Ebstein’s anomaly, a critical congenital heart defect that affects the heart’s right side. The cone procedure to treat Ebstein’s anomaly, invented and perfected by UPMC Children’s surgeon

CARDIAC SURGERY EXPERTISE

A full complement of surgeons, anesthesiologists, nurses, imaging staff, cardiac social workers and other experts at UPMC Children’s Hospital of Pittsburgh Heart Institute provide outstanding surgical outcomes to patients with congenital heart disease. The specialized surgical program there



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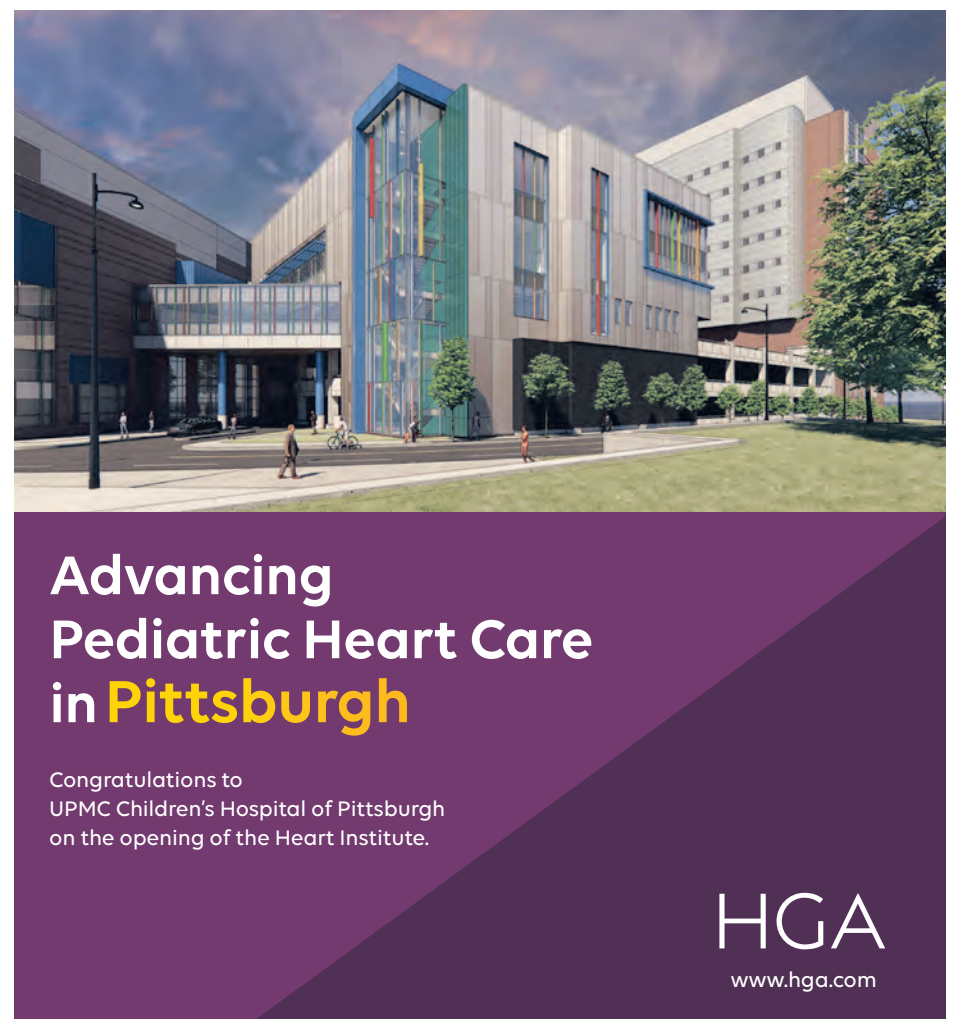
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Jose' Pedro da Silva, is now the worldwide standard of care.

"For Ebstein's specifically, this new facility is going to be extremely helpful," says Dr. Victor Morell, MD, co-director of the Heart Institute.

Also located in this new space is the Center for Complex Transposition where a multidisciplinary team of experts provides a full scope of care and ongoing support to patients and families. Patients here are treated for transposition of the great arteries (TGA), a condition present at birth in which two main blood vessels leaving the heart are reversed, reducing the amount of oxygen-rich blood sent to the body. Every case is unique, and no two children's disease processes are the same.

Dr. Morell, an internationally recognized expert on complex transposition, helped revolutionize the aortic translocation procedure, or Nikaidoh operation, to properly connect the main arteries out of the heart and create an anatomically

"It takes a whole team to make a difference for these families and kids."

VICTOR MORELL, MD

Co-Director of the UPMC Children's Heart Institute

normal outflow tract.

Data gathered today with the detailed, precise picture-taking technology of the new cardiac MRI machine, gives surgeons a better understanding of what they will find at the time of surgery, and impacts patients' outcomes downstream, he adds.

"We feel tremendous responsibility to fulfill this. We've grown and have become a pillar of UPMC Children's Hospital," Dr. Morell says.



WITH APPRECIATION, HATZEL & BUEHLER RECOGNIZES THE OUTSTANDING TEAMWORK, INNOVATION, AND DEDICATION THAT HELPED SHAPE AND DELIVER THE UPMC CHILDREN'S HEART INSTITUTE



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Imaging Gently – UPMC Children’s Hospital of Pittsburgh Heart Institute expands cardiac imaging capabilities for patient care and research.

Picture the sharpest image of a beating heart and flowing blood to enhance precise diagnostic and procedural decision making for children with heart disease. The cardiac MRI, part of a new catheterization suite at UPMC Children’s Heart Institute, expands treatments and research capabilities for now and into the future. It provides cardiologists hemodynamic data to put a quantitative measure on questions as:

- How much blood is going into the lungs (and is it too much)?
- Is there enough blood going into the body?
- Is a blood vessel too narrow?
- Is a valve leaking too much?

The cardiac MRI program at UPMC Children’s Hospital is evolving the field for pediatric cardiologists to get these answers faster, more clearly, radiation-free and with less sedation and IV contrast.

In other words, to image gently.

“The goal is to get just as high quality and reliable information, but decrease the exposures and time spent in the MRI machine and decrease the times we have to ask children to do a short breath-hold to image the heart,” says Dr. Olivieri, MD, director of noninvasive cardiac imaging at the Heart Institute.

Pediatric cardiologists at the Heart Institute have adapted the technology to gain the image and information they need in 20 to 30 minutes, much less than the hour-long average of four to five years ago.

And the “large bore,” or less confined, space inside the MRI is child-friendly, with its own innovative entertainment system with preselected personalized viewing and listening for when a child is in the



machine. Children can even choose the color of room lighting and background images.

“All of these things are purposeful to keep children’s minds off of what’s going on so we can get all the information we need,” Dr. Olivieri says.

The cardiac MRI is co-located with two additional biplane fluoroscopy cardiac catheterization suites. Its placement streamlines data gathering by minimizing sedations and hospital visits to one anesthesia event.

“It introduces more certainty to make better treatment plans,” Dr. Olivieri says.

For the large cohort of children, born with congenital heart disease or congenital heart defects, researchers at the Heart Institute are currently using this combined technology to study how a child’s heart and lungs might perform under different conditions than it would

when a child is under sedation.

“It really allows the team to speak with confidence with the families about what the next best move is for that child,” Dr. Olivieri says.

Experts at the Heart Institute are also combining these two technologies to explore the heart muscle, including conditions as inflammation or fibrosis. One way to do this is by overlaying catheterization lab images of the heart with MRI data.

“Being able to do personalized medicine and characterize a child’s performance of their heart and lungs and understand the impact of how their heart performs and make the right decision for them is so powerful,” Dr. Olivieri says.

INTRODUCING THE LYMPHATIC INTERVENTION PROGRAM

This new space also lays the foundation

“Often times the information gained from the cardiac MRI determines what happens during the cardiac catheterization. Having these two groups function as one large team for patients is such an incredibly high level of care delivery.”

LAURA OLIVIERI, MD
Director of Noninvasive Cardiac Imaging at UPMC Children’s Hospital of Pittsburgh Heart Institute

for the Heart Institute's Lymphatic Intervention Program at the UPMC Children's Heart Institute to treat a system that is crucial to the body's immune and circulatory systems. In patients with congenital heart disease, lymphatic complications are often unrecognized and frequent.

The new program is one of just a few others like it in the country, made possible because of the co-located advanced equipment and its capability to first image the lymphatic system with the MRI. Doctors, specially trained in lymphatic procedures, can then assess and provide targeted therapies and treatments in the cardiac catheterization lab.

"Many children with congenital heart disease also have trouble with their lymphatic system as this can be a driving factor in how these kids feel," Dr. Olivieri says. "We hope to be able to immediately offer targeted therapies and treatment strategies, once the new space is established."



FETAL AND PERINATAL CARDIOLOGY

One of the busiest in the world, the Fetal and Perinatal Cardiology Program at UPMC provides comprehensive heart health for unborn babies and newborn infants with cardiac complications. Experts there perform more than 1,800 fetal echocardiograms each year to evaluate the hearts of unborn babies and to plan for their care.

About one in 100 babies are born with congenital heart disease each year. Each has their own flavor of how their heart defect affects their heart or lung function. As they grow, their defects become even more different from one another.

And when a baby is diagnosed with a heart complication, collaboration among maternal fetal medicine and neonatal teams, neonatologists, cardiologists, surgeons, social workers, catheter physicians and more is imperative.

"The new space is going to have a significant fetal cardiology presence," says Jacqueline Weinberg, MD, director of the UPMC Fetal and Perinatal Cardiology Program. "We're expanding what we are currently doing from a fetal cardiology perspective to being able to integrate the other specialists that see our patients."

"The amazing new equipment – CT scanner, catheterization labs and the combination MRI catheterization suite – is going to change how we plan for babies to be born that may need complicated procedures within the first hours to days of life."

JACQUELINE WEINBERG, MD

Director of the UPMC Fetal and Perinatal Cardiology Program

Accomplishing this requires prenatal planning and meetings with parents and specialists like the Heart Institute's neural development team and single ventricle team.



Osborn is proud to have been a part of The UPMC Children's Heart Institute project.

Congratulations to the entire team that made this possible!

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The majority of babies with congenital heart disease are born at UPMC Magee-Womens Hospital, stabilized by neonatal intensive care unit (NICU) physicians and quickly transported to UPMC Children's Hospital. Often times the procedures need to be performed urgently.

"We'll improve the care for these babies because these new catheterization spaces will provide a more seamless transition from the neonatal ICU to having procedures done in the cardiac ICU," Dr. Weinberg says.

Sometimes, emergent situations require babies to be delivered at UPMC Children's where teams to manage both mother's and baby's health are in place.

"Having a brand-new space where we can plan for complicated cases as these will make this an easier process," Weinberg says.

The program also consists of multiple outreach sites with maternal fetal medicine and neonatology teams from UPMC Magee that work closely with the teams at UPMC Children's Hospital.

THE ADULT CONGENITAL HEART DISEASE (ACHD) CENTER

Today, there are more adults than children in the United States who are living with congenital heart disease thanks to decades of advances in pediatric cardiology and cardiothoracic surgery. And the UPMC Adult Congenital Heart Disease (ACHD) Center at the UPMC Children's Hospital of Pittsburgh's Heart Institute is prepared to meet the demands for increased adult services and new technology.

The UPMC ACHD program works with children and adults to make sure they receive lifelong care for a condition that affects nearly two million adults in the country. The program bridges the Heart Institute at UPMC Children's and the UPMC Heart and Vascular Institute and also offers care at UPMC Magee-Womens Hospital, UPMC Presbyterian and at various community clinic locations.

The program's clinicians see more than 2,500 patients each year for cardiac catheterization procedures, electrophysiology procedures or surgeries.

"In this new space, we have access to the cutting-edge technology, and it's

"In this new space, we have access to the cutting-edge technology, and it's going to be a one-stop shop for patients with congenital heart disease."

ARVIND HOSKOPPAL, MD
Director, UPMC Adult Congenital Heart Disease Center.

going to be a one-stop shop for patients with congenital heart disease," says Arvind Hoskoppal, MD, director, UPMC Adult Congenital Heart Disease Center.

The program focuses on seamlessly transitioning children as they grow into adult care, paying special attention to each patient's individual needs. Together with parents and family members, patients meet with a transition team of specialized cardiologists, nurse practitioners, psychologists and social workers and more while still under the care of a pediatric cardiologist as they prepare for continued care for diagnostic procedures (as lab work), imaging and medical management for their heart condition.

"Education is the biggest piece to the transition process," Dr. Hoskoppal says. "It mainly is directed towards empowering the patients to take ownership of their health and healthcare."

This includes, but is not limited to, teaching the patients about their congenital heart disease, what medications they are prescribed and why, the importance of regular follow up, the importance and safety of physical activity and the counseling regarding pregnancy and contraception when indicated.

Accredited by the Adult Congenital Heart Association (ACHA), the ACHD program is one of only 60 centers nationwide to receive this recognition for excellence in clinical care and patient support. With this accreditation comes a national community of patients, family members and healthcare providers.



Congratulations UPMC Children's Hospital on the New Heart Institute! Wyatt Incorporated is honored to have contributed to this state-of-the-art project.



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