Heart Center Impact Report

Primary Children's Hospital

Intermountain Children's Health

HEALTH
UNIVERSITY OF UTAH

The Heart Center

At Intermountain Children's Health, we're better together. Working together with the University of Utah, Primary Children's Hospital is both the flagship children's facility for Intermountain Health and the pediatric teaching hospital for the University of Utah School of Medicine. This partnership allows for clinical innovation, impactful research initiatives to be identified, quality improvement projects to be supported and in-depth training for our new physicians to be facilitated. In doing so, we feel fortunate in our ability to provide the very best of care for our young patients and their families.

The Heart Center at Primary Children's Hospital is a comprehensive program with high clinical volumes and acuity. We're the only provider of comprehensive congenital heart disease care to children and young adults within the Mountain West footprint. As a nationally recognized Heart Center program, U.S. News & World Report ranked us 12th in the nation in 2025.

Within the Heart Center at Primary Children's, more than 60 highly skilled University of Utah clinicians treat the most complex congenital heart conditions. Our clinical team is supported by more than 400 Intermountain Health caregivers, including physician assistants, nurse practitioners, nurses, cardiac sonographers, perfusionists, respiratory therapists, medical assistants, social workers, genetic counselors, Child Life specialists, and more.

Annual Volume Highlights

600+
Cardiothoracic Congenital Heart Surgeries

650+
Cardiac Intensive Care Admissions

800+
Caths

70+
ECMO

200+
Electrophysiology cases

16K
Outpatient Cardiology visits in over 8 different outreach locations

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From Critical Cardiac Diagnosis to Thriving: Deiter's HLHS Journey

Born with Hypoplastic Left Heart Syndrome (HLHS)—a life-threatening cardiac condition—Eight-year-old, Deiter required complex, ongoing care and multiple surgeries. Intermountain Children's Health pediatric cardiology team provided clear, compassionate communication, empowering Chen's family to make informed decisions. Clinicians responded rapidly to emergencies and proactively monitored Deiter's recovery, while daily contact with nurse practitioners and innovative home monitoring tools ensured safety and support at home. Their holistic approach included therapies, nutrition, neurodevelopment, and family guidance.

Today, Deiter is thriving. He's active in karate, learning Chinese, riding his bike, dancing, swimming, and enjoying music. Play therapy helped him overcome anxiety, and he's a thoughtful brother who expresses his feelings well.

"He's loving life! Thank you for helping us share these sweet moments and memories with him. We will be eternally grateful for all those who have blessed and helped him and our family through his journey!" — Jenny Chen

Like Dieter and his story, many of our children are cared for by highly specialized caregivers and programs. We have 22 subspecialty programs, highlighting our commitment to ensure care is centered around a child's disease entity is aligned and organized within the care system. We continue to develop and build more!

Our programs include:

- Adult Congenital Heart Disease
- Advanced Cardiac Imaging (CT/MRI/3D)
- Anomalous Coronary Arteries
- Aortopathies
- ARCH Program: Advancing Resiliency in Childhood Heart Disease (Mental Health and Psychosocial Support Program)
- BDH/ Pulmonary Hypertension
- Cardiac Fitness
- Cardiac Genetics
- Complex Bi Ventricular Reconstruction
- Complex / Inter-stage Program
- Complex Pulmonary Artery Reconstruction
- Dedicated Cardiovascular ICU and Cardiovascular Stepdown Care Unit
- Dyslipidemia
- Ebstein Anomaly – Cone Tricuspid Reconstruction
- Electrophysiology
- Fetal Heart Center
- Inherited Arrythmia
- MIS-C
- Neurodevelopment
- Ross Center of Excellence
- Single Ventricle
- Trisomy 13/18
- UCHAMP / Transplant
- Valve
- Ventricular Assist Device (VAD) and Single Ventricle VAD Programs

Outcomes Data

When we discuss outcomes, we refer to different measures of success. We assess our performance by comparing our cardiac surgery statistics with those of other leading children's hospitals. Additionally, we regularly review and publish other quality and patient safety metrics to provide families with up-to-date information when choosing healthcare providers for their child.

"Our congenital heart program at Primary Children's is truly extraordinary. I am constantly amazed by the dedication, expertise, and compassion of our team in delivering world-class care. Their tireless commitment has led to remarkable outcomes, and I couldn't be prouder of what we've achieved together."

— S. Adil Husain, MD
Professor - Dept. of Surgery and Pediatrics
Chief – Pediatric Cardiothoracic Surgery
Co Director – Heart Center Primary Children's Hospital

Society of Thoracic Surgeons (STS) Public Reporting

Primary Children's Heart Center believes in being transparent about our outcomes. We also believe that in being transparent about our outcomes and partnering with sister heart centers, we can improve the quality of care.

We take the voluntary initiative to publically share our surgical outcomes data. We do that through the STS public reporting process. As a result of sharing our outcomes, we are able to see how we compare our outcomes and understand our impact on the children and families we serve.

STS provides a benchmark for all centers, and the following data highlights where our center is relative to all submitting pediatric heart centers.

One of the most significant metrics we monitor is our observed to expected outcome ratio (O/E ratio). In surgical outcomes, "observed" refers to the actual results experienced by patients after surgery, while "expected" outcomes are predictions based on risk models and patient characteristics. Comparing these allows assessment of how well a surgical procedure or a specific surgeon performs compared to what's anticipated. A ratio less than one indicates a better outcome than what a risk model indicates.

O/E Ratio
0.80%

In addition, STS calculates an Adjusted Mortality Rate (AMR). This mortality rate accounts for differences in types of cases and uses a statistical model known as risk adjustment to analyze results in a way that incorporates how sick the patients were before treatment. (Lower is better)

4 Year Combined Adjusted Mortality Rate (AMR)

2013-16	2014-17	2015-18	2016-20	2017-21	2018-22	2019-22	2020-23	2021-24
3.1%	3.9%	3.3%	2.59%	2.44%	2.40%	2.41%	2.09%	2.14%

Lower is better

Society of Thoracic Surgeons Congenital Heart Surgical Database, 2024 December Report (Includes Jan 21- Dec 24)

Cardiac Surgery Volumes

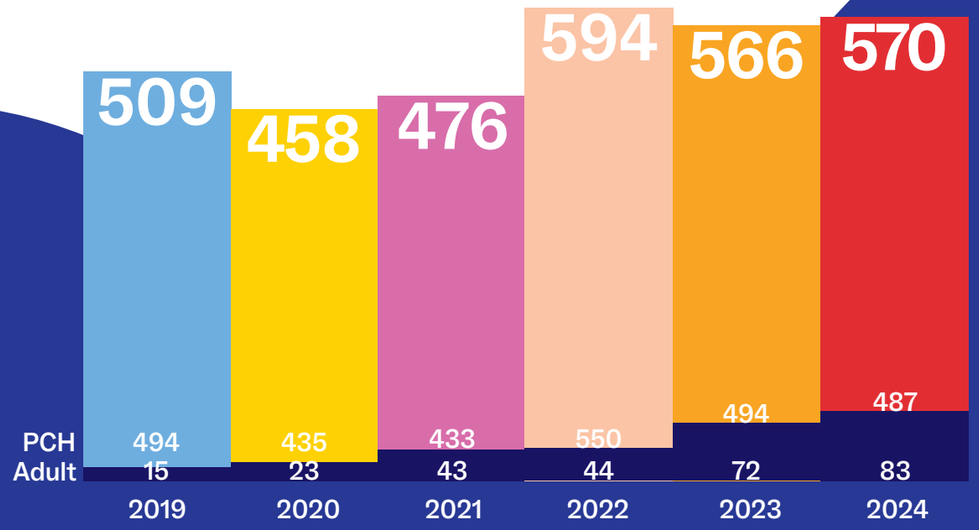
What we measure

An important measure of success for a hospital's pediatric cardiology program is volume, which refers to the number of surgeries or procedures the hospital performs each year.

What it means

Performing a high number of procedures indicates that the team has extensive experience with these operations and that many families choose this hospital for their children's care. According to U.S. News & World Report, there is a correlation between this experience and better patient outcomes. Higher-volume centers tend to have improved patient outcomes.

Total Surgeries Performed



350 Number of heart surgeries required every year to be considered high volume centers; only 17% of all national programs reach this target

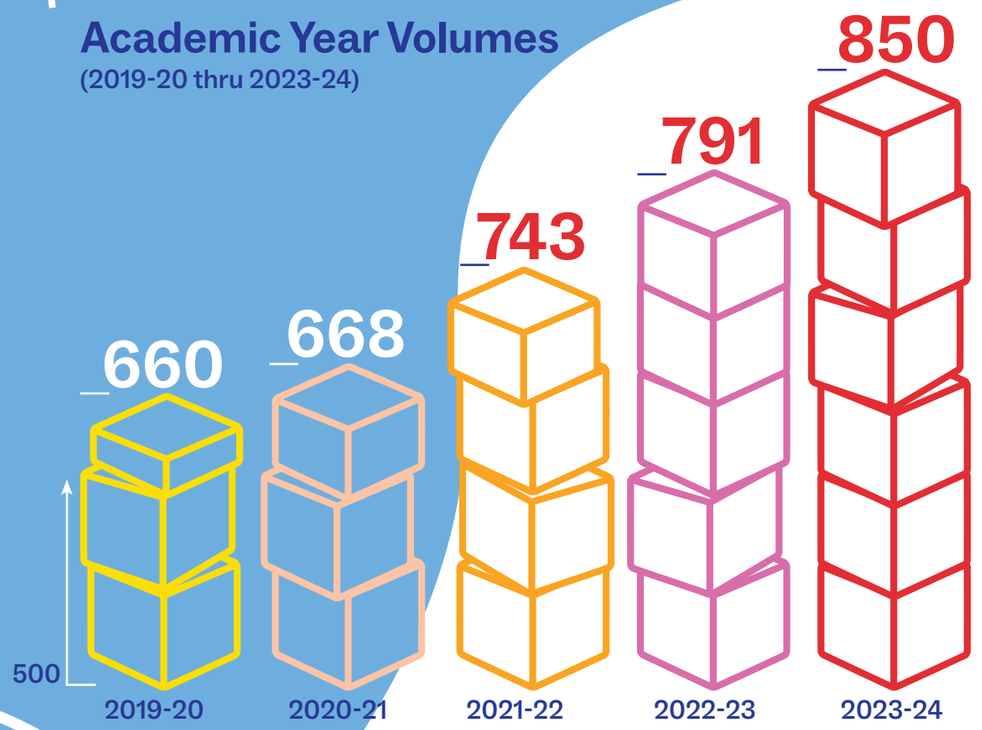
Volumes include all surgeries, including our adult congential cases performed at University of Utah and Intermountain Medical Center.

Cardiac Catheterization and Procedure Volume

Thanks to medical advancements, many heart defects can now be repaired using a minimally invasive procedure called cardiac catheterization instead of open-heart surgery. During this process, a long, thin tube is inserted into the blood vessels and guided to the heart using x-ray imaging. This technique allows for the detection and treatment of heart problems. The electrophysiology lab also utilizes minimally invasive procedures to treat various heart rhythm abnormalities. The high volume of these procedures performed at the Heart Center indicates significant experience in treating even rare conditions. The following charts illustrate the team's experience performing these procedures.

Academic Year Volumes

(2019-20 thru 2023-24)



Internal data source

Cardiac Surgery Outcomes

Open-heart surgery survival rates

What we measure

We assess the overall percentage of patients who survive their open heart surgery, regardless of the complexity of the procedures involved.

What it means

A high survival rate signifies that the center has an expert multidisciplinary team proficient in delivering comprehensive care for all patients, with the experience to adapt to new therapies to ensure improved outcomes.

Overall survival for the most complex surgeries (STAT 5)

88.64

Primary Children's Hospital

84.63 STS Benchmark

Newborn survival by STAT category

What we measure

We compare our survival rates for newborn patients with national averages by the complexity of the surgery.

What it means

The Society of Thoracic Surgeons (STS) classifies congenital heart surgeries into STAT categories by complexity. STAT 1 procedures are the least complex with the lowest mortality risk, while STAT 5 procedures are the most complex with the highest mortality risk. A higher survival rate indicates the center's high experience level, even with the most complex cases in small patients.

Survival for the most complex newborn sugeries (STAT 5)

94.7

Primary Children's Hospital

84.1 STS Benchmark

Cardiac Surgery Survival by Procedure

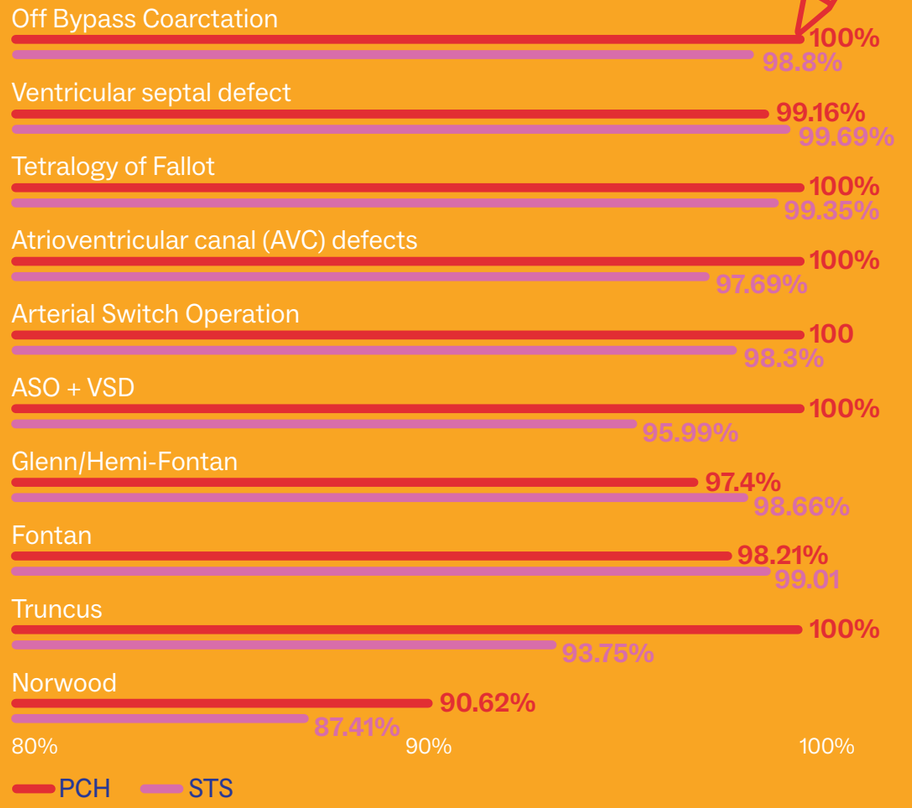
What we measure

Cardiac surgery programs report survival rates for each specific operation, known as “benchmark operations,” which allow surgical centers to compare outcomes. We utilize a measure called index case survival, which indicates the percentage of patients who underwent a specific operation and were alive 30 days post-operation, or if still hospitalized at 30 days, those who survived until discharge. These percentages only include hospitals performing more than 10 of each surgery annually.

What it means

The table presents a comparison between Primary Children’s Hospital’s index case survival rates and national benchmarks. Higher percentages reflect greater survival rates for each benchmark operation. It is important to note that comparing outcomes by procedure alone can be challenging, as the data does not account for significant health-related factors such as age, other health conditions, and genetic conditions that may increase procedural risks.

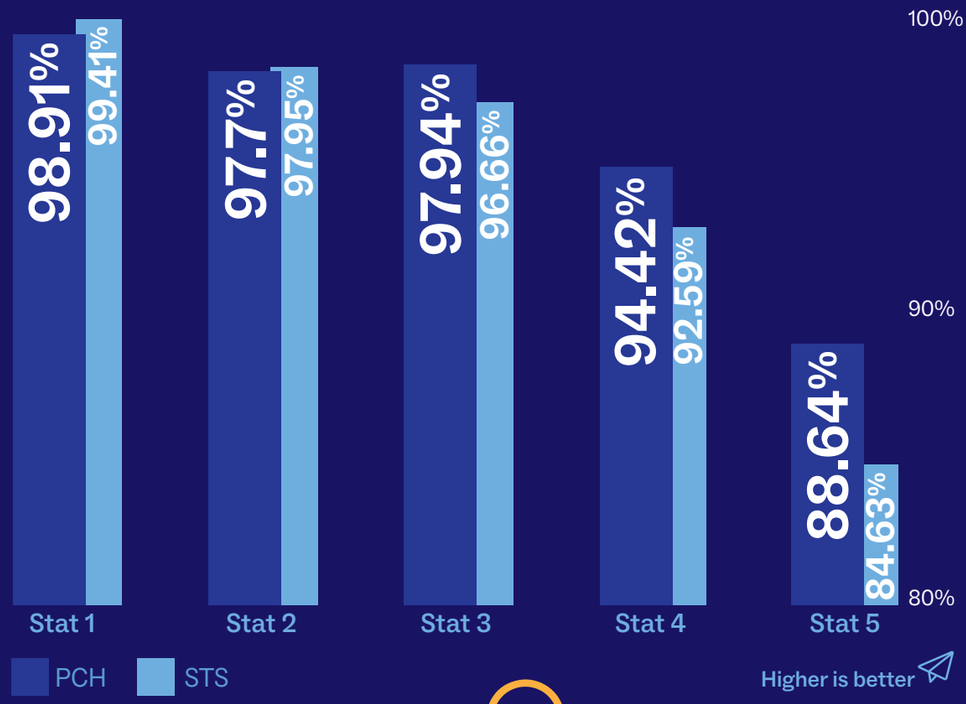
Survivability % Overall By procedures



By procedure Survival rates from 01/01/2020 to 12/31/2023, inclusive.

Cardiac Surgery Survival by STAT category

Here we compare our current STAT category surgery survival rate with the outcomes from the latest STS report.



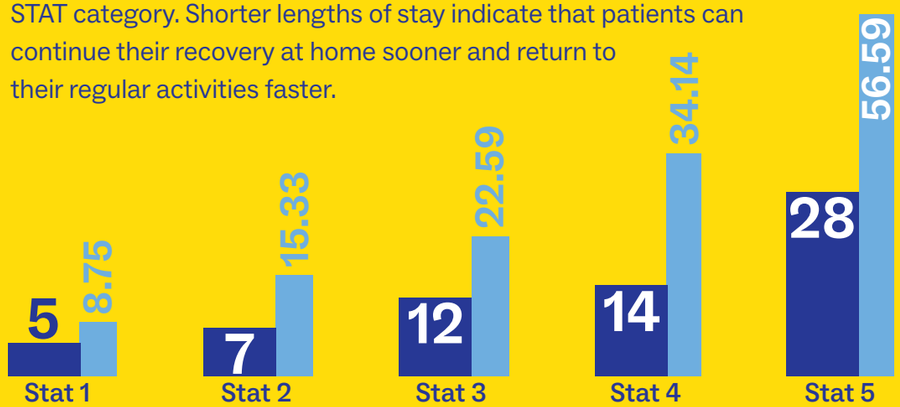
Average Length of Stay

What we measure

These charts display the average number of days that patients stayed at Primary Children's for heart surgery. The charts compare STAT complexity and STS national benchmark procedures.

What it means

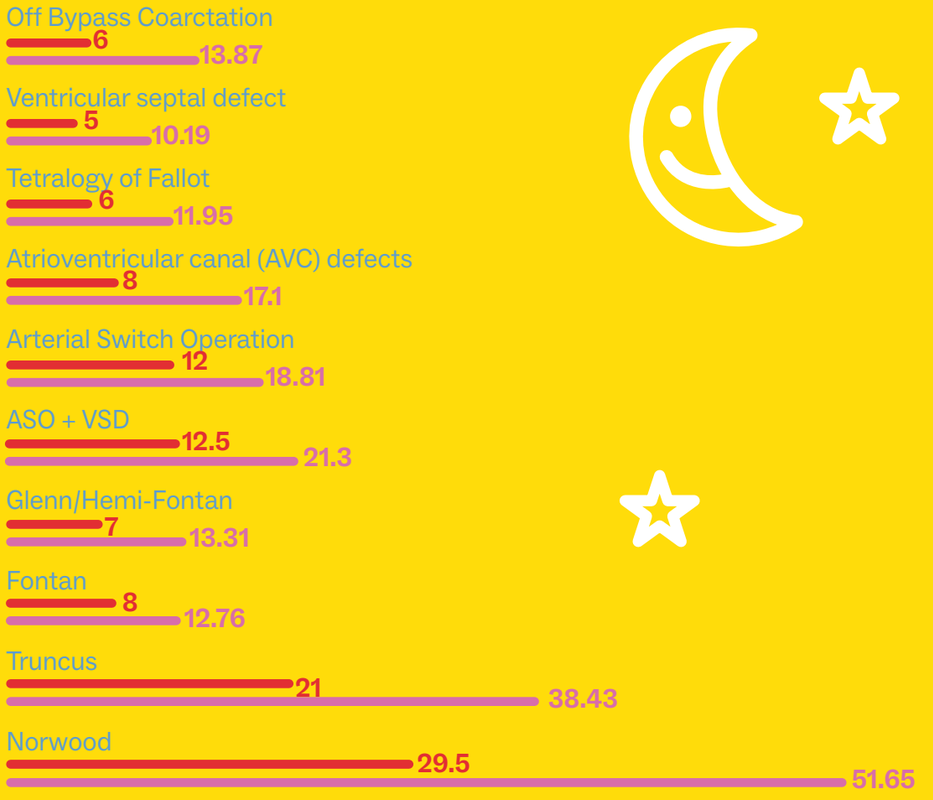
To evaluate this data, the average number of days patients stay at Primary Children's Hospital is compared to national averages for each procedure and STAT category. Shorter lengths of stay indicate that patients can continue their recovery at home sooner and return to their regular activities faster.



Postop median Length of Stay by STAT from 01/01/2021 to 12/31/2024, inclusive.

PCH STS

Lower is better



PCH STS

Lower is better

Postop median Length of Stay by benchmark procedure from 01/01/2021 to 12/31/2024, inclusive.

Heart Transplant Outcomes

Since the program began in 1991, we've successfully completed 241 heart transplants.

Heart Transplant Surival Rate

What we measure

Heart transplant survival rates assess the success of the initial surgery and the patient's longevity at key intervals post-surgery. These rates are compared with national data reported by the Scientific Registry of Transplant Recipients.

What it means

Higher survival rates at each milestone signify a higher number of patients experiencing successful transplants and favorable long-term health outcomes.

Pediatric Heart Transplant Survival

The Scientific Registry of Transplant Recipients (SRTR) is a national database of transplantation statistics that is used to support analysis of transplant programs, develop evidence-based policy, and encourage research on issues of importance to the transplant community. This information can be found on the internet at www.srtr.org. —SRTR Report Release date of January 6, 2026

Time spent in hospital after heart transplant

What we measure

After a successful heart transplant, our goal is to help your child return home and resume their normal activities as soon as possible. One way to evaluate transplant centers is by comparing the duration of hospital stays after transplants. Median time in hospital measures the midpoint value in days that patients remain hospitalized following their heart transplant.

What it means

The time spent in the hospital after a heart transplant can vary based on case complexity. At Primary Children's, the heart transplant team handles many complex cases, meaning some patients may require more time to recover. Numbers lower than national and regional averages indicate that patients spend less time recovering in the hospital and are able to return home sooner.

Length of Stay (days)

Primary Children's Hospital	16
Regional Centers	22
National Centers	21

Days

Fewer is better

Research

The Heart Center at Primary Children's Hospital focuses on improving care for children with heart disease through research. This involves a collaborative process encouraging participation across all disciplines within the Heart Center, impacting patients and their families both locally and nationally. The Heart Center participates in the registries supported by Cardiac Networks United and leads initiatives such as improving treatment for children with chylothorax following heart surgery and ensuring timely discharges when patients are ready to go home. Primary Children's was among the few that participated in all components of the NHLBI Bench to Bassinet Program, including continuous funding as a core site for the Pediatric Heart Network (PHN) and the Pediatric Cardiac Genomics Consortium (PCGC). Faculty members hold leadership roles in these programs and chair various multicenter committees. Additionally, 8 junior faculty have successfully obtained funding through the Pediatric Heart Network Scholar Program, which aims to train the next generation of researchers.

Accomplishments 2023-2024

111
Published manuscripts

38
Abstracts

116
Invited presentations

Funding

12
Funded Grants (Over $1.5 million)

16
Industry funded studies

100+
Active research studies

Nurse Navigation

Traveling for healthcare can be challenging. To assist with this process, the Heart Center at Primary Children's Hospital has a nurse navigation team available for families undergoing cardiac interventions at the hospital.

The nurse navigators at the Heart Center work with both local and referring cardiologists to coordinate care for children coming to Primary Children's Hospital for cardiac catheterization, electrophysiology, or surgical procedures. The nurse navigation outreach team also coordinates visits to cardiology subspecialty clinics, including imaging and diagnostic testing.

The nurse navigators serve as a single point of contact for families, providing education and support from the time the referral is received through discharge. They ensure that necessary testing and diagnostics are completed before any procedures or clinic visits. Additionally, the nurse navigators assist with communication back to referring providers from the time of referral until after discharge.

To Learn More

Our multidisciplinary team of experts is prepared to deliver specialized care for your child and family.

Heart Center Co-Directors

Adam Ware, MD

L. George Veasy Endowed Chair

Associate Professor of Pediatrics

Chief, Pediatric Cardiology

Co-Director, Heart Center

Venu Amula, MD

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