

# Cardiovascular Imaging Research Core (CIRC)

Welcome to the first issue of the Emory + Children's Pediatric Research Center's Cardiovascular Imaging Research Core (CIRC) newsletter. We are proud to be a part of the Pediatric Cardiology and Cardiothoracic Surgery program that was ranked 4th in the US News and World Report this year. We have had some exciting changes to our program with the addition of an imaging scientist, a new program manager and a senior research coordinator. Also, this month we celebrated the second anniversary of our vascular program that has led to numerous collaborations.

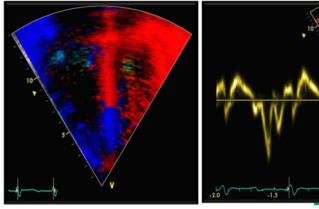


We are in the process of expanding our services to the Scottish Rite campus for the convenience of our patients and collaborators from that campus. We are currently engaged in several NIH and industry funded projects and are looking forward to expanding our collaborations further. I wanted to invite you to discover all of the ways in which we can assist you with your research endeavors. In the coming months, we hope to continue to expand upon our goal of providing investigators with the highest quality imaging for their research in order to meet the needs of every study and patient population. Thank you for all of your support, and we look forward to working with you.

***-Ritu Sachdeva, MD, Medical Director***

## ALL ABOUT CIRC

The Cardiovascular Imaging Research Core (CIRC) was established in 2010 at Children's Healthcare of Atlanta, Egleston Campus. It serves as a solely research-focused center, independent from the standard clinical operations. Our mission is to provide high quality, non-invasive cardiac imaging support for investigators involved in clinical research involving infants, children and adolescents in a dedicated research setting. This dedicated space, equipment and staff have experience transcending innovation by utilizing imaging modalities and techniques not typically seen in the clinical arena for research using echocardiography and vascular ultrasound.

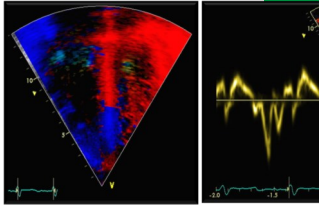


# Meet the Staff



*From left: Ritu Sachdeva (Medical Director), Brian Schlosser (Sonographer), Gemma Morrow (Sonographer), Cyndi Mott (Program Manager), Falon McGaughey (Sonographer), Heather Friedman (Senior Research Coordinator), Senthil Ramamurthy (Imaging Scientist), Sassan Hashemi (Imaging Scientist)*

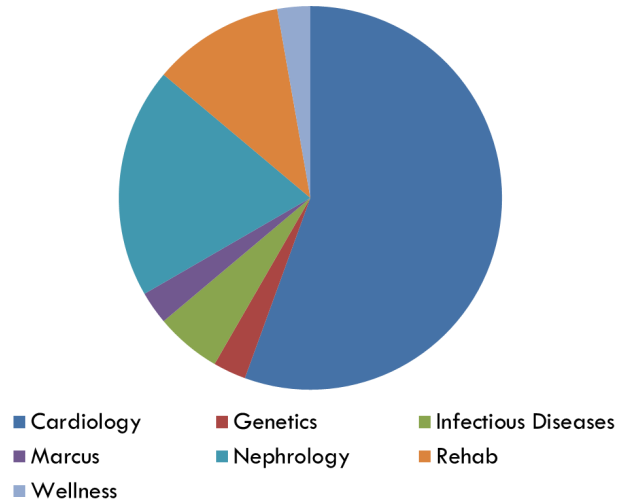
We have an expansive amount of experience in pediatric cardiac imaging research. The CIRC staff consists of Pediatric Cardiologists, certified sonographers, image processing scientists, and certified clinical research staff. The staff is highly trained in research development and performing novel and specialized imaging. We can assist you with grant writing and budget development needs related to the services provided by CIRC. We have an internal quality assurance program to validate an excellent standards and consistent quality of imaging.



# What We Do

- ◆ Echocardiograms
  - ◆ Complete 2D, color- & Doppler 3-D
  - ◆ Strain & Strain rate
  - ◆ Tissue Doppler
- ◆ Stress Echocardiograms
  - ◆ Upright bicycle
  - ◆ VO2 Analysis
- ◆ Exercise Stress Testing
- ◆ Electrocardiograms
- ◆ Vascular Imaging
  - ◆ Carotid intima-media thickness (cIMT)
  - ◆ Pulse Wave Velocity & Analysis
  - ◆ Brachial Flow Mediated Dilatation (BFMD)

**Current Studies (n=51)**

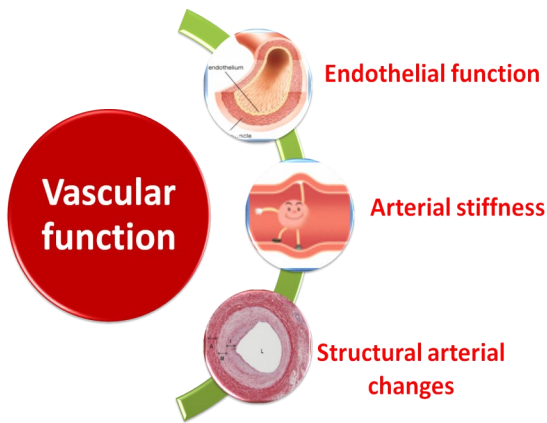


- ◆ Equipment:
  - ◆ GE Vivid E9 Echocardiography Machine (3D, 4D, and Fetal Echo capabilities)
  - ◆ Philips IE 33 (3-D capabilities)
  - ◆ Pulse Wave Velocity Machine
  - ◆ Medical Graphics Stress testing system with metabolic testing capabilities
  - ◆ Two Exercise Bikes
    - ◆ 1 pediatric for ages 5-10
    - ◆ 1 large adult bike able to accommodate up to 350lbs

## CIRC Core Lab

The core lab is located within the Clinical Noninvasive Cardiology and Catheterization Lab at Children's Healthcare of Atlanta (CHOA), Egleston campus. It includes a dedicated patient examination room, research work room, reading room, exercise stress lab, Director and support staff offices. The patient examination room is equipped with a dedicated echo machine (GE Vivid E9) to perform transthoracic echocardiograms using novel imaging techniques such as strain and strain rate imaging, tissue Doppler imaging, three-dimensional imaging and vascular imaging. In addition, we have an applanation tonometer to assess arterial stiffness. The research reading room is equipped with digital reading stations, post processing software and enhanced server capabilities.

# SPOTLIGHT ON VASCULAR FUNCTION ASSESSMENT



CIRC is one of the handful programs in the country that possesses the capabilities to perform a complete array of vascular function assessment in children. Vascular ultrasound is a noninvasive test used to examine the blood vessels in the arms and legs. It has been used clinically and for research as a marker for cardiovascular health in adults. More recently, it's application has been extended to children at high risk for cardiovascular disease.

## Endothelial Function

### Brachial flow mediated dilation (BFMD)

Brachial fMD is a non-invasive, method to identify and quantitate endothelial function. Endothelial dysfunction is an early marker of atherosclerosis, and early treatment and modification of cardiovascular risk factors is known to improve endothelial function.

## Arterial Stiffness

### Pulsewave Velocity, Pulsewave Analysis

We use applanation tonometry to assess pulse wave velocity and measure the speed of the pressure wave travelling through the arteries, a non-invasive measure of arterial stiffness and central hemodynamics. Arterial stiffness is increased in children with multiple cardiovascular risk factors including high cholesterol, diabetes and obesity.

## Structural Arterial Changes

### Carotid Intima-Medial Thickness (cIMT)

Carotid IMT is a non-invasive method to identify subclinical cardiovascular disease in blood vessels. Increased IMT has been shown to correlate with atherosclerosis of coronary arteries in adults. In children with cardiovascular risk factors early changes in IMT have been identified. With early detection, treatment strategies can be instituted earlier.

## How to Access the CIRC

The CIRC is located at Children's Healthcare of Atlanta at Egleston in Outpatient Cardiac Services, on the 2nd Floor of Tower 1.

Phone: (404) 785-CIRC (2472)

Email: [circ@choa.org](mailto:circ@choa.org)

<http://www.pedsresearch.org/cores/detail/cardiovascular-imaging-research-core-circ>