Our lab was founded in 2000 and has maintained an active pediatric cardiovascular MRI program since. Our vision for the future of pediatric and adult congenital cardiovascular MRI: studies that can be done quickly, without anesthesia, and provide anatomical and functional information in one go! We strive to continue pushing the boundaries of medicine and advancing cardiovascular MRI through research. We have active collaborations with:

- UT Southwestern Dept. of Radiology and AIRC
- King’s College London
- UT Dallas
- University of Tübingen
- Toronto SickKids
- Boston Children’s Hospital
- Children’s Healthcare of Atlanta/Emory University
- Kinderspital Zürich

Our current clinical and research endeavors include:

3D Printing Program in Pediatric Cardiology (3P3C)
This is our lab’s initiative to better characterize congenital heart disease through the use of 3D printing, including analysis of material properties and accurate replication of interventions to improve outcomes.

Computational Modeling
We aim to use the full physiological and anatomical information from detailed CMR imaging to find novel robust early markers of pathology that lead to improved outcomes. We combine information on geometry, deformation, and flow with improved sequence design.

Cardiac MRI in Orthotopic Heart Transplantation
A primary goal of our lab is to better predict clinical outcomes in patients with heart transplants using CMR. Our goal is to combine looking at blood biomarkers, CMR data, and echocardiographic data to help slow or prevent the catastrophic effects of vascular dysfunction.

The Vessel Wall
This program is dedicated to understanding the vessel wall in health and disease through novel cardiac MRI sequences.

Shown above is the iT2-prep sequence for vessel lumen and wall imaging; below are the 3D PSIR and T2 zoom sequences used in current work on familial hypercholesterolemia patients.

Kind regards from our lab! Visit us at: www.utsouthwestern.edu/labs/pcmri/