

## Division Introduction

The Pediatric Cardiology Division provides comprehensive care for children with heart disease, conducts seminal research, and oversees a nationally recognized training program.

Under the direction of Gerald Greil, M.D., Ph.D., the Division provides services at Children’s Medical Center Dallas and Children’s Medical Center Plano in:

- Outpatient clinics (~12,000 visits/year)
- A 22-bed inpatient telemetry floor dedicated to cardiac patients
- A 32-bed dedicated Cardiac Intensive Care Unit
- Two catheterization laboratories for diagnostic and interventional procedures, including catheter ablation
- A 1.5T cardiac MRI scanner fully dedicated to Pediatric Cardiac Imaging with and without general anesthesia. The close proximity of this scanner to the cardiac catheterization laboratory allows combined MRI – cardiac catheterization procedures (XMRI).
- All imaging facilities are in close proximity to the OR allowing intra- and perioperative assessment of surgical and cardiac catheterization procedures.
- An echocardiography suite, including special areas for fetal echocardiography, as well as a complete non-invasive monitoring laboratory
- Outreach services are available at multiple sites throughout North Texas



**Gerald Greil, M.D., Ph.D.**  
**Professor, Division Chief**

## Faculty

The Division has 22 pediatric cardiologists, each with a special area of expertise, including critical care medicine, interventional catheterization, electrophysiology, advanced imaging including echocardiography and fetal echocardiography, cardiac Magnetic Resonance Imaging (MRI) and Computed Tomography (CT), cardiac transplantation, heart failure, prevention, and adults with congenital heart disease.

## Honors / Awards

### **Promotion**

- Ryan Butts, Associate Professor

### **Best Pediatric Specialists in Dallas, D Magazine**

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| <ul style="list-style-type: none"> <li>• Vivian Dimas</li> <li>• Catherine Ikemba</li> <li>• Matthew Lemler</li> <li>• Lynn Mahony</li> <li>• Claudio Ramaciotti</li> </ul> | <ul style="list-style-type: none"> <li>• William Scott</li> <li>• David Sutcliffe</li> <li>• Thomas Zellers</li> <li>• Ilana Zeltser</li> </ul> |
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### **Texas Super Doctors, Texas Monthly**

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| <ul style="list-style-type: none"> <li>• Colin Kane</li> <li>• Matthew Lemler</li> <li>• Lynn Mahony</li> <li>• Claudio Ramaciotti</li> </ul> | <ul style="list-style-type: none"> <li>• William Scott</li> <li>• Animesh Tandon (Texas Rising Star)</li> <li>• Surendranath Veeram Reddy</li> </ul> |
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## Invited Lectures

### Vivian Dimas

- American Society of Echocardiography Annual Scientific Sessions, Nashville, TN, June 2018
  - *“Echo Support for Catheter Based Ventricular Assist Devices”*
  - *“What I Need from My Imager – The Importance of Communication”*
- 54<sup>th</sup> Annual Meeting of the Japanese Society of Pediatric Cardiology and Cardiac Surgery, Yokohama, Japan, July 2018
  - *“Utilization of Impella Hemodynamic Support in Pediatric Patients”*
- CSI-UCSF, San Francisco, CA, October 2018
  - *“Melody Valve Implantation: Techniques, Limitations, Results”*
  - Debate, *“Duct Stenting to Sustain the Pulmonary Circulation is Gaining Ground”* (I agree)
- Medtronic Congenital Summit, Phoenix, AZ, December 2018
  - *“Has TPV Therapy Changed Our Referral Patterns?”*
  - *“Management of Conduit Rupture”*

### Catherine Ikemba

- Pediatric Grand Rounds, UT Southwestern, Dallas, TX, February 2018
  - *“The Role of Fetal Echocardiography in Pediatrics”*
- Grand Rounds, Texas Tech University, El Paso, TX, February 2018
  - *“Fetal Echo”*
- 50<sup>th</sup> Annual Kenneth C. Haltalin Pediatrics for the Practitioner, Dallas, TX, April 2018
  - *“Fundamentals of Cardiac Evaluation in the Pediatrician’s Office”*

### Richard Kirk

- UT Health Science Center, El Paso, TX, March 2018
  - Grand Rounds: *“Pediatric Cardiac Transplantation Today”*
  - Cardiac Faculty: *“Optimal Time Tx & VAD”*

### David Sutcliffe

- 2018 STS Intermacs Meeting, Chicago, IL, May 2018
  - *“Improving Anticoagulation Protocols to Decrease Adverse Events in Pediatrics”*
- Abbot Users Meeting, Phoenix, AZ, May 2018
  - *“Pediatric VAD Cases”*
- American Society for Artificial Internal Organs (ASAIO) Annual Meeting, Washington, DC, June 2018
  - *“Bleeding and Artificial Support”*
- International Pediatric VAD and Heart Failure Summit, Palo Alto, CA, September 2018
  - Session Moderator, *“Bigger, Better, Brains! Managing VAD Strokes”*

## Conference Presentations

### 3<sup>rd</sup> International Workshop on Interactive and Spatial Computing (IWISC), Richardson, TX, April 2018

#### Animesh Tandon

Oral Presentation, *“Virtual Reality: A New Dimension for Congenital Heart Disease”*

Gupta R, Lau A, Rajendran A, Singh T, Shah P, McMahan R, **Hussain T, Tandon A.**

Poster, *“Surgical Planning Using Virtual Reality”*

**CMR 2018 (Joint EuroCMR/SCMR) Meeting, Barcelona, Spain, February 2018****Gerald Greil**

Session Moderator, *"Pediatric/Congenital Preconference: Pediatric/Congenital Basics"*

Greer JS, Michael J, Burkhardt BE, **Tandon A, Greil GF, Hussain T**, Madhuranthakam AJ.

Oral Presentation, *"Assessment of Caval Blood Flow Distribution in Fontan Circulation Using Arterial Spin Labeled Measurement of Pulmonary Perfusion"*

**Suren Veeram Reddy**

Interventional CMR Presentation, *"Lessons from Year One"*

**American College of Cardiology 67<sup>th</sup> Scientific Sessions, Orlando, FL, March 2018**

Martinez-Parachini JR, Karacsonyi J, Addo T, **Dimas VV**, et al.

Poster, *"Update of a Comparison of Radiation Dose Between Contemporary Fluoroscopy Systems Using an Anthropomorphic Phantom in the Cardiac Catheterization Laboratory"*

**Suren Veeram Reddy**

Oral Presentation, *"Innovation in Congenital Cardiac Interventions"*

**2018 ISHLT Annual Meeting and Scientific Session, Nice France, April 2018**

**Bano M, Dimas V, Butts R**, Luna M, Jaquiss R, Pirolli T, **Sutcliffe D, Kirk CR**.

Poster, *"ST Elevation Myocardial Infarction (STEMI) Early After Pediatric Heart Transplantation"*

**Butts R**, Dipchand A, **Sutcliffe D, Bano M, Kirk R**.

Poster, *"Pretransplant Amiodarone Use and Post-Transplant Outcomes in Pediatric Heart Transplant: A Propensity Score Analysis of the ISHLT Transplant Registry"*

**Butts R, Sutcliffe D**, Davies R, Jaquiss R, Pirolli T, **Bano M**, Morrow R, Gao Z, Zhang S, **Kirk R**.

Oral Presentation, *"Utilization and Outcomes for BiVADs in Pedimacs Patients"*

**52<sup>nd</sup> Annual Meeting of the AEPC (Association for European Paediatric and Congenital Cardiology), Athens Greece, May 2018****Gerald Greil**

Session: Difficult Adult Congenital Heart Disease Cases, *"Ask the Experts: A Case of Coronary Anomaly: From Imaging to Treatment"*

Session Chair, *"CMR of the Fetal and Neonatal Heart"*

Session Chair, Moderated Oral Poster Session, *"Imaging"*

Burkhardt BEU, Michael JT, Tran A, **Tandon A, Hussain T**.

Moderated Oral Poster Session, *"Atrial Volume and Function in Univentricular Patients After Fontan Palliation"*

Full PM\*, Engelhardt S, Burkhardt BEU, **Tandon A**, Velasco Forte MN, **Greil GF**, Wolf I, Lamata P, **Hussain T**.

Oral Presentation, *“Patient-specific Shape Modeling to Predict Response to Pulmonary Valve Replacement in Patients with Repaired Tetralogy of Fallot”*

### Joint Annual Meeting ISMRM-ESMRMB, Paris, France, June 2018

#### Tarique Hussain

Chair of Session, *“MRI Catheterization: From Birth to Primetime”*

Chair of Session, *“Ask the Experts: MRI Catheterization”*

Burkhardt BEU, Brown NK, Carberry JE, Velasco Forte MN, Bryne N, **Hussain T**, **Greil GF**, **Tandon A**.

Electronic Poster, *“Influence of Contrast, Sequence, Threshold, and Observer on 3D Segmentation of the Right Ventricular Outflow Tract for Intervention Planning”*

Chabiniok R, Tompkins RM, Gusseva M, **Tandon A**, **Greil G**, Moireau P, Chapelle D, **Hussain T**.

Electronic Poster, *“Augmenting the Interpretation of Cardiac MRI by Biomechanical Modeling: Application to Tetralogy of Fallot”*

Greer JS, Michael J, Burkhardt BEU, **Tandon A**, **Greil GF**, **Hussain T**, Madhuranthakam AJ.

Oral Presentation, *“Caval Blood Flow Distribution in Fontan Circulation: Comparison Between ASL-Measured Pulmonary Perfusion and 4D Flow”*

Henningson M, **Greil GF**, Abou Zahr R, **Tandon A**, Burkhardt BEU, **Hussain T**.

Electronic Poster, *“Volumetric Black-blood Fast Spin Echo for the Visualisation of Whole-heart and Great Vessels”*

Mura J, Sotelo J, **Tandon A**, **Hussain T**, Tran A, Uribe S.

Poster, *“Local Pulse Wave Velocity from 4D-flow MR Applied in Familial Hypercholesterolemia Patients”*

Sotelo J, **Tandon A**, Tran A, Mura J, Hurtado DE, **Hussain T**, Uribe S.

Oral Presentation, *“3D Hemodynamics Characterization in Patients with Hypercholesterolemia Using 4D Flow Data and a Finite Element Method”*

### Other Conferences

Alcos S, Zabala L, Arar Y, **Dimas VV**.

SPA/AAP Pediatric Anesthesiology Meeting, Phoenix, AZ, March 2018

Poster, *“Anomalous Left Coronary Artery from the Pulmonary Artery in an Asymptomatic Two-year-old After Patent Ductus Arteriosus Closure: A Near Miss Case Report”*

Geoffrion T, Pirolli T, Pruszynski J, **Dyer A**.

STSA (Southern Thoracic Surgical Association) 65<sup>th</sup> Annual Meeting, Amelia Island, FL, November 2018

Oral Presentation, *“Mitral Valvuloplasty and Mitral Valve Replacement in Infants Less Than One-Year-Old”*

Engelhardt K, **Ikemba C**, **Puente R**.

21<sup>st</sup> Annual Update on Pediatric and Congenital Cardiovascular Disease, Scottsdale, AZ, February 2018  
 Poster, *“Use of Prostaglandin E1 to Augment Cardiac Output in Neonatal Myocarditis”*

**Tandon A**, Burkhardt BEU, Batsis M, **Zellers T**, Velasco Forte MN, Valverde I, **Hussain T**.

NeoHeart 2018, Fort Worth, TX, March 2018  
**Top Abstract Winner: Outstanding Physician Scientist Award**  
 Oral Presentation, *“Transcatheter Closure of Sinus Venosus Defects – Procedural Feasibility Using Virtual Reality Planning”*

**Tandon A**, Burkhardt BEU, Batsis M, **Zellers T**, Velasco Forte MN, McMahan R, Valverde I, **Hussain T**.

CSI Frankfurt 2018, Frankfurt, Germany, June 2018  
 Poster Presentation, *“Transcatheter Closure of Sinus Venosus Defects – Procedural Feasibility Using Virtual Reality Planning”*

**Poonam Thankavel**

4<sup>th</sup> Symposium on Coronary Artery Anomalies, Houston, TX, December 2018  
 Debate, *“Exercise Restriction Should Not Be Utilized in the Management of Anomalous Aortic Origin of the Coronary Artery”*

**Education and Training**

The Division is dedicated to the training of medical students, residents, and fellows.

**Medical Students**

- Third-Year Pediatric Rotations:
  - Cardiology inpatient rotations with three medical students throughout the year
  - Pediatric Cardiology Clinic Days
- Fourth-Year Electives in Pediatric Cardiology:
  - Cardiac Outpatient Clinic Rotation
  - Cardiac Intensive Care Unit Rotation
  - Cardiac Imaging Rotation (MRI, CT, echocardiography)

**Residents**

The Division of Pediatric Cardiology plays a major role in the training of pediatric residents. Training occurs at many levels.

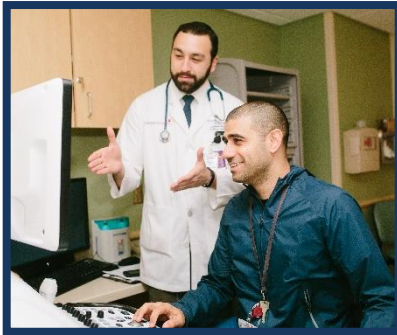
- Inpatient Training:
  - Three interns and one senior resident typically participate on the cardiology inpatient service, caring for patients on a 22-bed cardiology floor with the supervision of the attending cardiologist
  - An elective is available for residents to rotate in the Cardiac Intensive Care Unit
- Outpatient Training:
  - One or two second- or third-year residents are typically training in the Cardiology Outpatient Clinic under the supervision of the attending cardiologists



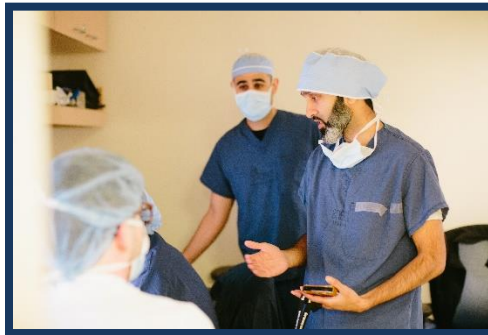
**Dr. William Scott with medical students  
 Olivia Nguyen and Hiep Phan**

**Fellows**

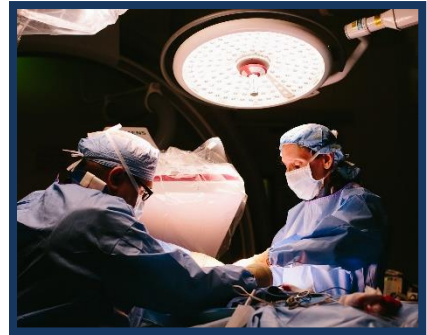
The Pediatric Cardiology fellowship currently accepts two trainees per year in the categorical program. In addition to the standard three-year fellowship program, up to three qualified fellows a year are offered an additional fourth-year training programs in either cardiac critical care, interventional cardiology, advanced cardiac imaging, electrophysiology, heart transplantation or cardiac MRI. The structure of these experiences depends on the interests and skills of the individual fellow. Categorical fellows rotate through cardiac outpatient, inpatient, critical care, preventive cardiology, adult congenital heart disease, cardiac catheterization, electrophysiology, echocardiography, MRI and cardiac transplantation. They also spend up to one year participating in clinical, translational, or basic science research. The program provides fellows the training, tools, and philosophy necessary for advancing the field of pediatric cardiology within their areas of choice. All pediatric cardiology faculty members are actively involved in the fellows' training.



Fellows Silvestre Duran and Yousef Arar



Fellow Yousef Arar watches as Dr. Suren Reddy does a Cath MRI



Fellow Andrew Tran with Dr. Alana Zeltser in the Cath Lab

**Research Activities**

Members of the Division of Pediatric Cardiology are engaged in multiple research projects to advance the care of children with heart disease.

**Basic Science**

An exciting new area of investigation is the development of biodegradable stents for use in the cardiovascular system. Current research is directed at an evaluation of the tissue response to these materials in animals. Cardiopulmonary bypass is known to have adverse effects on neurologic development, but a clear understanding of the mechanisms is lacking. Using a mouse model of bypass, investigation is underway to evaluate biomarkers of injury.

Another new area of investigation is to optimizer cardiovascular support therapy for pediatric patients with end stage heart failure. Currently the only ventricular assist devices available require surgical placement. Researchers are investigating in an animal model the feasibility of a catheter delivered devise. One additional animal research area is the optimization of technologies for fetal intervention.

In close cooperation with the Department of Radiology faculty have access to the Advanced Imaging Research Center at UT Southwestern. This gives staff members access to novel cardiovascular research technology to contribute to existing research as well as opportunity to design their individual research projects.

**Clinical Sciences**

The Pediatric Cardiology Division participates in multiple multicenter trials. In interventional catheterization, current trials are assessing various devices, including the Amplatzer and Helex occluders, and management of coarctation, including the placement of stents. It is anticipated that a recently completed multicenter trial of athletic screening processes will be used for a broader national evaluation.

The Division is contributing to a quality initiative to assess the care of patients with hypoplastic left heart syndrome. A multicenter effort is also underway to evaluate the use of ventricular assist devices in the pediatric population.

Collaborative studies within the Department of Pediatrics include protocols to evaluate stroke, migraine, and complications of sickle cell disease and childhood cancer.

Ongoing areas of research interest include epidemiologic studies of congenital heart disease, particularly within the state of Texas, natural history studies of patent ductus arteriosus in pre term neonates; evaluation of renal function with heart catheterization, markers for cardiac transplant rejection, development of new techniques for pediatric cardiovascular MRI; 3D printing and modeling of congenital heart disease; and using cutting-edge wearable sensors, combined with innovative big data techniques, to improve monitoring of children with heart disease while at home.

## Clinical Activities

The Pediatric Cardiology division offers a comprehensive program of specialized care at the Heart Center at Children's Health<sup>SM</sup> for children with congenital and acquired heart diseases, and children who have grown into adults with congenital heart disease. The Heart Center's team of professionals includes cardiologists, cardiac surgeons, cardiac intensivists, neonatologists, and cardiac anesthesiologists. In addition to providing the highest quality clinical and surgical care, our faculty members are committed to improving the health of children everywhere by sharing innovations and research.

### **Inpatient Services**

Inpatient service is divided between the cardiac intensive care unit and the cardiology inpatient floor, on which all beds have telemetry capability with central monitoring. The inpatient floor functions as a "step-down" unit with the capacity to manage higher acuity patients, including those with temporary pacemakers and vasoactive infusions. There are usually 20 patients in the cardiac intensive care unit and 20 patients on the cardiology floor. New consultations average three to five per day.

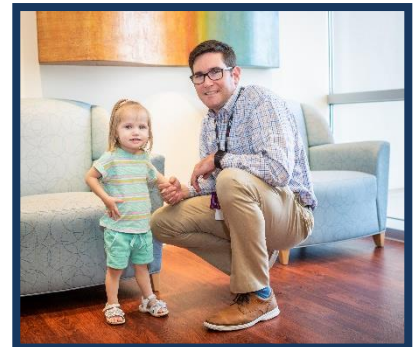
### **Outpatient Services**

Approximately 12,000 cardiology outpatients are seen each year at the Heart Center and regional outreach clinics. Subspecialty cardiology clinics, including heart transplantation, heart failure, arrhythmia, pacemaker, preventive cardiology, Safe-at-Home for post-op Fontan, coronary anomaly, and young adult congenital heart disease, are held on a weekly or monthly basis.

### **Preventive Cardiology Clinic**

A preventive cardiology clinic serves children with hyperlipidemia and hypercholesterolemia and children with metabolic syndrome (i.e. obesity, insulin resistance, increased triglycerides, decreased high density lipoprotein, and hypertension). A team of physicians, dietitians, and nurses provides comprehensive physical assessments and dietary evaluations for patients and their families, with the development of individualized programs, including:

- Diet
- Life style modification
- Treatments, including natural as well as prescription medications



**Dr. Ryan Butts**



**Dr. Matthew Lemler**

**Pediatric Echocardiography Laboratory**



**Dr. Gerald Greil**

The pediatric echocardiography laboratory at Children’s Health is Intersocietal Accreditation Commission (IAC) accredited for pediatric transthoracic, transesophageal, and fetal echocardiography. Four dedicated sub-specialty trained physicians staff the laboratory and provide coverage 24/7. The team consists of highly trained pediatric sonographers who perform approximately 12,000 studies a year and provides direct services for three primary hospitals and two outpatient sites. In addition, we provide support services for tele-echocardiography at three additional hospitals and four outreach clinics.

The laboratory offers the latest technology including fetal echocardiography, stress imaging, 3 dimensional and strain imaging and provides imaging support for the cardiac operating rooms, ECMO cannulation, and catheterization laboratory.



**Dr. Thomas Zellers**

The laboratory has a strong track record of academic endeavors, including research on congenital coronary artery imaging, identification of rejection in transplanted hearts, and evaluation of single ventricle palliation. We have many successful research collaborations with other divisions in pediatrics including neonatology, hematology/oncology and neurology. We have recently participated in a multi-center National Institute of Health (NIH) funded study to determine normal values for pediatric echocardiography.

**Fetal Heart Program**

Our fetal echocardiography program is both IAC (intersocietal accreditation commission) and Joint Commission Disease Specific Certified. We performed more than four hundred fifty fetal echocardiograms and consultations in 2018. The program expertly coordinates prenatal cardiac evaluation, counseling, and delivery planning to ensure critical congenital heart conditions receive the care they need at precisely the right time. Comprehensive multidisciplinary consultations may include an imaging cardiologist, electrophysiology nurse, cardiothoracic surgeon, social work, neurodevelopmental specialist, and introduction to our “safe at home” program for interstage single ventricle monitoring program. We strive to improve the quality of our counseling and outcomes by participating in multi-institutional studies coordinated by the Fetal Heart Society and through the NPCQIC the National Pediatric Cardiology Quality Initiative Consortium.

**Patient Statistics**

The following numbers for 2018 include patient visits for Children’s Dallas and Plano, as well as our outreach clinics in Abilene, Odessa and Tyler, and Telemedicine which is handled through the Outreach Group.

	<b>2017</b>	<b>2018</b>
<b>Surgical Procedures</b>		
Cardiac Operations	519	730
ACHD Operations	30	46
Heart Transplant	18	26
<b>Diagnostic Testing and Cardiac Imaging</b>		
Electrocardiograms	16,684	12,584
ECHO	11,741	11,997
Holters	998	904
Fetal ECHO	514	466
Cardiac MRIs	497	757
Stress Tests	168	201



**Cardiac Catheterization Procedures**

Interventional Cardiac Caths	617	635
Biopsy Cardiac Caths	135	99
Diagnostic Cases	164	161
EP Studies & Ablation Procedures	171	163
Pacemaker & Defibrillator Implants	26	26

**Outpatient Clinic Patient Encounters**

Dallas	9,108	9,260
Plano	2,462	2,806
Outreach	1,267	1,041
Presbyterian-Dallas	106	173

**Current Grant Support****Ryan Butts**

**Grantor:** American Heart Association Mentored Clinical Research Program  
**Title of Project:** Effect of Carvedilol on Exercise Performance in Fontan Patients  
**Role:** Principal Investigator  
**Dates:** 07/2016 - 07/2018

**Tarique Hussain**

**Grantor:** National Science Foundation (I-Corps Proposal ID 1844417)  
**Title of Project:** Virtual Reality System to Plan Cardiovascular Intervention  
**Role:** Principal Investigator (Co-Investigators: A. Tandon , B. Lang)  
**Dates:** 08/2018 – 04/2019

**Grantor:** Inria (French National Mathematics & Computer Science)  
**Title of Project:** International Associate Partners Team  
**Role:** Co-Principal Investigator  
**Dates:** 01/2016 – 02/2020

**Grantor:** Moss Foundation  
**Title of Project:** Radiation-Free Cardiac Catheterization using MRI Guidance  
**Role:** Principal Investigator (Co-Investigators: S. Reddy, G. Greil)  
**Dates:** 09/2017 to 03/2019

**Grantor:** Siemens, USA  
**Title of Project:** Biplane Overlay of Cross-Sectional Imaging onto Cardiac Catheterization  
**Role:** Principal Investigator (Co-Investigator: G. Greil)  
**Dates:** 02/2019 to 08/2020

**Grantor:** Children's Clinical Research Advisory Council  
**Title of Project:** 3D Printing of Patient Specific Congenital Heart Defects and Comparisons to Conventional Imaging Methods  
**Role:** Principal Investigator/Scientific Mentor (Co-Investigators: G. Greil, S. Reddy)  
**Dates:** 02/2016 – 02/2018

**Grantor:** Action Medical Research  
**Title of Project:** Improving Surgical Decisions in Hypoplastic Left Heart Syndrome (HLHS) Through Computational Cardiac Models  
**Role:** Co-Investigator  
**Dates:** 09/2015 – 02/2019

**Grantor:** BHF PG/15/104/31913

**Title of Project:** How Accurate Are Our Clinical Measures of Aortic Stiffness? A Combined In Vitro, In Silico and In Vivo Study

**Role:** Co-Investigator

**Dates:** 02/2016 – 02/2019

**Grantor:** Texas Neurofibromatosis Foundation Grant

**Title of Project:** Cardiovascular Abnormalities in Patients with Neurofibromatosis

**Role:** Co-Investigator

**Dates:** 06/2016 to 06/2018

### Richard Kirk

**Grantor:** International Society of Transplantation

**Title of Project:** International Pediatric Heart Failure Registry

**Role:** Co-Investigator

**Dates:** 2015 – 2018

### Lynn Mahony

**Grantor:** National Heart, Lung and Blood Institute

**Title of Project:** Pediatric Heart Disease Research Network

**Role:** Steering Committee Chair

**Dates:** 2018 – 2019

**Grantor:** Cincinnati Children's Hospital

**Title of Project:** Quality of Life Assessment in the Pediatric Cardiac Population: Testing the Pediatric Cardiac Quality of Life Inventory

**Role:** Principle Investigator

**Dates:** 2005 – ongoing

### Animesh Tandon

**Grantor:** Thrasher Foundation

**Title of Project:** Predictive analytics to prevent adverse events in interstage single ventricle heart disease

**Role:** Principal Investigator

**Dates:** 02/2016 – 01/2018

**Grantor:** Children's Clinical Research Advisory Committee (CCRAC)

**Title of Project:** 3D Printing of Patient-Specific Congenital Heart Defects and Comparisons to Conventional Imaging Methods

**Role:** Principal Investigator

**Dates:** 02/2016 – 01/2018

**Grantor:** UT Southwestern Center for Translational Medicine Swim with the Sharks Grant

**Title of Project:** Predictive Analytics to Prevent Adverse Events in the Interstage Period in Infants with Single Ventricle Heart Disease

**Role:** Principal Investigator

**Dates:** 05/2017 – 04/2018

### Ilana Zeltser

**Grantor:** NIH / Children's Hospital of Philadelphia

**Title of Project:** Hypertrophic Cardiomyopathy in Children: Age Specific Risk Stratification for Sudden Death

**Role:** Co-Investigator

**Dates:** 06/2014 – 06/2019

## Peer-Reviewed Publications

1. Auerbach SR, Everitt MD, **Butts RJ**, Rosenthal DN, Law YM. [The Pediatric Heart Failure Workforce: An International, Multicenter Survey](#). *Pediatr Cardiol*. 2018 Feb;39(2):307-314. PMID: 29147800
2. Blume ED, VanderPluym C, Lorts A, Baldwin JT, Rossano JW, Morales DLS, Cantor RS, Miller MA, St Louis JD, Koehl D, **Sutcliffe DL**, et al. [Second annual Pediatric Interagency Registry for Mechanical Circulatory Support \(Pedimacs\) report: Pre-implant characteristics and outcomes](#). *J Heart Lung Transplant*. 2018 Jan;37(1):38-45. PMID: 28965736
3. **Butts RJ**, Dipchand AI, **Sutcliffe D**, **Bano M**, **Dimas V**, Morrow R, Das B, **Kirk R**. [Comparison of basiliximab vs antithymocyte globulin for induction in pediatric heart transplant recipients: An analysis of the International Society for Heart and Lung Transplantation database](#). *Pediatr Transplant*. 2018 Jun;22(4):e13190. PMID: 29878688
4. Cecelja M, Jiang B, Keehn L, **Hussain T**, Silva Vieira M, Phinikaridou A, **Greil G**, Spector TD, Chowienczyk P. [Arterial stiffening is a heritable trait associated with arterial dilation but not wall thickening: a longitudinal study in the twins UK cohort](#). *Eur Heart J*. 2018 Jun 21;39(24):2282-2288. PMID: 29590330
5. Chowdhury SM, **Butts RJ**, Hlavacek AM, et al. [Echocardiographic Detection of Increased Ventricular Diastolic Stiffness in Pediatric Heart Transplant Recipients: A Pilot Study](#). *J Am Soc Echocardiogr*. 2018 Mar;31(3):342-348.e1. PMID: 29246510
6. Chowdhury SM, **Butts RJ**, Taylor CL, et al. [Longitudinal measures of deformation are associated with a composite measure of contractility derived from pressure-volume loop analysis in children](#). *Eur Heart J Cardiovasc Imaging*. 2018 May 1;19(5):562-568. PMID: 29053805
7. Conway J, Miera O, Adachi I, Maeda K, Egtesady P, Henderson HT, Guleserian K, Fan CS, **Kirk R**; Pediatric VAD Investigators. [Worldwide Experience of a Durable Centrifugal Flow Pump in Pediatric Patients](#). *Semin Thorac Cardiovasc Surg*. 2018 Autumn;30(3):327-335. PMID: 29551744
8. Das BB, Lacelle C, Zhang S, Gao A, **Fixler D**. [Complement \(C1q\) Binding De Novo Donor-Specific Antibodies and Cardiac-Allograft Vasculopathy in Pediatric Heart Transplant Recipients](#). *Transplantation*. 2018 Mar;102(3):502-509. PMID: 28885488
9. Dedieu N, Silva Vieira M, Fenton M, Wong J, Botnar R, Burch M, **Greil G**, **Hussain T**. [The importance of qualitative and quantitative regional wall motion abnormality assessment at rest in pediatric coronary allograft vasculopathy](#). *Pediatr Transplant*. 2018 Aug;22(5):e13208. PMID: 29733526
10. Dipchand AI, **Kirk R**, Naftel DC, et al.; Pediatric Heart Transplant Study Investigators. [Ventricular Assist Device Support as a Bridge to Transplantation in Pediatric Patients](#). *J Am Coll Cardiol*. 2018 Jul 24;72(4):402-415. PMID: 30025576
11. Henningsson M, Zahr RA, **Dyer A**, **Greil GF**, Burkhardt B, **Tandon A**, **Hussain T**. [Feasibility of 3D black-blood variable refocusing angle fast spin echo cardiovascular magnetic resonance for visualization of the whole heart and great vessels in congenital heart disease](#). *J Cardiovasc Magn Reson*. 2018 Nov 26;20(1):76. PMID: 30474554
12. Hoskoppal A, Menon S, Trachtenberg F, et al.; Pediatric Heart Network Investigators (**Mahony L**). [Predictors of Rapid Aortic Root Dilatation and Referral for Aortic Surgery in Marfan Syndrome](#). *Pediatr Cardiol*. 2018 Oct;39(7):1453-1461. PMID: 29948025
13. James L, **Tandon A**, Nugent A, **Malik S**, **Ramaciotti C**, **Greil G**, Zabala L, Forbess J, **Hussain T**. [Rationalising the use of cardiac catheterisation before Glenn completion](#). *Cardiol Young*. 2018 May;28(5):719-724. PMID: 29506588
14. Johnston SC, Easton JD, Farrant M, Barsan W, Conwit RA, Elm JJ, Kim AS, Lindblad AS, Palesch YY; Clinical Research Collaboration, Neurological Emergencies Treatment Trials Network, and the POINT Investigators (**Mahony L**, **Malik S**). [Clopidogrel and Aspirin in Acute Ischemic Stroke and High-Risk TIA](#). *N Engl J Med*. 2018 Jul 19;379(3):215-225. PMID: 29766750

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**2018 Senior Fellows' Research Day**  
 Graduating fellows Jerry Michael and Andrew Tran with Drs. Sadia Malik, Fellowship Director, and Gerald Greil, Division Director