Fellowship Training Program in Clinical and Investigative Pediatric Cardiology

Department of Pediatrics
University of Texas Southwestern Medical Center
Children’s Medical Center at Dallas
VISION
To train future leaders in pediatric cardiology who will advance our field by developing
competencies in clinical pediatric cardiology, teaching, research, healthcare systems, life-long
learning and professionalism.

MISSION
We strive to create a training environment that will foster not only quality clinical training, but also
rigorous inquiry and mentoring that will lead to development of the next generation of leaders in
pediatric cardiology.

AIMS
• Selection of applicants with a high degree of motivation and self-direction who are able and
  willing to use available resources to become outstanding and compassionate clinicians,
  effective teachers, innovative leaders, and/or pioneering researchers.
• Ensure development of basic and clinical knowledge, procedural skills, clinical judgment,
  professionalism and interpersonal skills, and abilities necessary to continue to develop these
  skills through the course of a long career, as required of a leader in pediatric cardiology.
• Customization of the training experience to ensure that each fellow identifies areas of
  scholarly activity that overlap their clinical and academic interests.
• Promotion of a collegial environment that enables fellows to grow and learn
• Preparation for career transitions through career development opportunities
• Certification in Pediatric Cardiology by the American Board of Pediatrics
OVERVIEW

The University of Texas Southwestern Medical Center (UTSW) is a top ranked, multi-faceted academic institution nationally recognized for its excellence in educating physicians, biomedical scientists, and other health-care professionals. The Heart Center at Children’s Health Dallas, the affiliated nonprofit pediatric hospital, offers a comprehensive program of specialized care for children with congenital and acquired heart diseases.

Recent advances in developmental biology and molecular genetics have provided important insight into the pathophysiological mechanisms underlying both congenital and acquired cardiovascular disease. Technical advances in imaging, interventional catheterization, and surgical techniques also enable us to provide improved care for our patients.

The goal of our fellowship program is to prepare the fellow for a career in academic pediatric cardiology. We view our program not as a continuation of residency training but rather, the first step in a career in academic medicine. We strive to create a training environment that will foster not only quality clinical training, but also rigorous inquiry and mentoring that will lead to development of the next generation of leaders in pediatric cardiology. As such, we welcome applicants with a high degree of motivation and self-direction who are able and willing to use available resources to become superior clinicians and researchers.

To provide a base upon which an academic career can be built, we expect the fellow to be involved in the design of a curriculum to meet his/her particular interests during the fellowship. Although our clinical service is quite busy, our faculty members are very involved in all aspects of the clinical service. Thus, we are able to assign fellows to clinical duties based on individual training needs rather than according to service needs. After completing the program, the fellow should have the training, tools, and philosophy necessary for advancing the field of pediatric cardiology within his/her area of choice. Our program meets all the requirements of the American Board of Pediatrics for subspecialty training in cardiology and is approved by the Accreditation Council for Graduate Medical Education (ACGME).

We hope that you find this website useful. We welcome your comments and questions and look forward to your continued interest in the fellowship program in pediatric cardiology at the University of Texas Southwestern Medical Center in Dallas.

If you need further information, please feel free to contact:

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Pediatric Cardiology Fellowship Program
University of Texas Southwestern Medical Center
CMC Cardiology
1935 Medical District Drive
Dallas, TX 75235-9787
ELIGIBILITY AND APPLICATION PROCEDURE

To be considered, applicants must have completed a fully accredited pediatric residency training in North America by the beginning of the fellowship. Fellowship applicants must be board certified in pediatrics by the American Board of Pediatrics (ABP) or must be eligible to take the ABP general pediatric examination during the first year of fellowship training. In addition, graduates of foreign medical schools must possess a valid ECFMG certificate. We do accept applications from persons holding J1 visas.

**According to institutional policy, we cannot accept applications from anyone holding any type of H visa at the time of application.**

We have positions for two fellows each year. You can apply to the UT Southwestern Pediatric Cardiology Fellowship program through the Electronic Residency Application Service (ERAS) Web site (https://www.aamc.org/students/medstudents/eras/fellowship_applicants/).

We participate in the Pediatric Cardiology Fellowship Match Program administered by the National Resident Matching Program (NRMP).

Application Requirements Checklist:

We accept applications until February 15, 2017, through the ERAS system. (Please submit all documents through ERAS).

- Online application through ERAS requires the following:

  - Recent photograph
  - Personal Statement
    - Why do you want to specialize in pediatric cardiology?
    - What past experiences have informed your choice of pediatric cardiology?
    - What are you looking for in a training program?
    - What are your career goals for 5-10 years after you have finished your fellowship?
  - Letters of Recommendation (maximum of four letters).
    - A member of the Division of Pediatric Cardiology at your residency training institution
    - Residency Program Director or Department Chair
    - Research mentor (if applicable)
    - An attending of your choosing
  - Dean's letter and evaluation
  - Medical school transcript
• Copies of USMLE scores or COMLEX scores. If step 3 not taken please indicate date exam is to be taken
• Copy of Immigration visa (if applicable) (send directly to Program Coordinator)
• Education Commission for Foreign Medical Graduates (ECFMG) certificate (if applicable)

Application Selection Timeline:

• **Nov. 21, 2016:** MyERAS opens to applicants
• **Dec 1, 2016:** We are able to download applications
• **Jan. 1 – Apr. 2017:** Selected applicants (among those who have submitted complete applications) will be interviewed in Dallas
• **February 15, 2017:** Deadline for the application and all supplementary material (as noted in the checklist) to be received
• **May, 2017:** Rank lists submitted - exact date to be determined
• **May, 2017:** Match results announced - exact date to be determined
**FACILITIES**

The medical center is comprised of Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and Southwestern Allied Health Sciences School. These three schools currently train more than 3,400 medical, graduate, and allied health students, residents and postdoctoral fellows each year. We have four Nobel laureates and 13 Howard Hughes Medical Institute investigators on our faculty. Additionally, UT Southwestern supports about 3300 research projects with more than $400 million in annual funding. Clinical facilities are located immediately adjacent to UTSW.

Most of the pediatric clinical work is done at Children’s Medical Center of Dallas (CMC) which is part of the Children’s Health system in the Dallas-Fort Worth metroplex; outpatient and consultation services are also provided at our hospital in Plano, TX and in various outreach clinics. Children’s Health is a private, not-for-profit institution that was established more than 80 years ago. Today, CMC is licensed for 595 beds and features a 44-bed pediatric intensive care unit, 32-bed pediatric cardiac intensive care unit (average census 22), 36-bed neonatal intensive care unit, and a 21-bed telemetry unit. We have a large outpatient clinic seeing an average of 38 outpatients locally as well as multiple outreach clinics. Cardiology care is provided through the Heart Center, which includes two cardiac catheterization laboratories, MRI facilities within the Heart Center, pre-procedure and recovery room, echocardiography examination rooms, sedation room, fetal cardiology, exercise and electrocardiography (including pacemakers) work areas, outpatient consultation facilities, faculty, fellow, nursing and administrative offices, library, conference rooms, and administrative staff, all located in one central area.

Consultations are performed on newborn infants born at newly constructed Parkland Memorial Hospital. About 10,500 infants are born each year at Parkland. The 93,000 square foot neonatal intensive care unit has 96 single patient rooms. There are 106 well newborn infant-mother rooms. Additionally, adults with congenital heart disease are cared for at Parkland and Clements University Hospitals (one of our university hospitals) and seen in consultation at CMC and Clements University Hospitals.

**PATIENT CARE**

The multidisciplinary group of specialists at the Heart Center work together to meet the full range of pediatric cardiac needs, including prenatal consultation, non-invasive diagnostic imaging, interventional catheterization, electrophysiology (including catheter ablation and device therapy), cholesterol management and cardiothoracic surgery (including heart transplantation). 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, we are committed to improving the health of children everywhere by sharing our innovations and research.

**Professional Personnel**

There are 24 pediatric cardiologists on the academic faculty at UTSW. All of the pediatric cardiologists on faculty at UTSW have offices at CMC. Many of our faculty members enjoy national and international reputations as leaders in pediatric cardiology. Surgery is performed by two cardiovascular surgeons (Drs. Roberts (Jake) Jaquiss and Timothy Pirollo), who have their offices at CMC. Cardiac intensive care is provided by cardiologists and critical care physicians with specialized training in cardiac intensive care.
Outpatient Services

Approximately 11,500 cardiology outpatients are seen each year at CMC; more are seen at various regional outreach clinics. Subspecialty cardiology clinics including: heart transplantation, heart failure, pacemaker, and preventive cardiology are held on a weekly or monthly basis.

Inpatient Services

Our inpatient service is divided between our cardiac intensive care unit and the cardiology inpatient floor in which all beds have telemetry capability with central monitoring. There are usually 17-21 patients in the cardiac intensive care unit and 14-19 patients on the cardiology floor. New consultations average 3-5 per day. More than 350 children underwent open heart surgery in 2014; another 125 underwent closed heart procedures.

CURRICULUM

In general, the duration of the program is three years. Many fellows choose to complete a fourth year to pursue a specialized clinical interest such as echocardiography or to spend time in a basic science laboratory. The exact schedule is determined in part by the fellow's interest and previous experience, but an example is shown below:

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<tr>
<th>Month</th>
<th>1st year</th>
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<th>3rd year</th>
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<td>1</td>
<td>Inpatient service</td>
<td>Research</td>
<td>Cardiac Intensive Care</td>
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<td>2</td>
<td>Imaging</td>
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<td>3</td>
<td>Electrophysiology</td>
<td>Research</td>
<td>Cardiac Cath Lab</td>
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<td>4</td>
<td>Outpatient Clinic</td>
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<td>5</td>
<td>Cardiac Cath Lab</td>
<td>Transplant</td>
<td>Inpatient Service</td>
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<td>6</td>
<td>Cardiac Intensive Care</td>
<td>Research</td>
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<td>Electrophysiology</td>
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<td>12</td>
<td>Cardiac Cath Lab</td>
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DESCRIPTION OF SPECIFIC CLINICAL ROTATIONS

Inpatient Floor-Consultation Service

The fellow is responsible for following all cardiology inpatients and performing consultations. The patients may be on the cardiology inpatient floor, in the general pediatric intensive care unit, neonatal intensive care unit, step-down or well newborn nurseries, or on another subspecialty or general pediatric ward. All patients are seen with a faculty cardiologist. Multidisciplinary rounds on the cardiology inpatient floor are held daily with the faculty cardiologist, senior (PL3) resident, 2 to 3 interns (PL1), 2 to 3 medical students and other staff. All fellows participate actively in teaching discussions with the residents and attending physician. During this rotation, the fellow becomes skilled in diagnosing congenital and acquired heart disease. He/she learns to treat patients with medical cardiology problems (e.g. congestive heart failure, pericarditis, rhythm disturbances, etc),
and to care for preoperative and postoperative patients. During the course of the fellowship, the fellow assumes more responsibility for patient management. All medical records are electronic. The inpatient floor fellow is on-call each weekday night and no more than every fourth weekend each month.

**Cardiac Intensive Care Unit**

The fellow is responsible for managing all critically ill and postoperative cardiology patients in the cardiac intensive care unit and will work with the attending cardiac intensivist, the on-service consulting cardiologist, and the cardiac surgeons. During this rotation the fellow becomes skilled in caring for postoperative patients, understanding their physiology, and managing their various complications. In addition, he/she will become familiar with cardiac anatomy, as visualized by the surgeon, and with techniques of cardiopulmonary bypass. There are many opportunities to perform procedures. The fellow will also participate in the care of patients on extracorporeal oxygen membrane oxygenators (ECMO) and ventricular assist devices. The fellow takes one week of night (12 hour shift) call; there is no other night call during this rotation. No fellow is in the hospital for more than 80 hours each week.

**Imaging**

The echocardiography laboratory is staffed by Drs. Claudio Ramaciotti, Matthew Lemler, Poonam Thankavel Punjwani and Catherine Ikemba. The goal of this rotation is for the fellow to acquire skills necessary for performing and interpreting echocardiographic studies. More than 11,800 echocardiograms (including transthoracic, transesophageal, and fetal studies) are performed each year which offers the opportunity for the trainee to be exposed to a wide variety of complex congenital/acquired heart diseases. Fellows often have the opportunity to perform the initial scan. Education is available in twice weekly echocardiographic conferences, and on a daily basis by sonographers and readers. The initial emphasis is on transthoracic 2-dimensional, M-mode, Doppler, and color Doppler studies. Fellows will become familiar with the critical questions that the echocardiogram must answer for each defect and should also understand the relationship between anatomy and hemodynamic state. This requires knowledge of the anatomy and pathophysiology of the various defects and associated abnormalities. During the second and third years the fellow gains experience in specialized areas such as transesophageal, fetal, and exercise stress echocardiography.

Our MRI team includes Drs. Gerald Greil, Tarique Hussain, Jeannie Dillenbeck, Adrian Dyer, and Animesh (Aashoo) Tandon. Under the leadership of our new Division of Cardiology chief Gerald Greil and in partnership with the Department of Radiology, the University of Texas Southwestern Pediatric Cardiology program will be a leader in the field of cardiac magnetic resonance imaging (CMR) in patients with acquired and congenital heart disease. CMR is an exciting, emerging field in pediatric cardiology that combines technology, physics, and clinical care to provide the most comprehensive cardiac evaluations for our patients. We have a magnet in the Heart Center that is primarily dedicated to cardiac imaging and is physically located next to the catheterization lab, allowing combination procedures to be performed. As part of the imaging training at UTSW, fellows will have extensive exposure to cardiac MRI. Fellows will learn how cardiac MRI, CT, and echocardiography work together to answer the critical questions for each cardiovascular lesion, in conjunction with other imaging training. They will also be exposed to image acquisition techniques, study interpretation, and quantitative analysis. Advanced techniques such as 3D reconstruction including 3D printing will also be covered.
Cardiac Catheterization

The cardiac catheterization laboratories comprise 2 angiographic suites. The laboratory is staffed by Drs. Alan Nugent, Vivian Dimas, Suren Reddy and Thomas Zellers. Just over 900 total catheterizations were performed last year that include the full range of interventional procedures. Both laboratories are state of the art and are located in the interventional suite of the Heart Center which was opened in 2014. The catheterization laboratories have direct access to Prep and Recovery, Cardiac OR, MRI and CVICU.

The overall goal for catheterization rotations is for the fellow to acquire the knowledge and skills necessary to perform a safe and thorough cardiac catheterization. The ability to obtain and interpret the necessary data to make clinical and surgical decisions is paramount to any cardiologist. A cardiology fellow is assigned for a month at a time for a minimum of 4 months over the 3-year program. Experience in catheterization of the newborn and interventional procedures begins in the first year. Fellows with a specific interest and skill level can develop expertise by participating in a fourth year of training devoted to interventional catheterization that has been present at UTSW since 2009.

Electrophysiology

Our electrophysiology staff; Drs. Ilana Zeltser and William Scott have a very active service. During this rotation, the fellow is exposed to all aspects of clinical electrophysiology including: non-invasive studies (ECGs, 24 hour ambulatory ECGs [Holter monitor], event monitoring, atrial electrograms, stress testing and tilt table testing); cardiac pacing (transesophageal, temporary, permanent), including implantation and analysis, and invasive studies including catheter ablation. The fellow will become proficient in interpreting electrocardiograms and 24-hour ECG recordings, performing and interpreting trans-esophageal ECG recordings, and assessing pacemaker and implanted cardioverter-defibrillator (ICD) function. About 16,000 electrocardiograms are performed each year. Over 250 pacemaker patients are currently in active follow-up and about 35 devices are implanted each year.

In addition, the fellow participates in electrophysiologic studies and catheter ablation procedures. All fellows will learn interpretation of intra-cardiac studies but only those with a specific interest will become proficient in performing intra-cardiac studies and ablations (requires a fourth year of fellowship). Typically, 100 catheter ablations and an additional 12 electrophysiology studies, are performed annually.

Transplantation

We are a high volume transplantation program under the direction of Drs. C. Richard Kirk, Maria Bano, Ryan Butts, Bibhuti Das, and David Sutcliffe. This rotation occurs during the research year (most often the second year) and lasts for four weeks. The fellow will attend transplant clinic and rounds with inpatients who are being evaluated for transplantation, awaiting transplantation or are status post transplantation.

Clinic Rotation

This rotation occurs during the first year (often when fellows are busy studying for their pediatrics boards). The fellow attends all scheduled clinics thereby learning how the clinic works and how to work with the electronic medical record. In addition to seeing follow-up patients with various types of heart disease, the fellow will become familiar with evaluating common problems in new patients such as chest pain, dizziness and syncope, palpitations, fast heart rate, and hypertension. This prepares the fellow for his/her continuity clinic as well as for consultations (especially in the emergency room) and patient phone calls.
Continuity Clinic and Other Clinical Activities

Beginning the second or third month of the first year, the fellow will have his/her own outpatient clinic one-half day per week. Patients assigned to this clinic will include new patients cared for by the fellow during inpatient rotations, new patients referred for outpatient consultation, and follow-up patients previously seen by the fellow. The fellow will evaluate the patient and results of laboratory data and then present his/her findings, assessment, and plan to the assigned faculty cardiologist who will also examine the patient. The goal of this experience is to provide a continuum of patient contact so that the fellow can appreciate the natural history of selected clinical problems and develop a good doctor/patient relationship. As the fellow schedules procedures such as cardiac catheterization, cardiac MRI and surgery for his/her patients, the fellow learns how to advocate for his/her patient and how to navigate the “system”, that is identify/access resources, make referrals, and coordinate services for the patient.

During the course of the program the fellow will be assigned at various times to subspecialty clinics such as preventive cardiology, obesity, and adults with congenital heart disease. We have very active clinics in each of these areas which are staffed by appropriate subspecialists. Familiarity with exercise testing and nuclear cardiology will be gained through patient care experience and formal lectures. Fellows with particular interests are welcome to arrange more extensive experiences in these and other areas.

The fellow will have ample opportunity to develop teaching skills. Pediatric residents, as well as third and fourth year medical students, are involved in patient care in both inpatient and outpatient settings. The fellow is expected to participate in all aspects of informal teaching. Third year fellows may also conduct formal teaching sessions. All fellows are also expected to prepare several formal lectures for members of the cardiology department each year. Courses directed specifically at increasing expertise in teaching are available on campus.

When not on inpatient or CICU service, the fellow will take call one weekend every 4 to 6 weeks. Beginning the second year, the fellow will also take echocardiography call for one week per month.

RESEARCH/SCHOLARLY ACTIVITY

All fellows are expected to show evidence of scholarly activity during their fellowship. Basic science, translational science and clinical science studies, a critical meta-analysis of the literature, a critical analysis of public policy relevant to the subspecialty, and a curriculum development project with an assessment component are all considered “evidence of scholarly activity”.

We do not expect fellows to have a project defined at the beginning of the fellowship. A one month rotation during the first year allows the fellow time to explore possible areas of interest. Research may be performed in clinical or basic science areas. A fellow may choose as his/her faculty mentor a person from inside or outside the pediatric cardiology division. In general, the fellow should define his/her project during the first year and spend most of the second year working on the project. In this way, a presentation can be made at a national meeting during the third year and a publication submitted to a peer-reviewed journal before the end of the fellowship. More importantly, the experience should instill the culture and value of investigative work and lay the foundation for future contributions. The trainee will develop skills in experimental design, data analysis and presentation of results. This schedule is flexible. Fellows with previous research experience, or well-defined interests, may begin research during the first year. Alternatively, some fellows planning to spend four years may not begin their research project until the third year.
Basic Science Opportunities

The University of Texas Southwestern Medical Center has an international reputation as a leading research institution and supports more than 3500 research projects annually totaling more than $400 million dollars in funding. On the basis of federal individual research grant support for basic sciences, UT Southwestern is among the top 10 biomedical research institutions in the country. The faculty is among the most distinguished in the world. UT Southwestern is home to four Nobel Laureates, 19 members of the National Academy of Sciences, 18 members of the Institute of Medicine, and 13 Howard Hughes Medical Institute Investigators. There are over 500 graduate students earning their Ph.D. degrees and over 90 students obtaining combined MD and Ph.D. degrees.

A vast array of research opportunities is available in the area of cardiovascular biology, as UT Southwestern currently boasts one of the largest concentration of investigators in this exciting area of science, including: Eric Olson, Ph.D., Helen Hobbs, Masashi Yanagisawa, MD, Ph.D., Joseph Hill, MD, and Craig Malloy MD. This critical mass has allowed the institution to successfully compete for selection as the first recipient of a Reynolds Foundation Grant, headed by Helen Hobbs, MD, for research in the cardiovascular sciences that was recently renewed bringing the total funding to $42 million. Additional post-doctoral fellows training in cardiac development, and graduate students obtaining their Ph.D. or MD, Ph.D. degrees in the laboratories, provide a rich and interactive training environment. Frequent lab meetings, journal clubs and seminars are an integral part of their experience. This effort has resulted in numerous publications representing advances in our understanding of cardiac development and the genetic basis for congenital heart defects.

The research training that will be required of the fellow will depend upon his/her prior experience and interests. If you have a particular research interest, click on this site http://www.utsouthwestern.edu/research/index.html to search for faculty interested in this area. In general, the majority of fellows focusing on basic science research will likely spend a total of four years in their training. Grants are available through the Physician Scientist Training Program at UT Southwestern http://www.utsouthwestern.edu/utsw/home/educ/pstp/ or the Reynolds Foundation, to assist in funding for these additional years. Those pursuing more clinical research will have a rich exposure to state of the art approaches in understanding the molecular basis of congenital heart disease and cardiac development through formal and informal conferences and discussion.

Clinical Science Opportunities

All of the Pediatric Cardiology faculty members are active in clinical research and as such, fellows may participate in a wide variety of projects. As indicated above, the fellows may also collaborate with investigators outside of pediatric cardiology depending on interests. Brief descriptions of current research efforts within pediatric cardiology include:

Interventional Cardiology

The interventional group is very active in clinical and pre-clinical research. We were involved in the post approval study for the Melody valve and continue to be involved in several multi-center clinical trials including: covered stents in Coarctation (COAST II), covered stents for RV-PA conduit tears
(PARCS), Nit-Occlud PDA post approval study and post market surveillance study for closure of ASD with the Amplatzer Septal Occluder. We also contribute to the NCDR IMPACT database.

The group is very active with multiple research endeavors to improve the management of structural and functional heart disease with strong collaboration with Pediatric Cardiac Surgery. Many fellows have completed research with the interventional team. The group has been awarded intramural (Children’s Clinical Research Advisory Committee) and extramural (NIH, AHA) grants. Topics of interest are biodegradable stents, percutaneous mechanical support and expandable cardiovascular conduits. Pre-clinical research is possible due to the infrastructure and support from UT Southwestern.

MRI

The pediatric CMR section is also on the forefront of research with frequent collaboration with our colleagues at UTSW, including:

- Using CMR, CT, and echo data to produce 3D printed hearts for surgical planning and research
- Access to the Advanced Imaging Research Center, UTSW’s research program dedicated to MRI research, headed by AIRC Center Director Dean Sherry, PhD, and Medical Director Craig Malloy, MD, and including access to one of the few 7 Tesla CMR scanners used in human research
- Tissue characterization and noninvasive histology to better understand the pathophysiology of heart disease in children
- Use of CMR to image animal models of heart disease, such as coarctation of the aorta as an adjunct to develop new therapeutic options
- Use of CMR to evaluate coronary artery diseases in children (e.g. Kawasaki disease, heart transplant)
- Ability to test new imaging techniques through a collaborative relationship with industry
- Collaborations with other centers throughout the country and the world

Echocardiography

In addition to continually improving quality of imaging and its impact on clinical care, research interests of faculty include congenital coronary anomalies, predicting/diagnosing rejection in heart transplant recipients by the use of strain imaging, improving assessment of progressive left ventricular systolic dysfunction in patients with myopathies, and reducing interstage mortality by frequent echocardiographic monitoring of single ventricle patients. Research opportunities for fellows are also available in the form of retrospective chart reviews and publication of interesting cases/images in pediatric cardiology.

Electrophysiology

Research activities in electrophysiology include investigation of arrhythmias in patients with complex congenital heart disease. One current analysis is based on our observation of specific arrhythmia patterns in patients with heterotaxy syndromes. Other projects are analysis of electrical storm in ICD patients, analysis of sudden death risk in hypertrophic cardiomyopathy, and data collection to refine of ECG normative criteria based upon race. Database development is underway
to more comprehensively evaluate the epidemiology and prevention of sudden cardiac death from all causes.

**Research Education**

Training in clinical research involves more than the traditional apprenticeship with an established mentor and performing a research study. The clinician investigator must be trained in research methodology which should include techniques of patient-oriented research, hypothesis generation, study design, and statistical analysis. We require all fellows to take a course in medical statistics.

UT Southwestern has made a major commitment to the development of clinical research at the medical school and has subsequently created the Department of Clinical Sciences. This department is directed by Milton Packer, MD, an adult cardiologist who is an expert in clinical trials and who has an impressive record for training young investigators. Additional extensive resources to support clinical research are available through the Clinical and Translational Science Awards (CTSA) which is a national consortium funded through the National Institutes of Health (NIH) National Center for Research Resources (NCRR) with the primary aim of creating a definable academic home for the disciplines of clinical and translational research

http://www.utsouthwestern.edu/research/translational-medicine/education/index.html

The mission of the Department is to accelerate and enhance the training and career development of clinical investigators, promote the conduct of high-quality patient-oriented research, develop effective mechanisms to facilitate translational research, and provide a formal mechanism of institutional recognition for clinical scientists.

The following divisions are supported by the Department of Clinical Sciences:

- Division of Biomedical Informatics
- Division of Biostatistics
- Division of Clinical Pharmacology
- Division of Epidemiology
- Division of Health Services Research
- Division of Research Ethics

The curriculum is well suited for candidates who possess both a working knowledge of clinical medicine and excellent scholastic aptitude. Required course work may include didactic courses in basic biostatistics, epidemiology, clinical research design, translational research, molecular genetics, grant-writing skills, and data analysis and management.

**CONFERENCES**

1. Cardiac Catheterization Conference (1x/week)
2. Fellows Core Curriculum Course (career planning, ethical issues, research design, academic skills) (2x/month)
3. Journal club (1x/month)
4. Research Conference (2-3x/month, includes fellow didactic presentations)
5. Cardiovascular Surgery Morbidity and Mortality Conference (1x/month)
6. Cardiology Pathology and Embryology Teaching Conference (2x/month)
7. Cardiology Pathology/Autopsy Review Conference (1x/qrtr)
8. Echocardiography Reading Conference (2x/week)
9. Electrophysiology Review (1x/week)
10. Wednesday Fellows’ Conference (2x/month)
11. Cardiology Billing and Coding Conference (2-3x/year)
12. Adult Congenital Heart Disease Conference (1x/month)
13. Ethics Grand Rounds (1x/month)
14. Perinatal Conference (1x/month)
15. Pediatric Grand Rounds (1x/week)
16. Pediatric Faculty Research Conference (1x/week)

TEACHING

Fellows are expected to participate in teaching of medical students, residents, fellows and even faculty. One is not “born” knowing how to teach; training in teaching skills is very important. Fellows receive specific training, and practice preparing and presenting formal lectures, shorter less formal presentations, and small group discussions. Third year fellows are expected to lead inpatient attending rounds. Additional training is available through the “Effective Teacher” lecture series at UT Southwestern.

FOURTH YEAR FELLOWSHIP POSITIONS

We offer qualified fellows additional fourth year training in cardiac critical care, interventional cardiology, imaging, heart transplantation, prospective clinical research, and basic science research. The structure of these experiences depends on the interests and skills of the individual fellow.

If you are interested in a fourth year position, please contact one of the following individuals:

Cardiac Critical Care: Joshua Koch, MD
(josh.koch@childrens.com)

Advanced Cardiac Imaging: Claudio Ramaciotti, MD
(claudio.ramaciotti@childrens.com)

Interventional Cardiac Catheterization: Alan Nugent, MBBS
(alan.nugent@utsouthwestern.edu)

THE CITY OF DALLAS

Located in north central Texas, Dallas, and its surrounding communities, are growing rapidly and have a population of nearly 3 million people. One of Dallas’ most important assets is its highly diversified economy, which provides broad employment opportunities for two-career families. Dallas enjoys one of the most sustained growth records of any major metropolitan center in the country. Dallas is consistently a destination of choice for young professionals, having one of the most stable housing markets, a strong public and private school system, and a low cost of living. With a diverse community over two million strong, Dallas benefits from rich ethnic inspirations that infuse the neighborhoods, street festivals, food, and culture of the city. This national and international spirit is furthered by the close proximity to one of the largest airports in the nation -- DFW International Airport (25 minutes from UT Southwestern).
fly non-stop to many locations in the US and outside the US. In addition, Love Field, which is less than 3 miles from UT Southwestern is served by Southwest Airlines which allows one to fly to many locations within the US at relatively low prices.

There is no state or city income tax, and local property taxes and the cost of living are lower than in most of the nation's large metropolitan centers. As a result of all of these factors, many major organizations have selected Dallas as the location for their corporate headquarters.

Food and culture feed Dallas, with dozens of world class restaurants not to mention those in Ft. Worth, less than an hour away. Dallas has the largest Arts District in the country. It includes: world-class art museums such as the Nasher Sculpture Center and the Dallas Museum of Art, as well as the Kimball Art Museum and the Modern Art Museum of Ft. Worth, a top ten ballet company (Texas Ballet Company), a top ten opera company (Dallas Opera Company), the Dallas Theatre Company and the Dallas Symphony Orchestra led by the internationally renowned conductor, Jaap van Zweden.

If the visual and performing arts are not your scene, pop culture is all around us too. Dallas has a vibrant night life with live music at intimate venues like the House of Blues and the Granada Theatre and large amphitheaters like Nokia Theatre and the Superpages.com Center, not to mention one of the largest local music festivals at Austin City Limits down the road. To add to this plethora of activities are movie theaters like AMC Northpark and the Cinemark IMAX showing the nation's leading first-run movies, and small movie theaters like the Angelika and Magnolia showing independent and foreign pictures.

And then there are the malls -- many in Dallas believe that shopping is the city's official sport (when the going gets tough, the tough go shopping). Even so, that's not the only sport in Dallas. In fact, Dallas is one of only thirteen cities in the country with all four major professional sports teams including football (Cowboys), baseball (Rangers), ice hockey (Stars), basketball (Mavericks) and soccer (FC Dallas). We also host the Byron Nelson Classic drawing the nation's best golfers.

Yes, it is warm (ok, hot) here during the summer, but we know how to do proper air conditioning, and it is often wonderfully sunny and warm here when others are buried in snow and ice during the winter. Many outdoor recreational activities are also available and, because of the mild climate, can be pursued year-round. Boating, fishing and water skiing are particularly popular in the numerous public lakes surrounding Dallas. The city of Fort Worth is a short drive from Dallas, offering additional museums and cultural activities, and Dallas is also a brief drive from the state capital, Austin, and the picturesque Texas hill country outside of Austin. More information about Dallas can be obtained from:
http://www.visitedallas.com
http://listings.guidelive.com
BENEFITS AND HOUSING

Stipends are paid according to National Institutes of Health Training Grant Guidelines, which during the past several years have allowed for substantial increments. Below are the salaries for the 2017 - 2018 fellows.

<table>
<thead>
<tr>
<th>Program Year</th>
<th>Stipend</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGY 4</td>
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</tr>
<tr>
<td>PGY 5</td>
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<tr>
<td>PGY 6</td>
<td>$74,660</td>
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<tr>
<td>PGY 7</td>
<td>$77,245</td>
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</tbody>
</table>

The current template for the fellow contract can be found at the end of this document.

Health Benefits

- Fellows are allowed two weeks of paid vacation per year of fellowship training. Additional leave (e.g., pregnancy, illness, and family issues) is at the discretion of the Program Director; however, trainees must complete 33 months of training during the course of three years. When leave is in excess of three months, the trainee will be required by ACGME guidelines to extend the training period in order to complete 33 months of training.
- “Compensatory time” is earned for fellows required to work on University holidays (about 11 each year) and may be used for additional paid leave.
- The timing of vacations is at the discretion of the Program Director and will be determined in conjunction with the trainee’s requests.
- Fellows are to give a minimum of six weeks’ notice for vacation requests if the days requested include a clinic day. Fellows are also expected to ensure that faculty members for the rotation scheduled during their vacation are aware that the fellow will be away. Final approval of vacation requests is at the discretion of the program director.
Other Benefits

The program provides support for the purchase of several standard textbooks, journal subscriptions, membership dues in major professional societies, and computer software. Attendance at and participation in scientific professional meetings is an important part of the educational experience. Registration fees and travel expenses are covered for one meeting per year of fellowship.

Housing

Dallas offers a wide variety of housing options, ranging from high-rise apartments to homes on treelined streets in established neighborhoods. One bedroom apartments can be rented for $900-1,300/month within 20 minutes of the campus and for about $800-1,100/month within 35 minutes of campus. Free parking is available in a garage located less than a 5 minute walk from the hospital.

POLICIES AND PROCEDURES
CARDIOLOGY FACULTY

F. Gerald Greil, MD, PhD
Professor of Pediatric Radiology and Advanced Imaging Research Center
Division Chief

Medical Education: Technical University of Munich, Germany
Cardiology Fellowship: Children’s Hospital, University of Tübingen, Germany
Advanced Training: Cardiac MRI, Children’s Hospital Boston, Harvard
Special Interests: Cardiac Magnetic Resonance Imaging

Recent Publications:

Thor Edvardsen, (Norway), AEPC: Konrad Brockmeier, (Germany), Shakeel Qureshi, (UK), and Joerg Stein, (Austria). Indications for cardiovascular magnetic resonance in children with congenital and acquired heart disease: an expert consensus paper of the Imaging Working Group of the AEPC and the Cardiovascular Magnetic Resonance Section of the EACVI.Cardiol Young; 2015; 25(5):819-38.


Current Projects

- Accelerated 3D Cardiac Functional Assessment using Cardiac Self-gating and Undersampled Respiratory Motion Compensation Techniques
- Atherosclerosis stratification using advanced imaging and computer-based models
Maria Bano, MD  
Assistant Professor of Pediatrics

**Medical Education:**  
Aga Khan Medical College, Karachi, Pakistan

**Cardiology Fellowship:**  
Emory University, School of Medicine, Atlanta, GA

**Special Interests:**  
Transplantation

**Recent Publications:**
- **Bano M**, Krasemann T, Rosenthal E, Qureshi SA. Results of stent implantation for native and recurrent coarctation of the aorta-follow-up of up to 13 years. Catheter Cardiovasc Interv. 2011 Sep 1; 78(3):405-12

Sarah D. Blumenschein, MD  
Clinical Associate Professor of Pediatrics

**Medical Education:**  
Cornell University Medical College

**Cardiology Fellowship:**  
Duke University Medical Hospital

**Special Interests:**  
Diagnosis and treatment of children with familial lipid disorders

**Recent Publications:**
Ryan Butts, MD
Assistant Professor

**Medical Education:** Medical University of South Carolina

**Cardiology Fellowship:** Medical University of South Carolina
MUSC Children’s Hospital

**Special Interests:** Heart failure, critical care, clinical trials, cardiac transplantation

**Recent Publications:**

- **Butts RJ**, Hsu D, Baker GH. Feasibility of conductance catheter-derived pressure volume loops to investigate ventricular mechanics in shunted single ventricles. Cardiol Young. 2013 Oct;23(5):776-9


• Butts RJ, Savage AJ, Atz AM, Heal EM, Burnette EL, Kavarana MM, Bradley SM, Chowdhury SM. Validation of a Simple Score to Determine Risk of Early Rejection After Pediatric Heart Transplantation. JACC Heart Fail. 2015 Sep; 3(9):670-6.


Current Projects:
- Effect of Carvedilol on Exercise Performance in Fontan Patients
- Use of advance cardiac therapies in Duchenne Muscular Dystrophy
- Induction therapy and graft survival in pediatric heart transplant
- Amiodarone effect of graft survival in pediatric heart transplant
- International Pediatric Heart Failure Registry
- Pediatric Myocardidtis: Multi-institutional Observational Study

Bibhuti Das, MD
Associate Professor of Pediatrics

Medical Education: M.K.C.G. Medical College, Berhampur, India
Cardiology Fellowship: Children’s Hospital, University of Colorado Health Science Center,
Denver, CO
Heart Institute for Children, Advocate Hope Children’s Hospital, Oak Lawn, IL

Special Interests: Heart failure, heart transplantation

Recent Publications:


Current Projects:

- Role of HLA antibodies in Pediatric Heart Transplantation
V. Vivian Dimas, MD  
Associate Professor of Pediatrics

**Medical Education:**  
University of Oklahoma College of Medicine

**Cardiology Fellowship:**  
Baylor College of Medicine/Texas Children’s Hospital

**Advanced Training:**  
Pediatric heart failure and transplantation, Interventional cardiology,  
Baylor College of Medicine/Texas Children’s Hospital

**Special Interests:**  
Percutaneous therapies for the treatment of congestive heart failure  
Heart transplantation

**Recent Publications:**

Current Projects:
- Nit-Occlude Post-Approval Study
- AMPLATZER® duct occluder II clinical study
- Coarctation of the aorta: long term outcomes and comorbidities.
- Impella pediatric left ventricular assist device as novel therapy - Animal Study
- Closure of ventricular septal defect with the Amplatzer VSD occluder post approval study
- Coarctation of the aorta stent trial (COAST)
- GORE HELEX septal occluder post approval study
- Medtronic Melody transcatheter pulmonary valve-post-approval study

Adrian K. Dyer, MD
Assistant Professor of Pediatrics

Medical Education: University of Texas, Galveston
Cardiology Fellowship: Children’s Medical Center, University of Texas Southwestern Medical Center
Advanced Training: Echocardiography, Children’s Medical Center, University of Texas Southwestern Medical Center
Special Interests: Echocardiography, fetal echocardiography, MRI, outreach

Recent Publications:

Current Projects:
- Outcomes of repaired tetralogy of Fallot using a valve-sparing approach
- Fetal predictors of clinical presentation and outcome in tetralogy of fallot with absent pulmonary valve
David E. Fixler, MD
Professor of Pediatrics

Medical Education: University of Chicago
Cardiology Fellowship: Children’s Memorial Hospital, Chicago, IL
Postdoctoral: Cardiovascular Research Institute, University of California, San Francisco
Special Interests: Heart transplantation, hypertension, Kawasaki disease, epidemiology of congenital heart defects

Recent Publications:


• Shafer K, Garcia JA, Babb TG, Fixler DE, Levine BD. The importance of the muscle and ventilator pumps during exercise in patients without a sub-pulmonary ventricle (Fontan operation). J Am Coll Cardiol; 2012; 60(20); 2115-2121.


Lisa C. Heistein, MD
Assistant Professor of Pediatrics

Medical Education: The Ohio State University College of Medicine
Cardiology Fellowship: Children’s Medical Center, University of Texas Southwestern Medical Center
Advanced Training: Echocardiography, Children’s Medical Center, University of Texas Southwestern Medical Center
Special Interests: Echocardiography, Fetal Echocardiography

Recent Publications:

Current Projects:
- ABO-incompatible Cardiac Transplant
- Evaluation of a noninvasive system to identify acute rejection in pediatric cardiac transplant patients

Tarique Hussain, MD, PhD
Associate Professor of Pediatrics & Radiology

Medical Education: University of Cambridge
Cardiology Fellowship: University Hospitals Birmingham
Advanced Training: Cardiac MRI, PhD
Special Interests: Cardiac MRI, new cardiac imaging technologies, 3D printing techniques
Recent Publications:

- Nassar MS, Bertaud S, Goreczny S, Greil G, Austin CB, Salih C, Anderson D, Hussain T. Technical and anatomical factors affecting the size of the branch...


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**Catherine M. Ikemba, MD**
Associate Professor of Pediatrics

**Medical Education:** University of Southern California

**Cardiology Fellowship:** Baylor College of Medicine/Texas Children’s Hospital

**Advanced Training:** Echocardiography, Baylor College of Medicine/Texas Children’s Hospital

**Special Interests:** Echocardiography, Fetal Echocardiography

**Recent Publications:**


- Mir A, Lemler M, Ramaciotti C, Blalock S, **Ikemba CM**. Hypertrophic cardiomyopathy in a neonate associated with nemaline myopathy. Congenit Heart Dis; 2012; 7(4):E37-


Current Projects
• Curriculum development for integrated cardiac pathology and embryology education

Colin E. Kane, MD
Assistant Professor of Pediatrics

Medical Education: Loyola University of Chicago, Stritch School of Medicine
Cardiology Fellowship: Sibley Heart Center, Emory University
Special Interests: Echocardiography, fetal echocardiography, outreach cardiology, fellowship training

Recent Publications:


• Young AC, Schwarz E, Medina G, Obafemi A, Feng SY, Kane C, Kleinschmidt K.

C. Richard Kirk, MA, MB, BChir, FRCP, FRCPCH
Director of Heart Transplant
Professor

Recent Publications:


Matthew S. Lemler, MD
Professor of Pediatrics

Medical Education: University of Texas Medical Branch at Galveston
Cardiology Fellowship: The Children's Hospital, University of Colorado Health Science Center
Special Interests: Echocardiography, evaluation of diastolic function

Recent Publications:
Current Projects:

- Pediatric cardiomyopathy registry data merger
- Impact of a prenatal diagnosis of congenital heart disease on parental attachment and anxiety
- Utility of serial echocardiograms in single ventricle interstage monitoring program

Lynn Mahony, MD
Professor of Pediatrics
Director, Fellowship Program

Medical Education: Stanford University
Cardiology Fellowship: Cardiovascular Research Institute, University of California, San Francisco
Special Interests: Multicenter trials in pediatric cardiology, Marfan syndrome, cardiovascular evaluation of student athletes, treatment of myocardial dysfunction

Recent Publications:


Current Projects:

- Protocol chair, Pediatric Heart Network
- Evaluation of the reliability, validity and responsiveness of the Pediatric Cardiac Quality of Life Inventory in children and adolescents with heart disease
Sadia (Ghaffar) Malik, MBBS, MPH
Associate Professor of Pediatrics

Medical Education: Aga Khan University Medical College, Karachi, Pakistan
Cardiology Fellowship: Children’s Medical Center, University of Texas Southwestern Medical Center, Dallas, TX
Special Interests: Genetic and environmental causes of congenital heart disease

Recent Publications:


• Xinyu Tang, PhD; Charlotte A. Hobbs, MD, PhD; Mario A. Cleves, PhD; Stephen W. Erickson, PhD; Stewart L. MacLeod, PhD; Malik S, MD; and the National Birth Defects Prevention Study Genetic variation affects congenital heart defect risk in the presence of maternal tobacco exposure Birth Defects Res A Clin Mol Teratol. 2015 Oct;103(10):834-42.


• Sadia Malik, MBBS T. Mac Bird, PhD; Robert D.B. Jaquiss, MD; W. Robert Morrow, MD; James M. Robbins, PhD. Comparison of in-hospital and longer-term outcomes of hybrid and Norwood stage 1 palliation of hypoplastic left heart syndrome J Thorac Cardiovasc Surg. 2015 Sep;150(3):474-80.e2

Current Projects:
• Determination of genetic and metabolic determinants of congenital heart disease risk
• Racial/ethnic differences in severity of congenital heart disease

Shawntyee (Vertilus) Mayo MD
Assistant Professor of Pediatrics

Medical Education: New York Medical College
Cardiology Fellowship: Duke University Medical Center
Advanced Training: Masters in Public Health, New York Medical College
Special Interests: Preventive cardiology

Recent Publications:
Alan W. Nugent, MBBS  
Associate Professor of Pediatrics  
Director, Cardiac Catheterization Laboratory

Medical Education:  University of Melbourne  
Cardiology Fellowship:  Royal Children’s Hospital Melbourne  
Advanced Training:  Children’s Hospital Boston  
Special Interests:  Cardiac catheterization, cardiac critical care

Recent Publications:


**Current Projects:**
- COAST II (Coarctation stent trial II, covered stent trial)
- PARCS (Pulmonary Artery Covered Stent trial)
- Medtronic Melody transcatheter pulmonary valve-post-approval study
- Closure of ventricular septal defect with the Amplatzer VSD occluder post approval study
- Biodegradable stents for congenital heart disease
- Fetal cardiac interventions

**Claudio Ramaciotti, MD**
Professor of Pediatrics
Director, Echocardiography Laboratory

**Medical Education:** Faculdade de Medicina da Universidade Federal do Rio de Janeiro
**Cardiology Fellowship:** Children’s Hospital of Philadelphia, Philadelphia, PA
**Special Interests:** Echocardiography, fetal echocardiography

**Recent Publications:**
- DeSena HC, **Ramaciotti C**, Nugent AW. Atherotome dislodgement and successful retrieval during cutting balloon pulmonary angioplasty Circ Cardiovasc Interv; 2012;
• Thankavel PP, Mir A, Ramaciotti C. Elevated troponin in previously healthy pediatric patients: value of diagnostic modalities and the importance of the drug. Cardiol Young; 2014; 24(2):283-9.

Current Projects:
• Ventricular function in Duchenne muscular dystrophy
• Natural history of cleft mitral valve and cerebral AV malformations

William A. Scott, MD
Professor of Pediatrics
Director, Electrophysiology

Medical Education: Indiana University School of Medicine
Cardiology Fellowship: Mott Children’s Hospital, University of Michigan, Ann Arbor, MI
Special Interests: Arrhythmias, interventional electrophysiology, pacemakers, syncope and neuromuscular disease

Recent Publications:
• Scott WA. Procedural sedation and analgesia in children. NEJM; 2014;371:90. (Letter to Editor).

Current Projects:
• Establishing a multi-institutional registry for patients with anomalous aortic origin of a coronary artery
• Development of an instrument to measure the experience of adolescents with implantable cardioverter defibrillators
• Evaluation of screening tools for detection of occult heart disease
• New standards for electrocardiogram interpretation in student athletes
• Integrated non invasive monitoring for early detection of clinical deterioration
• Cardiac complications of neuromuscular diseases
• A Randomized, Double-Blind, Placebo-Controlled, Phase 3 Trial of Tadalafil for Duchenne Muscular Dystrophy

Kavita Sharma, MD
Assistant Professor of Pediatrics

Medical Education: University of Texas Health Science Center, San Antonio, TX
Cardiology Fellowship: Steven & Alexander Cohen Children’s Medical Center, New York
Special Interests: Outreach, Echocardiography

Recent Research Projects
• Echocardiographic assessment of right ventricular function using sti (speckle tracking imaging) technology compared to cardiac magnetic resonance imaging (mri) in pediatric and young adult patients.
• Trending BNP levels to assess pulmonary hypertension in neonates.

David Sutcliffe, MD
Assistant Professor of Pediatrics

Medical Education: University of Texas Southwestern Medical Center at Dallas
Cardiology Fellowship: University of Texas Southwestern Medical Center at Dallas
Special Interests: Heart failure, ventricular assist devices, cardiac transplantation

Recent Publications:

Current Projects:
- Pedimacs-PHTS Linkage Study: Post-Transplant Outcomes in Pediatric VAD Patients
- Serelaxin dose escalation and safety study in pediatric heart failure
- Berlin Heart EXCOR Pediatric Ventricular Assist Device Post-Approval Registry and Study
- Interagency Registry of Mechanically Assisted Circulatory Support

Animesh (Aashoo) Tandon, MD, MS
Assistant Professor of Pediatric Medicine

Medical Education: Washington University, St. Louis, MO
Cardiology Fellowship: Cincinnati Children’s Hospital Medical Center, Cincinnati, OH
Advanced Training: Emory University School of Medicine/Children’s Healthcare of Atlanta, Atlanta, GA
Special Interests: Advanced cardiac imaging (echocardiography, MRI, CT), congenital heart disease, cardiomyopathies

Recent Publications:

Recent Publications:

Current Projects:

- PHN Study: Pediatric Echocardiography Z-Score and Electrocardiogram Database Project
- Echocardiographic evaluation of left ventricular systolic function by the mitral annular plane systolic excursion in pediatric patients with Duchenne muscular dystrophy
- Echocardiographic evaluation of right ventricular systolic function in pediatric patients with secundum atrial septal defects: surgical versus transcatheter closure.
- Echocardiographic evaluation of right ventricular systolic function in pediatric patients during initial presentation with myocarditis or dilated cardiomyopathy: prognostic usefulness.
- Echocardiographic evaluation of the anomalous left coronary artery from the right cusp: a new screening method.
- Cardiac MRI findings and their association with exposure to cardiotoxic chemotherapy and traditional risk factors: a retrospective descriptive study

Surendranath Veeram Reddy, MD
Associate Professor of Pediatrics

Medical Education: Vijayangar Institute of Medical Sciences, India
Cardiology Fellowship: Wayne State University-Children's Hospital of Michigan/Detroit Medical Center
Advanced training: Interventional cardiology, Children’s Medical Center, University of Texas Southwestern Medical Center
Special Interests: Interventional cardiology

Recent Publications:


Current Projects:

- Congenital coronary artery fistulae: longitudinal follow-up with focus on thrombus formation, stenosis, and perfusion defects following standard therapy
- Coarctation of the aorta stent trial (COAST)
- Medtronic Melody transcatheter pulmonary valve-post-approval study

**Thomas M. Zellers, MD**
Professor of Pediatrics
Vice President of Medical Staff Affairs – Children’s Medical Center of Dallas

**Medical Education:** University of Texas Southwestern Medical Center at Dallas
**Cardiology Fellowship:** Mayo Clinic
**Advanced Training:** Interventional catheterization, Baylor College of Medicine
**Special Interests:** Interventional cardiology newborns to adult, selective pulmonary vasodilator therapy

**Recent Publications:**


Current Projects:

- Coarctation of the aorta: long term outcomes & comorbidities
- Impella pediatric left ventricular assist devise as novel therapy - animal study
- Closure of ventricular septal defect with the Amplatzer VSD Occluder- post approval study
- Coarctation of the aorta stent trial comparison between surgical vs balloon angioplasty vs intravascular stent placement for recurrent or native coarctation of the aorta
- GORE HELEX occluder post approval study protocol
- Medtronic Melody transcatheter pulmonary valve-post-approval study
- Mid-term follow up after the Norwood-Sano procedure
- COAST I (Coarctation stent trial)
- COAST II (Coarctation stent trial II, covered stent trial)
- PARCS (Pulmonary Artery Covered Stent trial)
- NPCQIC Collaborative trial (local = SAFE AT HOME) for reduction of interstage mortality for patient with single ventricle
- Comparison between Surgical vs. Balloon Angioplasty vs. Intravascular Stent Placement for Recurrent or Native Coarctation of the Aorta
- Reduction of migraine headaches through PFO closure in pediatric patients

Ilana Zeltser, MD
Associate Professor of Pediatrics

Medical Education: New York University School of Medicine
Cardiology Fellowship: Children’s Hospital of Philadelphia
Advanced training: Electrophysiology, Children’s Hospital of Philadelphia
Special Interests: Electrophysiology
Recent Publications:


Current Projects:

- Development of an instrument to measure the experience of adolescents with implantable cardioverter defibrillators
- Early pre-participation cardiovascular screening pilot study
- New standards for electrocardiogram interpretation in student athletes
- Hypertrophic cardiomyopathy in children: age specific risk stratification for sudden death
CARDIOVASCULAR SURGERY FACULTY

Robert (Jake) Jaquiss  
Professor of Cardiothoracic Surgery

Medical Education:  
Vanderbilt Medical School

Fellowship:  
Washington University

Special Interests:  
Neonatal heart surgery, surgery for mechanical circulatory support, and heart transplantation

Recent Publications


- Machovec KA, Jaquiss RD, Kaemmer DD, Ames WA, Homi HM, Walczak RJ Jr,


Timothy Pirolli, MD
Associate Professor of Cardiothoracic Surgery

Medical Education: University of Pennsylvania School of Medicine
Fellowships: Children’s Hospital of Philadelphia, Philadelphia, PA Stanford University School of Medicine
Special Interests: Complex neonatal repair
Adult congenital heart surgery

Recent Publications:
- Jayasankar V, Pirolli TJ, Bish LT, Berry MF, Woo YJ. Local myocardial overexpression of growth hormone attenuates postinfarction remodeling and


- Jayasankar V, Woo YJ, Pirolli TJ, Bish LT, Berry MF, Burdick J, Gardner TJ,

PEDIATRIC CRITICAL CARE FACULTY

Jessica Moreland, MD
Professor of Pediatrics
Division Chief, Critical Care

Medical Education: Vanderbilt University
Fellowship: Vanderbilt University Medical Center, Pediatric Critical Care Medicine

Samuel Davila, MD
Assistant Professor of Pediatrics

Medical Education: UT Health Science Center, San Antonio
Fellowship: Washington University School of Medicine, Pediatric Critical Care Medicine

Ivie Esangbedo, MD, MPH
Assistant Professor

Medical Education: Lagos Statue University College of Medicine
Fellowship: Baylor College of Medicine, Pediatric Critical Care Medicine
Children's Hospital of Philadelphia, Pediatric Cardiac Critical Care
Erin Gordon, DO,
Assistant Professor of Pediatrics

Medical Education: Midwestern University Chicago College of Osteopathic
Fellowship: University of Toronto (2008), Pediatric Critical Care Medicine
University of Iowa Hospitals, Pediatric Cardiac Critical Care

Michael L. Green, MD
Assistant Professor of Pediatrics

Medical Education: UT Health Science Center, San Antonio
Fellowship: Children’s Hospital, Boston, Pediatric Critical Care Medicine

Susan Hupp, MD
Assistant Professor

Medical Education: Creighton University
Fellowship: Duke University Hospital, Pediatric Critical Care Medicine
Joshua Koch, MD
Associate Professor of Pediatrics

Medical Education: University of Kansas School of Medicine
Fellowship: UT Southwestern, Pediatric Critical Care

Shai Manzuri, MD
Assistant Professor of Pediatrics

Medical Education: Universidad Maimonides, Argentina
Fellowship: Pediatric Critical Care, UT Southwestern Medical Center at Dallas

Joshua S. Wolovits, MD
Assistant Professor of Pediatrics

Medical Education: University of Texas Southwestern Medical Center at Dallas
Fellowship: Critical Care, University of California, San Francisco Cardiac Critical Care, UT Southwestern Medical Center at Dallas
CURRENT TRAINEES

Fourth Year Fellow

Kristal Woldu, MD

Education:
Columbia University - College of Physicians and Surgeons

Post-doctoral Training:
Morgan Stanley Children’s Hospital of New York-Presbyterian/Columbia University Medical Center, Pediatric Cardiology Fellow
Morgan Stanley Children’s Hospital of New York-Presbyterian/Columbia University Medical Center, Pediatric Residency

Publications:
- **Woldu KL**, Lee A, Zuckerman WA. Early-Onset Anthracycline-Induced Heart Failure in Osteogenic Sarcoma Leading to Transplantation. (Manuscript in submission process)
Barbara Burkhardt, MD

Education:

MD, Albert-Ludwigs-Universität Freiburg, Germany, 2004

Post-doctoral Training:

Assistenzärztin (fellow) in the Department of Cardiology, University Children’s Hospital Zurich, Switzerland, 2012-2013
Assistenzärztin (resident / fellow) in the Department of Congenital Heart Disease and Paediatric Cardiology, Heart Center Freiburg University, Germany, 2008-2012
Mayo School of Graduate Medical Education, Rochester, MN, Residency in Pediatric and Adolescent Medicine, 2008

Publications:

- Wohlmuth C, Kellenberger CJ, Voser EM, Burkhardt BE, Valsangiacomo
• Buechel ER: Cardiac function after repair of tetralogy of Fallot: how are the atria performing? Pilot study by cardiac magnetic resonance imaging. Pediatric Cardiology 2015 Jan;36(1):96-105.


Presentations:

• Invited to present a case in the didactic case session, EuroCMR 2016, Florence (Italy), May 2016
• “The heart in the right position”, 51st Annual Meeting of the Society for Pediatric Radiology, continuing education for radiology technicians track, Bern, Switzerland, September 2014
• “The interesting case from Zürich”, 12. Freiburger Herz-Kreislauftage, Freiburg, Germany, March 2013
• "Pulmonary vascular disorders" CME presentation Pediatric Allergy and Pulmonology, University of Freiburg, Germany, June 2012

Third Year Fellows

Rachel Jamison, MD

Education:

BS, Providence College, Providence, RI, 2005
MD, UT Southwestern, Dallas, TX, 2010

Post-doctoral Training:

UT Southwestern, Dallas, Pediatric Residency, 2010-2014
Publications:

Presentations:
- Jamison RJ, Presentation at: Laboratory Medicine Conference; Plano, TX.
- Jamison RJ, PAS Poster Presentation: NICU Apprenticeships for Third Year Pediatric
- Jamison RJ, Residents 20104 SWAT Poster Presentation: Dallas Global Health Elective: Preparing Residents for Work Abroad 2014

Danielle Moye, MD

Education:

- BA, Stanford University, Palo Alto, CA, 2005
- MD, UT Southwestern, Dallas, TX, 2011

Post-doctoral Training:

- UT Southwestern, Dallas, Pediatric Residency, 2011-2014

Publications:

Presentations:
Second Year Fellows

Andrew Tran, MD

Education:
BA, Case Western Reserve, Cleveland, OH 2007
MD, Case Western Reserve, Cleveland, OH 2012

Postdoctoral Training
UT Southwestern, Dallas, Pediatric Residency, 2012-2015

Publications:

Jerry Michael, MD

Education:
BS, Texas A&M, College Station, TX 2008
MD, University of Texas School of Medicine, San Antonio, TX 2012

Postdoctoral Training:
Baylor, Houston, Pediatric Residency, 2012-2015

First Year Fellows
Silvestre Duran, MD

Education:
BA, Ohio State University, Columbus, OH 2000
MD, Ohio State University College of Medicine, OH 2013

Postdoctoral Training:
Children’s Hospital of Michigan, Detroit, MI, Pediatric Residency, 2013-2016

Richard Markus, MD

Education:
BA, University of Texas, Austin, TX 2008
MD, Texas A&M Health Science Center College of Medicine, Round Rock, TX 2013

Postdoctoral Training:
St. Louis Children’s Hospital Washington University, Pediatric Residency, 2013-2016
This Graduate Medical Education Fellowship Agreement (the "Agreement") is entered into by and among The University of Texas Southwestern Medical Center, an agency of the state of Texas located at 5323 Harry Hines Boulevard, Dallas, Texas 75390 (the "UTSW"), and <Fellow Name>, a fellow in training (the "Fellow").

WHEREAS, UTSW is an institution of higher education that has as part of its mission to educate the next generation of leaders in patient care, biomedical sciences, and disease prevention and, as one means to achieve its mission, serves as the sponsoring institutional for graduate medical education programs including multiple residencies and fellowships;

WHEREAS, UTSW is the sponsoring institution of a fellowship in Pediatric Cardiology (the "Fellowship") that is operated through UTSW's Department of Pediatrics (the "Department");

WHEREAS, the Fellowship meets the "Essentials of Accredited Residencies" standards (the "Standards") of the Accreditation Council for Graduate Medical Education ("ACGME");

THEREFORE, in consideration of the foregoing, the terms and conditions set forth in this Agreement and other good and valuable consideration the sufficiency of which the parties hereby acknowledge, UTSW and the Fellow agree as follows:

I. DUTIES AND RESPONSIBILITIES OF UTSW.

A. THE PROGRAM.

1. UTSW, through the Department, is responsible for the selection, supervision, management and operations of the Fellowship and the Fellow consistent with the Standards established by the ACGME.

2. The Fellow will be provided a salary by UTSW in the amount of $75,730 which will be paid in 12 monthly installments. The Fellow will be provided access to medical, dental and vision care benefits for themselves and immediate family members through a monthly supplement equal to their benefits election.

3. UTSW and the Department shall designate a Program Director who will manage the Fellowship ("Program Director"). The Program Director will supervise and manage the Fellow in the practice of medicine. The Program Director, in conjunction with the Department, and taking into consideration training opportunities and patient population needs of
Affiliated hospitals, will decide the Fellow's general distribution, assignments, and responsibilities.

4. The Department and the Program Director will supervise and manage the Fellow's schedule and education consistent with the Standards established by the ACGME, including but not limited to, the distribution of the Fellow's assignments and responsibilities.

5. UTSW, through the Department and the Program Director, shall be responsible for the academic evaluation, supervision, control, promotion and termination of Fellows.

6. UTSW, through its Graduate Medical Education Office, shall maintain policies and procedures that delineate the operations and responsibilities of the Fellowship.

7. UTSW, through the Department, may provide both clinical and didactic educational activities including, but not limited to, opportunities for clinical and basic scholarly research.

8. UTSW shall provide vacation and sick leave to the Fellow consistent with State law and UTSW Policies and Procedures adopted to implement State law. Such policies and procedures include EMP-251: Work Attendance and Leave Usage; EMP-252: Vacation Leave; and EMP-253: Sick Leave.

B. PROFESSIONAL LIABILITY INSURANCE.

The Fellow will be provided professional liability insurance with coverage of one hundred thousand dollars ($100,000) per occurrence and three hundred thousand dollars ($300,000) in the annual aggregate under The University of Texas System Professional Medical Liability Benefit Plan ("Plan") while this Agreement is in effect. Such coverage shall include legal defense and protection against awards from claims reported or filed after the Fellow's completion of the Program if the alleged acts or omissions of the Fellow are within the scope of the Program. The Fellow must comply with any requirements imposed by the Plan, including requirements for risk management education, as defined in the policies, procedures, and agreements managed by the School. Upon becoming aware of an actual or alleged claim, the Fellow must immediately notify the Program Director.

DUTIES AND RESPONSIBILITIES OF THE FELLOW

A. THE PROGRAM.

1. The Fellow shall devote his/her exclusive full-time and best professional efforts to the performance of professional services and participation in the Program ("Services").

2. The Fellow shall obtain and maintain the credentials from the Texas Medical Board necessary to participate in the Program.

3. The Fellow shall fulfill all requirements necessary to join the Children's Medical Center (the "Hospital") House Staff as delineated by the hospital policies and procedures including providing all requested background and educational information. The Fellow shall fulfill all UTSW, Fellowship and Hospital credentialing requirements prior to commencement of appointment.
4. The Fellow agrees to comply with The Joint Commission standards; the Hospital's Medical Staff Bylaws, Medical Staff Rules and Regulations, and Code of Ethical Conduct; all Hospital, Program and UTSW policies, rules and procedures, including participation in the Hospital's Quality Program (collectively, "Policies and Procedures"); and any other obligations to which the Fellow is subject, including, but not limited to, all applicable state and federal statutes and regulations.

5. The Fellow further agrees to comply with the policies, procedures, rules, and regulations of any other institution where assigned to perform the duties of a Fellow.

6. The Fellow shall not be allowed to perform any professional medical services outside of the Fellowship, unless the Fellow first obtains the prior written approval of the Program Director. The Fellow must also maintain compliance with the UTSW's policy concerning moonlighting. The Fellow's performance will be monitored by the Fellowship and Program Director to ensure that there are no adverse effects of these activities.

7. The Fellow shall prepare and maintain administrative and business records consistent with all Policies and Procedures, including maintaining medical records related to the Services in such format and upon such intervals as the Program reasonably requires and maintaining thorough, complete and accurate other records with respect to the Services and treatment rendered to any patient.

B. REPRESENTATIONS AND WARRANTIES OF FELLOW.

The parties enter into this Agreement in reliance on the following representations and warranties being true and accurate as of the Effective Date of this Agreement and remaining so at all times during the Term of this Agreement. The Fellow hereby represents and warrants the following:

1. The Fellow is not excluded from a federal program as of the Effective Date of this Agreement and no adverse action by the federal government that will or may result in exclusion from a federal health care program has occurred or is pending or threatened against the Fellow. The Fellow agrees that he/she will not perform any act that shall cause him/her to be excluded from a federal health care program during the Term of this Agreement.

2. The Fellow has never been reprimanded, sanctioned or disciplined by any licensing board of any state, medical society, specialty board, medical staff, house staff or any healthcare facility and no such action is pending.

3. The Fellow is not subject to any disciplinary order, sanction or decree of any federal or state governmental agency having jurisdiction over the practice of medicine.

4. The Fellow has never resigned from the medical staff of any hospital in lieu of discipline or termination, or been denied membership or reappointment from the medical staff of any hospital; has never had hospital medical staff membership or
clinical privileges suspended, curtailed, denied, reduced or revoked; and no such action is pending.

5. The Fellow is not now, nor has ever been, a defendant in a professional negligence lawsuit other than as fully disclosed in writing to Program. The Fellow will immediately disclose to the Program Director the details of any medical negligence lawsuit which is commenced against him/her, as well as any facts which reasonably might give rise to any other legal action against Hospital or School.

6. UTSW and Fellow acknowledge that the Hospital has provided them with the Hospital's Code of Ethical Conduct and other Program Policies and Procedures related to the Hospital's Compliance Programs including but not limited to the False Claims Act ("FCA"), 31 U.S.C. §§ 3729-3733. The FCA imposes civil liability on any person or entity that knowingly submits, or causes to be submitted, a false or fraudulent claim for payment to the U.S. government. The FCA also prohibits knowingly making or using (or causing to be made or used) false records or statements in order to get a false or fraudulent claim paid by the federal government. UTSW and Fellow understand that under the FCA, those who knowingly submit, or cause another person or entity to submit, false claims for payment of government funds are liable for three times the government's damages plus civil penalties of $5,500 to $11,000 per false claim. Other possible enforcement actions include suspension of payment, referral to the Office of Inspector General for potential exclusion from the program, or disenrollment.

III. APPOINTMENT AND TERM.

A. TERM.

UT Southwestern and the Program hereby appoints the Fellow and the Fellow hereby accepts an appointment in the Pediatric Cardiology Fellowship program at the level of PG-7, under the supervision of Lynn Mahony, MD as Program Director. The Fellow's appointment shall begin on July 1, 2016, and terminate on June 30, 2017 (the "Term").

B. APPOINTMENTS.

Promotions, or certificates of completion, are dependent upon the Fellow continuing as a member in good standing of the Hospital's House Staff as well as evaluation by program faculty, and recommendation from the Program Director. If the faculty of the Program does not intend to offer re-appointment or a certificate of program completion, the Program will give the Fellow as much written notice of the intent not to promote or issue a certificate of completion as circumstances will reasonably allow, prior to the end of this Agreement. Upon receipt of such written notice, the Fellow may implement UTSW's due process procedure in accordance with UTSW's Grievance and Due Process for Graduate Medical Education Trainees Policy.

IV. SCHEDULING.

A. WORK HOURS.
The Fellow's work hours will be scheduled in accordance with the training program Standards, and the Duty Hours policy of UTSW, and will be overseen by the Program Director.

B. ASSIGNMENTS AND VACATION.

The Fellow's assignments and vacation usage will be determined and/or approved by the Program Director. Fellow will accrue vacation and sick leave on a monthly basis and may utilize such leaves consistent with State law and the Policies and Procedures adopted by UTSW to implement the State law. Such policies and procedures include EMP-251: Work Attendance and Leave Usage; EMP-252: Vacation Leave; and EMP-253: Sick Leave.

C. LEAVE OF ABSENCE.

Leaves of absence shall be at the discretion of the Program Director, consistent with the Policies and Procedures of UTSW.

D. BOARD ELIGIBILITY.

Because certifying boards vary in their requirements regarding the effect of leaves of absence, for any reason, taken during the House Staff Officer's training on his/her eligibility and the timing for board certification, each House Staff Officer shall access the specific relevant information from his/her certifying boards through the UTSW Intranet by entering:

http://www.abms.org/About ABMS/member boards.aspx

E. COUNSELING.

The Fellow shall have access to confidential counseling, medical, psychological, and other support services pursuant to UTSW's Employee Assistance Program. The Fellow shall refer to UTSW's Criteria for Medical Staff Referrals to the Committee on Practitioner Peer Review and Assistance and to the Physician Health and Recovery Committee policy for questions related to practitioner impairment issues, including impairment due to substance abuse.

V. POLICIES REGARDING SEXUAL AND OTHER FORMS OF HARASSMENT.

Fellows shall not be subjected to inappropriate conduct of a sexual nature during their training at UTSW and Hospital. To file a complaint regarding sexual or other forms of harassment, the Fellow should contact both the UTSW Title IX Coordinator or a Deputy Title IX Coordinator and the Hospital's Medical Affairs Office. The Fellow should consult UTSW's policy EDU-116: Sex Discrimination – Sexual Misconduct, Harassment, and Violence and the Hospital's Code of Ethical Conduct and specified harassment Policies and Procedures for further information.

VI. ACCOMMODATIONS FOR DISABILITIES.

UTSW and the Hospital shall comply with all applicable provisions of the Americans with Disabilities Act, as amended. The Fellow may contact UTSW's Office of Diversity, Inclusion & Equal Opportunity for additional information regarding the UTSW's policies regarding accommodations for disabilities.
VII. ASSIGNMENT.

The duties imposed upon UTSW in this Agreement may be assigned by written agreement among UTSW, the Hospital and Program.

VIII. TERMINATION.

A. TERMINATION BY UTSW

1. The Fellow enters into this Agreement with the understanding that he/she will serve the entire Term, unless this Agreement is terminated by UTSW in accordance with UTSW's GME Academic Improvement and Corrective Action policy.

2. UTSW reserves the right to terminate this Agreement for cause, as outlined in UTSW's GME Academic Improvement and Corrective Action policy. If UTSW terminates the Fellow from the Program, this Agreement shall terminate immediately.

3. Failure to be granted a physician-in-training license by the Texas Medical Board may result in termination of the Fellow from the Program and this Agreement at the discretion of the Program Director and the Chair of the Department of Pediatrics at UTSW.

B. TERMINATION BY HOSPITAL.

If the Hospital, with the advice and consent of the Program Director, determines that the Fellow is failing to uphold his/her duties under this Agreement or no longer fulfills the requirements to be a member of the House Staff, it may request that UTSW terminate the Fellow for cause from the Program.

This Agreement is entered into on this 1st day of July, 2016 (the "Effective Date")