



DIVISION OF PEDIATRIC CARDIOLOGY

Mission

The mission of the Division of Pediatric Cardiology is:

- To provide comprehensive, high-quality clinical services for fetuses and children with all forms of heart disease and for adults with congenital heart disease
- To train the next generation of clinical pediatric cardiologists and physician-scientists through a comprehensive fellowship program of superior standards
- To perform high-quality clinical and basic science research in the fields of heart disease and developmental cardiology
- To teach the fundamentals of pediatric cardiology to medical students, pediatric residents, and pediatric and adult cardiology fellows

FACULTY AND STAFF

Vivek Allada, MD

Professor of Pediatrics
Interim Chief, Division of
Pediatric Cardiology
Clinical Director, Pediatric Cardiology
Director, Heart Institute

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Associate Professor of Pediatrics
Associate Director, Electrophysiology
Associate Vice Chair of Pediatrics for
Clinical Affairs, Ambulatory Care

Lee B. Beerman, MD

Professor of Pediatrics
Director, Electrophysiology

Mark DeBrunner, MD

Assistant Professor of Pediatrics
Director, Pediatric Cardiology
Fellowship Program

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Associate Professor of Pediatrics
Director, Noninvasive Imaging

Johanna L. Drickman, MD

Assistant Professor of Pediatrics

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Assistant Professor of Pediatrics

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FAHA**

Associate Professor of Pediatrics and
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Medical Director, Heart Failure and
Heart Transplantation

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Assistant Professor of Pediatrics
Assistant Director, Pediatric
Cardiology Fellowship Program

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Assistant Professor of Pediatrics
Interim Director, Fetal and
Perinatal Cardiology

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FACC, FSCAI**

Professor of Pediatrics
Director, Cardiac Catheterization
Laboratory

Bernhard Kühn, MD

Associate Professor of Pediatrics
Director of Research, Cardiology

Lizabeth Lanford, MD

Clinical Assistant Professor
of Pediatrics

Francis M. McCaffrey, MD

Associate Professor of Pediatrics
Director, Exercise Laboratory

Susan A. Miller, MD

Assistant Professor of Pediatrics

Evonne Morell, DO

Assistant Professor of Pediatrics
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Exercise Stress Laboratory,
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Patricia Hovanec, CRNP

Adolescent and Young Adult
Congenital Heart Disease Center

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Adolescent and Young Adult
Congenital Heart Disease Center

**Concetta Lombardo, BSN,
MPAS, PA-C**

Outpatient Services



OVERVIEW OF DIVISION

The Division of Pediatric Cardiology forms an integral part of the Heart Institute service line at Children's Hospital of Pittsburgh of UPMC and is the leading provider of comprehensive pediatric cardiovascular services in Western Pennsylvania and the tristate area. It is an internationally recognized center of excellence in pediatric heart failure, cardiomyopathy, mechanical circulatory support, and heart and lung transplantation. The Heart Institute integrates the various divisions and programs necessary to provide state-of-the-art cardiovascular services to children and young adults with congenital heart disease and to children with acquired heart disease. The components of the Heart Institute include the Division of Pediatric Cardiology (Interim Chief Vivek Allada), the Division of Cardiothoracic Surgery (Chief Victor Morell), the Cardiac Intensive Care Unit (CICU) (Chief Ricardo Muñoz), and the Division of Cardiac Anesthesia (Chief Patrick Callahan). The CICU is a 12-bed unit and is the only dedicated pediatric CICU in the region. The multidisciplinary team approach has resulted in excellent clinical outcomes.

The Heart Institute actively participates in numerous National Institutes of Health (NIH)-, foundation-, and industry-sponsored clinical and basic research programs. The program has an active pediatric cardiology fellowship program accredited by the Accreditation Council for Graduate Medical Education (ACGME). The program also offers postgraduate training in pediatric cardiac intensive care to fellows who have completed training in pediatric cardiology or pediatric intensive care.

The program continues to expand clinical services to the region, ensuring that children have access to top-quality cardiology services through on-site clinics and telemedicine technology. For the most recent four-year reporting period for the Society of Thoracic Surgeons, the program's surgical mortality was 2.1% (national average = 3.23%). In fact, the Heart Institute's success was the best in the country among medium and large programs. The program's achievements were acknowledged by *U.S. News & World Report* with a #12 ranking among pediatric cardiac centers in the nation.

The cardiology research program thrives under the new leadership of Bernhard Kühn, with continued NIH funding to perform multicenter trials in pediatric heart transplantation, development of novel mechanical circulatory support devices for use in children, and expansion of the fellowship program. Strong research collaborations exist with the Department of Biomedical Engineering in the Swanson School of Engineering at the University of Pittsburgh, the Thomas E. Starzl Transplantation Institute, the Vascular Medicine Institute, and the cardiac genetics research program in the Department of Developmental Biology (Cecilia Lo, chair) of the University of Pittsburgh School of Medicine.

CLINICAL ACTIVITIES

The Division of Pediatric Cardiology provides comprehensive clinical services to children and adults with congenital heart disease, as well as to children with acquired heart disease. The clinical program includes ambulatory diagnostic services at 16 locations: Children's Hospital in the Lawrenceville neighborhood of Pittsburgh; the three satellite facilities in Wexford, Monroeville, and South Fayette; Magee-Womens Hospital of UPMC; UPMC Presbyterian; and 10 other outreach locations throughout the western and central areas of Pennsylvania and the panhandle of West Virginia. With the extensive outreach program, cardiology is taking its services out into the community and has the most extensive outreach effort of any program at Children's Hospital. This year, office visits amounted to nearly 14,000 in all locations, including almost 2,500 patients seen in remote outreach locations beyond the metropolitan Pittsburgh area. This successful model has served as a "best practices" template for other divisions. Ambulatory services include diagnostic outpatient office visits; noninvasive imaging, including echocardiography (more than 18,000 studies); arrhythmia detection, including electrocardiography, 24-hour Holter, and 30-day event recorder monitoring; cardiopulmonary exercise testing; and preventive cardiology services.

The program supports a comprehensive Perinatal Cardiology Program in collaboration with the obstetrics team at Magee-Womens Hospital. The program has three facets: neonatal cardiology, fetal cardiology, and maternal cardiology. This unique and comprehensive program is one of the busiest in North America. The Division of Pediatric Cardiology also provides inpatient and same-day services at Children's Hospital, including diagnostic and state-of-the-art interventional cardiac catheterization with the region's only biplane hybrid catheterization laboratory; diagnostic and therapeutic arrhythmia management, including arrhythmia ablation with radiofrequency or cryoablation (reaching more than 100 electrophysiology patients in fiscal year 2017); and medical management of cardiac dysrhythmias, preventive cardiology, inflammatory diseases of the heart, and heart failure. In fact, the division's world-renowned pediatric heart and heart-lung transplant program has expanded its focus to encompass methods of heart-failure support and recovery.

The cardiology faculty also follows all children receiving surgical management of congenital or acquired cardiovascular conditions. The pediatric CICU is dedicated to the medical and surgical management of critically ill patients with congenital or acquired cardiovascular disease. It is the only such unit in the region.

The improved medical and surgical outcomes of children with congenital heart disease have led to a growing number of survivors flourishing in the community. It is now estimated that there are more adults living with congenital heart disease than children. Adult congenital heart disease comprises approximately 10%–15% of the work of the Heart Institute and continues to grow. The division's Adolescent and Young Adult Congenital Heart Disease Service introduced a transition program to enable seamless transfers of care for adolescents from pediatric specialists to adult congenital heart disease cardiologists.

The interventional cardiac catheterization program, under the leadership of Jacqueline Kreutzer, is one of the premier programs in the country, with incorporation of new procedures and technologies (such as percutaneous valve implantation), performance of hybrid procedures, and extensive participation in multicenter trials. The program has seen a progressive increase in patient and procedure volume in the catheterization laboratory.

Finally, the cardiology program continues to push state-of-the-art technology, using telemedicine technology to improve access, including a telemedicine echocardiography service that supports the reading of fetal and pediatric transthoracic echocardiograms throughout Western Pennsylvania and West Virginia. The program enables hospitals throughout the region to comply with state law and American Academy of Pediatrics (AAP) recommendations to screen newborn babies for critical congenital heart disease. The cardiology division provides expert consultative services, echocardiography training and interpretation, and transport of critically ill children from remote sites to the Children's Hospital facility for advanced cardiac services.

Of note, Gaurav Arora performed the first fluoroless ablation (true zero fluoroscopy) in the history of Children's Hospital in early 2017 and has continued to perform more procedures with zero radiation.

Cardiology at Children's Hospital has always been recognized for its excellence in clinical care, service delivery, and communication with referring physicians. Seven pediatric cardiologists were named to the Best Doctors list by *Pittsburgh Magazine*. The division has continued to focus on those areas throughout the course of the year. As part of the Heart Institute, the division has a robust quality-assurance process-improvement program with a number of quality initiatives, including protocols to reduce catheter infection rates and ongoing participation in national quality initiatives, including the cardiac catheterization IMPACT and C3PO (Congenital Cardiac Catheterization Outcomes Project Quality Improvement) programs. Members of the cardiology faculty routinely receive the highest levels of patient satisfaction from both Children's Hospital and national surveys. This year, three members were recognized for the Department of Pediatrics Chair's Distinction: Libby Lanford, Lee Beerman, and Kreutzer.

The clinical activities of the division continue to grow, as demonstrated by the spectacular 10-year trends shown in the table below. As a result of this growth, the division has successfully recruited three new faculty members for 2017 from some of the top centers across the country.

KEY INDICATORS	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	10-Year Growth
Outpatient Visits (Total)	10,042	11,516	13,384	13,457	13,863	13,547	14,364	15,099	14,635	13,163	17,706	62%
Outreach Outpatient Visits	908	1,146	1,898	1,958	1,951	2,110	2,138	2,611	2,472	1,934	1,212	33%
Electrocardiograms	11,456	14,371	14,826	14,701	17,134	20,220	22,012	22,988	24,944	26,669	27,063	136%
Echo (Total)	12,895	13,273	13,966	14,585	15,214	16,423	16,889	17,918	18,223	17,959	18,178	62%
Transthoracic Echocardiograms	11,421	11,666	12,338	12,984	13,522	14,421	15,109	16,127	16,629	15,938	17,525	63%
Transesophageal Echocardiograms	441	446	442	436	419	577	516	609	595	610	653	48%
Fetal Echocardiograms	1,033	1,161	1,186	1,165	1,273	1,425	1,264	1,363	1,212	1,411	1,247	20%
Holter Monitors	407	782	1,487	1,277	1,207	1,335	1,562	1,528	1,714	1,758	1,602	105%
Exercise Stress Tests	298	333	358	638	684	763	748	680	736	711	860	189%
Cardiac Catheterization Patients	635	641	648	700	708	743	739	793	783	724	766	21%
Electrophysiology Patients	66	104	86	91	88	99	104	100	99	107	94	42%

RESEARCH AND OTHER SCHOLARLY ACTIVITIES

The faculty leads multiple, active, clinical, translational, and basic research programs in cardiovascular disease. Kühn, as director of research for the division, successfully established his research laboratory. Kühn was granted the inaugural Fund for Genomic Discovery Award for his study titled “Discovering Fibrosis Genes by Gene Expression Analysis in Single Heart Cells,” a project to identify the specific genes that cause heart tissue fibrosis in persons with congenital heart disease. Kühn also published his work, titled “Stimulation of Cardiomyocyte Regeneration in Neonatal Mice and in Human Myocardium With Neuregulin,” in the prestigious journal *Science Translational Medicine*. The study helped to determine that neuregulin-1 (rNRG1) was most effective at improving myocardial function and reducing the prevalence of scarring when it was administered very early in the lifecycle. Although the work was performed with mice, it provides important insights as Kühn and his team work toward developing clinical trials focused on using rNRG1 to stimulate myocardial regeneration in pediatric heart patients. In acknowledgement of his accomplishments, Kühn was elected to the American Society for Clinical Investigation in 2016. He was one of four new members from the University of Pittsburgh that year and the only one from Children’s Hospital.

The clinical research program is multifaceted, with clinical studies and trials in all aspects of pediatric cardiology, cardiac intensive care, and congenital heart surgery. Particular strengths include the research programs focusing on optimizing outcomes following pediatric heart and lung transplantation and the multidisciplinary program developing novel mechanical circulatory support devices for children with failing hearts. The electrophysiology program under the direction of Lee Beerman and Arora has produced nine publications, including information on the use of three-dimensional mapping to reduce radiation exposure during electrophysiology procedures. Cardiac genetics research is being carried out in collaboration with Lo, an internationally recognized expert on the genetics of congenital cardiovascular malformations. Brian Feingold continues his research into factors influencing outcomes for pediatric heart transplant candidates and recipients. In addition, he is the institutional principal investigator for the National Institute of Allergy and Infectious Diseases (NIAID)-funded Clinical Trials in Organ Transplantation in Children (CTOT-C). As director of one of the top interventional pediatric catheterization programs, Kreutzer has been instrumental in implementing novel procedures and technologies as part of multicenter trials, such as percutaneous Melody and Sapien valve implantation and hybrid procedures. Kreutzer is the national principal investigator for the Melody post-approval study and participates in COAST (Coarctation Stent Trials). Highlighting the division’s commitment to high-quality care, the program has been a long-standing and active participant in quality-improvement (QI) projects, including C3PO, C3PO-QI, Improving Pediatric and Adult Congenital Treatments (IMPACT Registry), the National Pediatric Cardiology Quality Improvement Collaborative, the Cardiac Neurodevelopmental Outcomes Collaborative, the Pediatric Cardiac Critical Care Consortium, the Extracorporeal Life Support Organization, the Pediatric Heart Transplant Study (PHTS), and the Society of Thoracic Surgeons database. In addition, under the leadership of Stacey Drant and Jennifer Johnson, the pediatric echocardiography laboratory received commendation for quality, receiving reaccreditation from the Intersocietal Accreditation Commission at Children’s Hospital and Magee-Womens Hospital echocardiography laboratories.



Finally, the research arm of the cardiology division has continued to develop a comprehensive cardiology database, based on a long-standing record of patients from the 1960s to the present and incorporating all programs within the Heart Institute. This powerful tool has allowed and will continue to enable research studies aimed at improving the lives of children and adults with congenital heart disease. The database, with more than 200,000 patients, highlights some of the program's strengths and now includes special sections for heart-failure transplant patients and adults with congenital heart disease. This year, the division plans to add a section for fetal cardiology.

Vivek Allada, MD

RESEARCH

Echocardiography Physician Productivity. Vivek Allada continues to study physician productivity at academic pediatric cardiology echocardiography laboratories. He serves as the founding member of the Committee on Pediatric Echocardiography Laboratory Productivity. This study, the first of its kind, aims to understand the practice patterns, human resource needs, and benchmarks for productivity. The research culminated in the co-authorship of a book chapter, "Echocardiography Lab Productivity," in *Echocardiography in Pediatric and Congenital Heart Disease: From Fetus to Adult*, published in 2016.

Physician Productivity. Allada has developed and implemented a clinical productivity assessment tool. With it, the division has seen a remarkable growth in volume and efficiency. Allada aims to create a software application to expand its adoption throughout UPMC and beyond.

ADVISORY COMMITTEE MEMBERSHIPS

- Chair, Subcommittee on Critical Congenital Heart Disease, Newborn Screening and Follow-Up Technical Advisory Board, Pennsylvania Department of Health
- Committee on Pediatric Echocardiography Laboratory Productivity, American Society of Echocardiography
- Clinical Practice Working Group, American College of Cardiology (ACC) Adult Congenital and Pediatric Cardiology (ACPC)
- Working Group, ACC ACPC Noninvasive Quality Metrics

Gaurav Arora, MD

RESEARCH

Gaurav Arora's research focuses on management of arrhythmias.

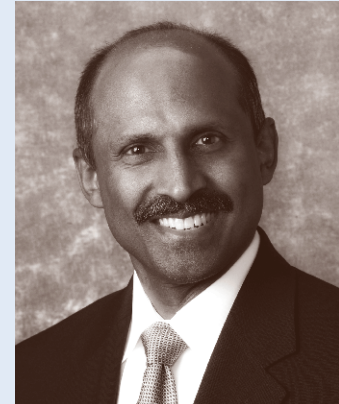
Ablation of Accessory Pathways in Pediatric Patients: Association of Adenosine Sensitivity and Local Electrograms. This study reviews pediatric patients undergoing catheter ablation for Wolff-Parkinson-White syndrome and characteristics of ablation sites based on other accessory pathway characteristics.

EDITORSHIPS

- Guest editorial reviewer, *American Journal of Cardiology*
- Guest editorial reviewer, *Congenital Heart Disease*
- Guest editorial reviewer, *Pediatric Research*

MAJOR LECTURESHIPS AND SEMINARS

- Codirector, educational program, Ninth Annual Master Class in Congenital Cardiac Morphology with Professor Robert Anderson, Children's Hospital of Pittsburgh, Pittsburgh, Pa., October 2016



Vivek Allada, MD
Interim Division Chief,
Pediatric Cardiology

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Fellow, AAP
- Cardiology and Cardiac Surgery Section, AAP
- ACC
- ACPC Section, ACC
- American Society of Echocardiography
- Adult Congenital Heart Association

HONORS

- *Best Doctors in America*, Woodward/White, Inc., 2012–2016
- Best Doctors, *Pittsburgh Magazine*, 2012–2016

Automated QT Analysis on Holter Monitor for Diagnosis of Long QT Syndrome. This study utilizes 24-hour Holter monitors to help identify differences between patients with long QT syndrome and controls. This study was awarded best fellow presentation at both the Pittsburgh American Heart Association (AHA) Fellows' Research Day and the Midwest Pediatric Cardiology Society annual meeting.

Lyme Carditis in Pediatric Patients Across U.S. Children's Hospitals. This study utilizes the Pediatric Health Information Systems database to study Lyme carditis across 44 U.S. children's hospitals and the changes in epidemiology and utilization over time.

Electrocardiograms in Pediatric Patients Presenting With Seizure to the Emergency Department. This study looks at the yield of electrocardiograms performed in pediatric patients who presented to the emergency room for evaluation of seizure.

Cost-Effectiveness of Implantable Cardioverter Defibrillators (ICDs) in Patients With Repair of Tetralogy of Fallot (TOF). This study evaluates the use of implantable cardioverter defibrillators in patients undergoing repair of tetralogy of Fallot and the cost-effectiveness of this strategy compared with conventional therapy.

Retrospective Study of Exercise Testing and Improvements Due to Implementation of Electronic Reporting. This study evaluated the impact of switching to electronic reporting of exercise tests and showed that it improved the time to finalization for such reports.

ADVISORY COMMITTEE MEMBERSHIPS

- Chair, Fellows Research Day Task Force, AHA, 2015–2016
- Fellows Research Day Task Force, AHA
- Finance Committee, Pediatric and Congenital Electrophysiology Society
- Pediatric Cardiology Scholarly Oversight Committee, Children's Hospital of Pittsburgh
- Physician Advisory Committee, Children's Hospital of Pittsburgh
- eRecord Transformation Committee, Children's Hospital of Pittsburgh
- Pediatric Cardiology Fellowship Committee, Children's Hospital of Pittsburgh
- Electronic Medical Record Enhancement Task Force, Children's Hospital of Pittsburgh
- Advanced Practice Providers Fellowship Leadership Committee, Children's Hospital of Pittsburgh
- Leadership Committee, Department of Pediatrics Ambulatory Advisory Council, Children's Hospital of Pittsburgh
- Task Force 2019–Advanced Practice Providers, Children's Hospital of Pittsburgh

MAJOR LECTURESHIPS AND SEMINARS

- “Pediatric Murmurs: When to Refer,” Three Rivers Pediatric Update, Children's Hospital of Pittsburgh, Pittsburgh, Pa., May 2015

- “Pediatric Cardiac Emergencies,” emergency medicine grand rounds, Allegheny General Hospital, Pittsburgh, Pa., March 2016
- “Syncope and Chest Pain,” Three Rivers Pediatric Update, Children's Hospital of Pittsburgh, Pittsburgh, Pa., May 2016
- “Using a Smartphone to Diagnose Arrhythmias,” Heart Rhythm Society annual meeting, Chicago, Ill., May 2017

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Heart Rhythm Society
- Pediatric and Congenital Electrophysiology Society
- Pittsburgh Electrophysiology Society

HONORS

- Best Doctors, *Pittsburgh Magazine*, 2015–2016
- Chairman's Distinction Award, 2017–2018

Lee B. Beerman, MD

RESEARCH

Assessment of Properties of Adenosine-Sensitive Accessory Pathways. Lee Beerman is reviewing data on pathways determined to be sensitive to adenosine, looking for markers of local ventricular-atrial timing and conduction properties. These are vital steps toward mapping of the pathways.

Evaluation of Arrhythmic Events Noted on Pacemaker Interrogations. Beerman is assessing correlations between nonsustained ventricular tachycardia on interrogation and clinical events.

ADVISORY COMMITTEE MEMBERSHIPS

- Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, AHA
- Writing groups, “Guidelines for the Diagnosis of Rheumatic Fever Using the Jones Criteria,” “Update in the Era of Echocardiography,” and “Update on Management of Bacterial Endocarditis in Pediatric Population,” AHA
- Past president and current Executive Committee member, Children's Hospital of Pittsburgh of UPMC Alumni Association
- President, Children's Hospital of Pittsburgh of UPMC Professional Staff, 2013–2015
- Chair, Credentials Committee, Children's Hospital of Pittsburgh of UPMC, 2013–2015

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- AHA
- Heart Rhythm Society

- Pediatric and Congenital Electrophysiology Society
- Pittsburgh Electrophysiology Society

HONORS

- Best Doctors, *Pittsburgh Magazine*, 2012–2015
- Howard A. Mermelstein Award for Excellence in Pediatrics, Children's Hospital of Pittsburgh of UPMC, 2013
- Peter J. Safar Pulse of Pittsburgh Award, a lifetime achievement award, AHA, 2012

Mark DeBrunner, MD

RESEARCH

Use of the Myocardial Performance Index (MPI) Derived by Echocardiography to Identify Rejection in Patients After Heart Transplant. Standard, noninvasive imaging has not proven to be very effective in identifying patients with rejection following heart transplantation. The MPI, derived through Doppler and tissue Doppler measurements, has been used to measure subtle forms of myocardial dysfunction. This retrospective study utilized a large transplant database and confirmed that the MPI calculated with spectral Doppler predicted cardiac transplant rejection. Ongoing studies will utilize tissue Doppler indices to measure MPI in a prospective fashion.

Additionally, Mark DeBrunner participated in the “Brain Dysplasia Associated With Ciliary Dysfunction in Infants With Congenital Heart Disease” study.

MAJOR LECTURESHIPS AND SEMINARS

- “Atrioventricular Septal Defect in the Setting of Isomerism of the Atrial Appendages,” Ninth Annual Master Class in Congenital Cardiac Morphology, Pittsburgh, Pa., September 2016
- “The Pulmonary Valve,” Ninth Annual Master Class in Congenital Cardiac Morphology, Pittsburgh, Pa., September 2016

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- AAP
- Society of Pediatric Cardiology Training Program Directors

Stacey Drant, MD

RESEARCH

Aortic Stiffness in Aortic Root Dilatation. A subgroup of patients with bicuspid aortic valve develops aortic dilatation during childhood and is at increased risk for aortic dissection during adulthood. Patients with other forms of aortic dilatation have been found to have abnormal aortic elastic qualities. Using echocardiography to measure aortic distensibility and

stiffness, Stacey Drant's team is evaluating normal pediatric patients and those with bicuspid aortic valve to identify patients who will be at increased risk for future aortic dissection and assess response to medical therapy.

National Clinical Trial of Beta Blocker Therapy (Atenolol) Versus Angiotensin II Receptor Blocker Therapy (Losartan) in Individuals With Marfan Syndrome. Drant is the site principal investigator of this study with the primary aim to compare the effect of atenolol therapy to that of losartan therapy on the rate of aortic growth and progression of aortic regurgitation.

Use of the MPI Derived by Echocardiography to Identify Rejection in Patients After Heart Transplant. Standard, noninvasive imaging has not proven to be very effective in identifying patients with rejection following heart transplantation. The MPI, derived through Doppler and tissue Doppler measurements, has been used to measure subtle forms of myocardial dysfunction. This retrospective study used a large transplant database and confirmed that the MPI calculated with spectral Doppler predicts cardiac transplant rejection. Ongoing studies will utilize tissue Doppler indices to measure MPI in a prospective fashion.

Exercise Training on Sedentary Obese Pediatric Patients. Drant is overseeing a study that assesses the effects of exercise training on left ventricular mass in sedentary obese pediatric patients.

ADVISORY COMMITTEE MEMBERSHIPS

- Member, Pediatric Quality Metrics Committee, ACC

EDITORSHIPS

- Guest editorial reviewer, *Journal of the American Society of Echocardiography*
- Guest editorial reviewer, *Pediatric Cardiology*
- Guest editorial reviewer, *Congenital Heart Disease*

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Society of Echocardiography

HONORS

- Patient Satisfaction Award, Children's Hospital of Pittsburgh, 2016
- UPMC Excellence in Patient Experience and Medical Staff Honor Roll, 2016

Johanna L. Drickman, MD

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- AAP
- ACC
- American Physicians Fellowship

David S. Ezon, MD**RESEARCH**

The HeartView Collaborative. David Ezon is the founder of the HeartView Collaborative, a multi-institutional effort to employ virtual and augmented reality technologies to improve pre-operative and intra-operative guidance in caring for children with congenital heart disease.

Echocardiographic Correlates to Coarctation of the Aorta Gradients at Catheterization. This study is evaluating the best echocardiographic methods to predict the blood pressure gradient at catheterization caused by coarctation of the aorta. The study will help guide clinicians on the best time to refer patients to the catheterization laboratory for balloon angioplasty of the obstruction.

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- ACC
- AAP

Brian D. Feingold, MD, MS, FAHA**RESEARCH**

Listing Strategies for Allosensitized Pediatric Heart Transplant Candidates. Brian Feingold was awarded a five-year NIH KL2 grant in July 2010 to determine historical outcomes for children listed for heart transplantation with a requirement for prospective crossmatch. This includes modeling outcomes for two competing wait-list strategies for allosensitized patients. Analyses are being performed with data from the United Network for Organ Sharing and PHTS databases and have resulted in multiple publications.

Chronic Graft Destruction: Interplay of Allo- and Autoantibodies and Nonadherence Role of Alloantibodies in Cardiac Transplantation: Intervention, Outcomes, and Mechanisms. Feingold is the Children's Hospital site primary investigator on this NIH NIAID award. The program (CTOT-C) seeks to enhance understanding of the role of alloantibodies in pediatric heart transplantation. Pediatric heart transplant candidates are frequently allosensitized based on prior exposure to blood products, homografts, and ventricular assist devices, and this has led to increased pre- and post-transplant mortality. This research program brings together a group of seven leading heart transplant centers and leading transplantation scientists to study the impact of preformed and *de novo* alloantibodies on mid-term pediatric heart transplant outcomes. Mechanistic studies are being performed to determine why some children develop graft injury but others appear to "accommodate" their grafts in the presence of donor-specific antibody and a positive donor-specific cross-match.

Epstein-Barr Virus (EBV) Infection in the Immunocompromised Host. Primary EBV infection is a major cause of morbidity and mortality after pediatric thoracic organ transplantation and frequently is associated with the development of post-transplant lymphoproliferative disorder (PTLD). Feingold serves as a co-investigator on Diana Metes' NIH R01, which is examining chronic high EBV load and the risk of PTLD in pediatric thoracic transplant patients.

sST2/IL33 as a Biomarker for Acute Rejection in Pediatric Heart Transplant Recipients. In this collaboration with Heth Turnquist from the Thomas E. Starzl Transplantation Institute, the team is seeking noninvasive markers of acute rejection. The research is supported by the Roche Organ Transplantation Research Foundation.

Cardiac Fibrosis After Pediatric Heart Transplantation. In collaboration with investigators at the cardiac magnetic resonance imaging center at UPMC Presbyterian, Feingold and colleagues are working to quantify fibrosis after pediatric heart transplantation, determine risk factors, and elucidate mechanisms for development. Fibrosis occurs variably after transplantation and is thought to be associated with limitations in late post-transplant survival.

Pediatric Cardiomyopathy—Biomarkers. This NIH-funded consortium of pediatric heart-failure centers is working together to understand the utility of blood and imaging biomarkers in the diagnosis and prognosis of cardiomyopathies. Feingold serves as site primary investigator.

Noninvasive Detection of Acute Rejection. Feingold has partnered with an industry sponsor and the Hillman Transplant Foundation to explore possible clinical biomarkers for the diagnosis of acute heart transplant rejection.

Heart Transplantation in Barth Syndrome. This study, funded in part by the Barth Syndrome Foundation, seeks to quantify the world experience and outcomes of heart transplantation for individuals with Barth Syndrome.

STUDY SECTIONS

- Grant review panelist, NIH/National Heart, Lung, and Blood Institute Pediatric Heart Network Clinical Research Centers
- Grant review panelist, AHA Strategically Focused Research Network Phase One

ADVISORY COMMITTEE MEMBERSHIPS

- Vice chair, Scientific Council on Pediatric Thoracic Transplantation and Heart Failure, International Society for Heart and Lung Transplantation

- Fellow Research Day Task Force, Great Rivers Affiliate, AHA
- Member, Pediatric Heart Failure Committee, Cardiovascular Disease in the Young Council, AHA
- Cardiovascular Disease in the Young Council's liaison to the Council on Clinical Cardiology Heart Failure and Transplantation Committee, AHA
- Chair, AHA Writing Group for Scientific Statement on Cardiac Management of Neuromuscular Diseases
- Medical monitor, Pediatric Heart Network's Fontan Exercise Longitudinal Assessment (FUEL) Trial
- Member, AHA Summer Undergraduate Research Program in Cardiovascular Sciences
- Steering Committee, University of Pittsburgh Vascular Medicine Institute

MAJOR LECTURESHIPS AND SEMINARS

- "Innovations in Pediatric Heart Failure," symposium, San Diego, Calif., December 2015
- Invited faculty, Barth Syndrome Foundation biannual conference, Clearwater Beach, Fla., July 2016
- "Management of the Highly Allosensitized Pediatric Heart Transplant Patient," invited presenter, Optum Conference, Pittsburgh, Pa., May 2016
- Invited faculty, Eighth Annual Neonatal and Pediatric extracorporeal membrane oxygenation (ECMO) Conference, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., August 2016
- Invited faculty, International Society of Heart and Lung Transplantation annual scientific sessions, San Diego, Calif., April 2017

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Society for Pediatric Research
- Fellow, AHA
- Council on Cardiovascular Disease in the Young, AHA
- International Pediatric Transplant Association
- American Society of Transplantation
- International Society for Heart and Lung Transplantation
- PHTS

EDITORSHIPS

- Associate editor, *Pediatric Cardiology*
- Editorial Board, *Pediatric Transplantation*

HONORS

- Best Doctors, *Pittsburgh Magazine*, 2012–2017

Tyler H. Harris, MD

RESEARCH

Tyler Harris' research interests involve the use of innovative technologies and curricula as well as cross-institutional collaboration to improve education in pediatric cardiology.

Pediatric Heart Disease Simulation Curriculum: Educating the Pediatrician. This study created a simulation-based curriculum to train pediatric residents in the evaluation, management, and triage of critical pediatric heart disease.

Evaluation of Boot Camp Practices in Pediatric Cardiology Fellowship. In this study, being conducted with the AAP Section on Cardiology and Cardiac Surgery's Committee for Education and Training, Harris is leading a survey of current practices and a needs assessment for cardiology training programs' "Boot Camp" processes.

Crowdsourcing the Best Literature in Pediatric Cardiology. In a collaborative effort, Harris is working to create a resource of highly important, field-changing research within pediatric cardiology using the technique of crowdsourcing with expert review via a Delphi method. The output will be a continually updated list of the literature considered paramount to the field.

University of Pittsburgh Graduate Medical Education Research Collaborative. Harris is working with education researchers from across the Pitt health system to identify and evaluate high-yield education research projects in a collaborative setting, allowing sharing of expertise and experience.

ADVISORY COMMITTEE MEMBERSHIPS

- Pediatric Cardiology Scholarly Oversight Committee, Children's Hospital of Pittsburgh
- Pediatric Cardiology Fellowship Committee, Children's Hospital of Pittsburgh
- Curriculum coordinator, Pediatric Advanced Practice Providers Fellowship Committee, Children's Hospital of Pittsburgh

EDITORSHIPS

- Guest editorial reviewer, *Cardiology in the Young*

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Fellow, AAP
- AP Section on Cardiology and Cardiac Surgery Committee on Education and Training
- Society of Pediatric Cardiology Training Program Directors
- Association of Pediatric Program Directors
- Pediatric Acute Cardiac Care Collaboration

Jennifer Johnson, DO**RESEARCH**

Fetal Echocardiographic Predictors of Postnatal Coarctation in the Setting of Ventricular Discrepancy. Johnson has focused her research on fetal cardiology. She is evaluating the fetal echocardiographic predictors of postnatal coarctation in the setting of ventricular discrepancy. She is determining whether fetuses of mothers with thyroid disease may be at higher risk for developing supraventricular tachycardia.

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Society of Echocardiography

Jacqueline Kreutzer, MD, FACC, FSCAI**RESEARCH**

Novel Technologies for Transcatheter Intervention, Including Percutaneous Valve Therapy, Device and Stent Development, and Their Clinical Applications. Jacqueline Kreutzer's research interests are in novel technologies for transcatheter intervention, including percutaneous valve therapy, device and stent development, and their clinical applications. Kreutzer has been principal investigator for the following projects.

The Medtronic Melody Transcatheter Pulmonary Valve Post-Approval Study. Kreutzer served as the principal investigator for this multicenter study on post-market surveillance of the Melody pulmonary valve.

Congenital Cardiovascular Interventional Study Consortium Coarctation Study. This is a multicenter study designed to compare outcomes among surgery, balloon angioplasty, and intravascular stent placement for recurrent or native coarctation of the aorta.

Coarctation of the Aorta Stent Trial (COAST I and COASTII) Multicenter Studies. These studies examine the use of Cheatham platinum bare metal stents, as well as covered stents, for coarctation of the aorta.

C3PO-QI. This is a multi-institutional quality-improvement project to monitor outcomes of pediatric cardiac catheterization.

COMPASSION XT Post-Approval Study. This is a multicenter study on post-market surveillance of the Sapien XT pulmonary valve.

EDITORSHIPS

- Editor, *Journal of the American College of Cardiology*

ADVISORY COMMITTEE MEMBERSHIPS

- Congenital Heart Disease Committee, Society for Cardiac Angiography and Intervention
- Congenital Cardiovascular Interventional Study Consortium
- Program chair, Congenital Heart Disease, Society of Cardiac Angiography and Intervention, 2016
- National Cardiovascular Data Registry and IMPACT Registry Research and Publications Committee, ACC
- Vice president, Congenital Cardiovascular Interventional Study Consortium
- Melody® Global Publications Committee
 - o Member, internal advisory board for a grant application for the AHA Strategically Focused Children's Research Network
 - o Chair, Data Monitoring Committee, Medtronic Harmony™ Transcatheter Pulmonary Valve (TPV) Clinical Study

MAJOR LECTURESHIPS AND SEMINARS

- "Pediatric Interventional Cardiology: State of the Art and Future Perspective," pediatric grand rounds, Children's Hospital of Pittsburgh of UPMC, July 2016
- "Cardiac Catheterization Procedures for ECMO Patients," Eighth Annual Neonatal and Pediatric ECMO Educational Conference, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., August 2016
- "Advances in Pediatric Interventional Cardiology: State of the Art and Future Perspective," Boxer Memorial Lecture Speaker, pediatric grand rounds, Cohen's Children's Hospital, Northwell Health, Long Island, N.Y., September 2016
- "Interventional Cardiac Catheterization for the Aortic Root Disease," Ninth Annual Master Class in Congenital Cardiac Morphology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., September 2016
- "Transcatheter PVR Using the Edwards and Melody Valves in Patients With Conduits and Bioprosthetic Valves: Technical Considerations," invited faculty, 28th Annual Scientific Symposium of Transcatheter Cardiovascular Therapeutics, Washington, D.C., October 2016
- Invited faculty, live-case presenter, Pediatric and Adult Interventional Cardiac Symposium 2017, January 2017
- "Hybrid Procedure for Neonatal Hypoplastic Left Heart Syndrome," Progress in Perinatal Cardiology: Detection and Management of Fetal Congenital Heart Disease, Tampa Bay, Fla., February 2017

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- ACC
- Congenital Heart Disease and Pediatric Cardiology Section, ACC
- Women in Cardiology Section, ACC
- AHA
- Society for Cardiac Angiography and Interventions
- Sociedad Argentina de Cardiología
- Sociedad Latina de Cardiología
- IMPACT Registry Research and Publications Subcommittee, National Cardiovascular Data Registry
- Congenital Cardiovascular Interventional Study Consortium

HONORS

- *Best Doctors in America*, Woodward/White, Inc.
- Best Doctors, *Pittsburgh Magazine*, 2012–2016
- Chair's Distinction Award for performance during fiscal year 2016, Department of Pediatrics

Bernhard Kühn, MD, FACC**RESEARCH***Mechanisms of Myocardial Development and Regeneration.*

Bernhard Kühn's research is on the mechanisms of myocardial development and regeneration. The long-term goal is to develop a therapeutic strategy for stimulating myocardial regeneration in children.

Kühn is a Mellon Scholar and director for research for the division. He is developing a bench-to-bedside program dovetailing the heart-failure program with the aim of developing novel therapies for children. He advises and mentors fellow researchers and serves on the Fellow Scholarship Oversight Committee. Kühn is also a clinician with one general clinic per week and collaborative participation in the heart-failure clinic.

New grants awarded:

- "Discovering Fibrosis Genes by Gene Expression Analysis in Single Heart Cells," funds for genomic discovery, Children's Hospital of Pittsburgh Foundation, principal investigator, \$200,000 total
- "Eliciting Heart Regeneration Through Cardiomyocyte Division," Fondation Leducq, Transatlantic Network of Excellence, about \$500,000, 2016–2021
- University of Pittsburgh Physicians Foundation Award, "Discovering New Fibrosis Mechanisms by Gene Expression Analysis of Single Human Heart Cells"

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Diplomat, AAP

- Fellow, ACC
- American Association for the Advancement of Science
- AHA
- Elected member, American Society of Clinical Investigation

HONORS

- American Society of Clinical Investigation, 2016

Lizabeth Lanford, MD**RESEARCH***Change in Occipital-Frontal Head Circumference Percentile in Single Ventricle Patients Undergoing Glenn Anastomosis.*

Lizabeth Lanford's research interest lies in changes in growth parameters associated with Glenn surgery. This research was presented at the 2016 Eastern Society for Pediatric Research meeting and the 2016 Pediatric Academic Societies meeting.

Lanford also studies cardiovascular abnormalities and pulmonary hypertension in children with sickle cell disease.

MAJOR LECTURESHIPS AND SEMINARS

- "Echocardiographic Features of Normal Anatomy," Master Class in Congenital Cardiac Morphology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., September 2016
- "Echocardiographic Features of Aortic Root," Master Class in Congenital Cardiac Morphology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., September 2016
- "Echocardiographic Features of Normal Anatomy," Master Class in Congenital Cardiac Morphology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., October 2017
- "Echocardiographic Features of Tetralogy of Fallot," Master Class in Congenital Cardiac Morphology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa., October 2017

HONORS

- Chair's Distinction Award for providing outstanding services, 2016
- *Best Doctors in America*, Woodward/White, Inc.

Francis M. McCaffrey, MD**RESEARCH**

Clinical Trial of Coenzyme Q10 and Lisinopril in Muscular Dystrophies. This is a multicenter study that enrolls patients with muscular dystrophies early in their disease, before the onset of cardiomyopathy, into a coenzyme Q10/

lisinopril arm versus a traditional treatment control. Echocardiographic monitoring is used to determine whether they qualify for enrollment and to track cardiac function.

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Society of Echocardiography

Susan A. Miller, MD

RESEARCH

C3PO. This multi-institutional quality-improvement project monitors outcomes of pediatric cardiac catheterization. Susan Miller's research involves outcomes after pediatric heart transplantation. She is a co-investigator on many active protocols, including the following.

- Pediatric cardiomyopathy—biomarkers: This NIH-funded consortium of pediatric heart-failure centers is working together to understand the utility of blood and imaging biomarkers in the diagnosis and prognosis of cardiomyopathies. Feingold is site primary investigator.
- Chronic graft destruction: This study examines the interplay of allo- and autoantibodies and nonadherence.
- Role of Alloantibodies in Cardiac Transplantation: Intervention, Outcomes, and Mechanisms (NIH/NIAID CTOT-C): This program seeks to enhance understanding of the role of alloantibodies in pediatric heart transplantation.
- sST2/IL33 as a Biomarker for Acute Rejection in Pediatric Heart Transplant Recipients
- INTERMACS (Interagency Registry of Mechanically Assisted Circulatory Support) cohort study
- Cardiac fibrosis after pediatric heart transplantation: In collaboration with investigators at the cardiac magnetic resonance imaging center at UPMC Presbyterian (principal investigator, Feingold), this study is working toward quantifying fibrosis after pediatric heart transplantation, determining risk factors, and elucidating mechanisms for development.
- EBV infection in the immunocompromised host—primary EBV: This study examines chronic high EBV load and the risk of PTLD in pediatric thoracic transplant patients.
- Waitlist and transplant events and outcomes in the United States
- Biomarker analysis after heart transplantation
- Immune cell function and transplant outcomes in lung and heart/lung transplants
- PHTS

ADVISORY COMMITTEE MEMBERSHIPS

- Medical codirector, Bill Neches Heart Camp for Kids

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Pediatric Cardiomyopathy Foundation

Evonne Morell, DO

RESEARCH

Effects of Anesthetics and Hypothermia on Ciliary Function in the Respiratory Epithelia of Mice. This study, which has been submitted for publication, evaluated the effects of multiple anesthetics on the ciliary function of mice.

Preoperative Management of Patients With Single-Ventricle Physiology. This study evaluated current preoperative management, which maximizes equal distribution of cardiac output by afterload reduction using a type III phosphodiesterase inhibitor and increases pulmonary vascular resistance using inhaled nitrogen, as well as the effect it has on multisystem organ dysfunction.

Evolving Approaches in the Management of Hypoplastic Left Heart Syndrome. This study focused on the establishment of a single-ventricle clinic.

Evonne Morell also is examining a hybrid strategy for neonates with ductal-dependent systemic circulation at high risk for Norwood.

MAJOR LECTURESHIPS AND SEMINARS

- “Youth Exams and Murmurs: What’s Reasonable?” Pennsylvania Osteopathic Medical Association District VIII 30th Annual Educational Winter Seminar, Farmington, Pa., January 2017

ADVISORY COMMITTEE MEMBERSHIPS

- Pediatric Acute Cardiac Care Collaboration, Quality-Improvement Committee

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- AAP
- AHA
- Pennsylvania Chapter of Osteopathic Physicians
- Pediatric Acute Cardiac Care Collaboration

Lan Nguyen, MD

RESEARCH

Urinary Biomarkers in Young Adults With Congenital Heart Disease. This is an ongoing collaborative research project with the Center for Critical Care Nephrology to compare levels of urinary biomarkers of kidney injury and dysfunction in healthy young adults and young adults with congenital heart disease. The main goal of this study is to

establish an objective method to quantify renal fitness in young adult congenital heart disease patients, a growing population that is at risk for numerous kidney insults across a lifetime.

MAJOR LECTURESHIPS AND SEMINARS

- “Adult Congenital Heart Disease: A Focus on Pulmonary Stenosis and Tetralogy of Fallot,” Three Rivers Echo Society, Canonsburg, Pa., May 2016
- “The Adult Patient With Congenital Heart Disease II: The Operated Patient,” Three Rivers Echo Society, Canonsburg, Pa., May 2015

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- Adult Congenital Heart Association
- American Society of Echocardiography

Sandhya Ramlogan, MD

RESEARCH

Intervendor Reproducibility of Biventricular 2D Speckle Tracking Strain in the Structurally Normal Heart in Infants and Children. Clinical adoption of 2D strain echocardiography by speckle tracking in pediatrics is limited due to the lack of evidence proving its reproducibility despite evidence showing its significant incremental value in early detection of subtle myocardial dysfunction in adult studies. Since the EACVI/ASE industry task force established better standardization of strain software packages, no studies have evaluated intervendor strain reproducibility in children < 6 years of age with the newest strain software, which uses the EACVI/ASE industry task force recommended global peak systolic strain algorithm. Sandhya Ramlogan’s research seeks to evaluate the reproducibility of global longitudinal and left ventricular circumferential strain for mid-myocardial and endocardial layers in pediatric subjects on the two commonly utilized software platforms.

Noninvasive Detection of Acute Rejection. This research explores possible biomarkers of acute rejection (or nonrejection) in paired clinical data at the time of cardiac allograft biopsy with serial research serum samples and blinded review of serial clinical echocardiograms. This research is funded by Abbott Diagnostics and the Hillman Foundation for Transplant Research. Ramlogan is the echocardiographer co-investigator on this project with Feingold.

EDITORSHIPS

- Guest editorial reviewer, *Pediatric Cardiology*
- Guest editorial reviewer, *Congenital Heart Disease*

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Society of Echocardiography

Linda Russo, MD

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Society of Echocardiography
- AHA
- Immediate past medical director, Bill Neches Heart Camp for Kids

Sara Trucco, MD

RESEARCH

Sara Trucco’s research involves interventional cardiac catheterization and includes the following.

- Acute and Intermediate Follow-Up Results of Hybrid Device Closure of Ventricular Septal Defects: A Multicenter Experience
- Comparison Between Surgical Versus Balloon Angioplasty Versus Intravascular Stent Placement for Recurrent or Native Coarctation of the Aorta
- Covered Cheatham Platinum Stent for Prevention or Treatment of Aorta Wall Injury Associated With Aortic Coarctation (COAST II)
- Amplatzer Atrial Septal Defect Occluder Post-Marketing Study II, a clinical study through AGA Medical Corporation
- Access-related adverse event multicenter project through C3PO (principal investigator)
- C3PO-QI radiation-safety benchmark study (subinvestigator)
- Medtronic Melody valve post-marketing study
- Endovascular therapies in congenital heart disease
- Edwards-Sapien XT transcatheter pulmonary valve post-marketing study (co-investigator)
- CCISC coronary artery fistula study (local principal investigator)
- ALK1 Signaling in Development of Superior Cavopulmonary Anastomosis-Associated Pulmonary Arteriovenous Malformations (principal investigator; co-principal investigator: Beth Roman, PhD)

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- ACC
- AHA
- Society for Cardiac Angiography and Interventions
- Elected as clinical vice president of the Pediatric Interventional Cardiology Early-Career Section, Society for Cardiac Angiography and Interventions

MAJOR LECTURESHIPS AND SEMINARS

- “Interventional Cardiac Catheterization for Diseases of the Pulmonary Root,” Ninth Annual Pittsburgh Master Class in Congenital Cardiac Morphology, Pittsburgh Pa., September 2016

- “Hybrid Strategy for Neonates With Ductal-Dependent Systemic Circulation at High Risk for Norwood,” “Best of the Best” abstract winner, Pediatric and Adult Interventional Cardiac Symposium, Miami Beach, Fla., 2016
- “Reducing Adult Congenital Heart Disease Cardiac Catheterization Complications in a Pediatric Facility: A Single Institution Experience,” award finalist, 20th Annual Update on Pediatric Cardiovascular Disease, Orlando, Fla., 2017
- “Interventional Cardiology Research Projects II,” Heart Institute Research Retreat, Pittsburgh, Pa., April 2017

Jacqueline Weinberg, MD

RESEARCH

Jacqueline Weinberg’s research interests involve noninvasive cardiac imaging, fetal and perinatal cardiology, and brain development and neurodevelopmental outcomes in congenital heart disease. Her current research projects include the following.

- Predictors of brain injury and neurodevelopmental outcomes in infants with congenital heart disease
- Outcomes after prenatal versus postnatal diagnosis of d-transposition of the great arteries

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- AAP
- Fetal Heart Society
- American Society of Echocardiography

MAJOR LECTURESHIPS AND SEMINARS

- “Diagnosis of Fetal Arrhythmias,” Progress in Perinatal Cardiology: Detection and Management of Fetal Congenital Heart Disease, Tampa, Fla., February 2017

Shawn West, MD, MSc

RESEARCH

Shawn West’s research interests include cardiac transplantation in children following single-ventricle physiology, cardiomyopathies, acute rejection following heart transplantation, and noninvasive measurements of systolic and diastolic function in children with structural congenital heart disease. West explores outcomes-based research in children with congenital heart disease and heart transplantation, cost analysis of heart transplant, quality improvement in care of single-ventricle patients through third-stage palliation, assessment of myocardial deformation using velocity vector imaging/speckle tracking, and outcomes of fetal cardiomyopathies. His current research projects include the following.

- CTOT, CTOT-09 (site sub-investigator)
- PHTS (site subinvestigator)
- Heart transplant EBV study (site sub-investigator)
- Pediatric cardiomyopathy registry biomarker study (site sub-investigator)
- Use of Advanced Cardiac Therapies for Patients with Duchenne Muscular Dystrophy
- Open-label study for Sanfilippo type B for SBC-103
- Left heart decompression and outcome in patients on veno-arterial ECMO support
- Midterm analysis of the bicuspid polytetrafluoroethylene conduit (Masa valve) for right ventricular outflow tract reconstruction in neonates and infants
- Inert Gas Rebreathing for Predicting Disease Status in Subjects With Pulmonary Hypertension
- Pediatric Heart Failure Observational Study Group: This is a multicenter registry study through the International Society for Heart and Lung Transplantation, examining pediatric acute myocarditis in a contemporary multicenter cohort.
- Fontan-Related Protein-Losing Enteropathy and Transplant Observational Study: This is a multicenter registry study analyzing patients referred for heart transplant evaluation for Fontan-related protein-losing enteropathy.

ADVISORY COMMITTEE MEMBERSHIPS

- American Society of Transplant
- PHTS Practice

EDITORSHIPS

- Guest editor reviewer, *Journal of Heart and Lung Transplantation*
- Guest editor reviewer, *International Journal of Cardiology*
- Guest editor reviewer, *Cardiology in the Young*
- Guest editor reviewer, *Journal of Thoracic Disease*

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- International Pediatric Transplant Association
- International Society for Heart and Lung Transplantation
- PHTS
- Variation Working Group, PHTS, 2017 to the present
- AHA
- American Society of Transplantation
- Patient Transition Committee, American Society of Transplantation, 2015 to the present

MAJOR LECTURESHIPS AND SEMINARS

- Pedimag National Training Conference, Children’s Hospital of Pittsburgh, Pittsburgh, Pa., June 2017

HONORS

West serves as the pediatric cardiologist for the UPMC Hereditary Hemorrhagic Telangiectasia Center, which has been approved as a North American Center of Excellence.

Matthew Zinn, DO**RESEARCH**

Matthew Zinn's research interests include the associations between surveillance biopsy intensity and outcomes after heart transplantation in children, mechanical circulatory support in children, cardiomyopathies, and antibody-mediated rejection after heart transplantation. Zinn was the site investigator for a recent multinational study evaluating outcomes in pediatric heart failure for patients supported with the HeartWare HVAD. He is part of a study evaluating the cardiac presentation of an Amish patient with propionic acidemia. His current research projects include the following.

- CTOT, CTOT-09 (site sub-investigator)
- PHTS (site sub-investigator)
- Pediatric cardiomyopathy registry biomarker study (site sub-investigator)
- PediMACS (site-investigator)

TEACHING ACTIVITIES

The pediatric cardiology faculty plays an active role in the teaching of medical students, residents, fellows, nurse practitioners, ultrasound students, and adult cardiology trainees. The program has an ACGME-accredited fellowship training program that has trained more than 60 pediatric cardiologists and currently is training eight categorical fellows. In addition, predoctoral and postdoctoral trainees form part of the cardiovascular research programs of the cardiology division and the Heart Institute.

A team of cardiologists participated in the University of Pittsburgh School of Medicine second-year medical student cardiovascular course on congenital heart disease, giving lectures and providing a hands-on workshop. In addition, the Heart Institute, led by Allada, and the cardiology division continue to host the Master Class in Congenital Cardiac Morphology with world-renowned professor Robert Anderson, now in its 10th year. This highly successful educational program brings attendees from all over the world to hear from experts at Children's Hospital and utilizes the Frank E. Sherman and Cora C. Lenox Heart Museum.

Cardiology fellows presented abstracts at numerous regional and national meetings. To meet the ever-growing need for expertise in adult congenital heart disease, the program has successfully implemented the adult congenital heart disease fellowship program curriculum, with the successful graduation of the inaugural fellow in 2015, Lan Nguyen, who has joined the UPMC adult congenital heart disease program as a faculty member. The graduating fellows continue to achieve national recognition, with advanced fellowship and faculty positions at some of the most prestigious institutions in the country, including Mayo Clinic, University of Michigan, Medical University of South Carolina, and Boston Children's Hospital. The cardiology division continues to train the next generation and impart the Children's Hospital of Pittsburgh's expertise across the country.

Finally, this year marked the 27th anniversary for the Bill Neches Heart Camp for Kids. Under the leadership of the medical directors, Linda Russo and Susan Miller, this highly successful camp gives Heart Institute patients, children, and young adults the opportunity to get together and share in their successes.

ADVISORY COMMITTEE MEMBERSHIPS

- Regional Review Board, Region 2, United Network for Organ Sharing, 2016 to the present
- Medical director, Bill Neches Heart Camp for Kids, 2016 to the present

EDITORSHIPS

- Guest editorial reviewer, *Pediatric Transplantation*

MAJOR LECTURESHIPS AND SEMINARS

- "Pediatric Cardiac Extracorporeal Life Support," Eighth Annual Neonatal and Pediatric ECMO Conference at Children's Hospital of Pittsburgh, Pittsburgh, Pa., August 2016
- "Myocardial Failure: Patient Selection and Indications for Mechanical Circulatory Support," Foundations of Pediatric Mechanical Circulatory Support: PediMag National Training Program, Pittsburgh, Pa., June 2017

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- AHA
- International Society for Heart and Lung Transplantation
- AAP
- American Osteopathic Association
- PHTS

THREE-YEAR BIBLIOGRAPHY

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