

Division Data Summary

Research and Training Details

Number of Faculty	34
Number of Joint Appointment Faculty	2
Number of Research Fellows	4
Number of Research Students	1
Number of Support Personnel	117
Direct Annual Grant Support	\$786,124
Direct Annual Industry Support	\$42,585
Peer Reviewed Publications	109

Clinical Activities and Training

Number of Clinical Staff	2
Number of Clinical Fellows	12
Inpatient Encounters	1,310
Outpatient Encounters	13,860

Significant Publications

Division Highlights

Robert B. Hinton Jr., MD

Part of the Heart Institute’s mission is to facilitate meaningful translational research. Robert B. Hinton, MD is studying the mechanisms of human valve disease. Recent findings in human diseased aortic valves show that maladaptive angiogenic remodeling is an early finding in valve disease pathogenesis, which is surprising since this has long thought to be an end stage disease process associated with atherosclerosis. Further investigation in animal models of aortic valve disease has demonstrated that angiogenic remodeling is due in part to elastic fiber fragmentation. This work provides further evidence that valve disease has its origins in dysregulation of developmental programs and provides an opportunity to test new treatment strategies. It is not known if these early pathologic changes are identifiable by circulating biomarkers before the onset of overt clinical disease. Preclinical studies are underway to test the ability of biomarkers to predict disease progression and the efficacy of angiogenesis inhibition to treat aortic valve disease. Presently, there are no medical treatments for valve disease. This work seeks to elucidate developmental mechanisms of valve disease and identify new therapeutic targets to treat heart valve disease and improve child health.

Elaine M. Urbina, MD

This year Preventative Cardiology successfully competed for an R01 grant from the National Heart Lung and Blood Institute of the National Institute of Health titled “Accelerated CV Aging in Youth Related to CV Risk

Factors.” Our previous data showed that youth with obesity were developing stiffer arteries and thicker hearts, risk factors for adult CV disease, well before they went on to develop type 2 diabetes. This new grant will allow us to continue to follow these patients. Not only will we determine the rate of ‘normal’ arterial aging in healthy, lean youth, we will also find out which clusters of CV risk factors such as obesity, type 2 diabetes, high blood pressure or cholesterol are more damaging to the arteries and heart. These data will then be used to design more effective preventive and treatment strategies for high risk youth to prevent adult heart attack and stroke.

Preventative Cardiology is currently completing data collection on an ARRA (American Recovery & Reinvestment Act) stimulus grant. Our preliminary data were presented at the national meeting of the American Diabetes Association in June 2011. Our data demonstrated that youth with type 1 diabetes have thicker carotid arteries, stiffer central and peripheral arteries and have abnormal autonomic tone as measured by heart rate variability. These findings will help us identify which youth with diabetes are developing early hardening of the arteries so more aggressive therapy can be started.

CCHMC Preventive Cardiology also continues to demonstrate leadership in the field of Pediatric Vascular Function by providing the only training seminar in Non-invasive Assessment of Vascular Function in Children available in the United States. We conduct the 2-day seminar 3 times yearly and have trained Pediatric researchers around the country with one international participant receiving training this year. We are also the data coordinating center for many multi-center grants performing vascular assessment.

Division Collaboration

Anderson Center » Uma Kotagal, MD

Quality dashboard and Disease-specific dashboard

Anderson Center » Steve Muething, MD

Safety dashboard

Anesthesiology » Pornswan Ngamprasertwong, MD; Senthilkumar Sadhasivam, MD

An ovine model of maternal-fetal anesthesia and comparison of fetal cardiac function between two anesthetic regimens

Anesthesiology & Palliative/Hospice Care » Norbert Weidner, MD; Mark Meyer

Heart Failure Colloquium Milestone

Bariatric Surgery » Tom Inge, MD, PhD

Assisting in analyses of carotid thickness data collected in patients undergoing bariatric surgery

Biostatistics and Epidemiology » Jessica Woo, PhD

Role of DNA Methylation in Phenotype Variability

CBDI » Rajaram Nagarajan, MD

Late Survivor Clinic and Cardiomyopathy/Heart Failure Clinic

CBDI » Cristina Tarango, MD

Coagulation Service and VAD Program

CBDI-Hematology » Charles Quinn, MD

Quinn PFAST Study: Aim- Multicenter controlled study to compare the prevalence of PFO or other potential intracardiac shunts detectable by TTE in sickle cell anemia Funded: Division

Clinical and Translation Reserach » Michael Spigarilli, MD

Propranolol Study: Aim- Drug Propranolol effect on facial hemangiomas Funded: industry

Critical Care »

Critical Care Fellow Training, CICU

Endocrinology » Larry Dolan, MD

Working on ARRA grant comparing vascular function between healthy controls and youth with type 1 diabetes

Endocrinology » Amy Shah, MD

Working on a study comparing HDL-cholesterol proteomics and carotid intima-media thickness

Endocrinology » Sarah Lawson, MD

Working on study evaluating arterial stiffness in youth with Turner Syndrome

Endocrinology » Meilan Rutter, MD; James Collins, MD, PhD; Hemant Sawnani, MD; Brenda Wong, MBBS, MRCP; Jessica Woo, MHSA, PhD

Growth Hormone in Duchenne Muscular Dystrophy Patients, affects on cardiac function using cardiac MRI

Endocrinology » Philippe Backeljaw, MD

Assess partial Anomalous Pulmonary Venous Return (PAPVR) in Adolescent and Young Adult Turner Syndrome (TS) Patients: Prevalence and Hemodynamic Significance as Determined by Cardiac Magnetic Resonance Imaging (CMR)

Endocrinology & Radiology » Philippe Backeljaw, MD; Robert Fleck, MD

Cardiovascular Anomalies in Turner Syndrome (TS): Spectru, Prevalence, and Cardiac MR Imaging (cMRI), Findings in Pediatric and Young Adult Populations

Endocrinology » Philippe Backeljaw, MD

Characterization and treatment of aortopathy in Turner syndrome

Endocrinology » Lawrence Dolan, MD

NIH Training Grant

Endocrinology » Nancy Crimmins, MD

Center for Better Health and Nutrition

Fetal Care » Timothy Crombleholme, MD; Foong-Yen Lim, MD; Mounira Habli, MD

Fetal Care: Cardiovascular Findings associated with Twin-twin Transfusion, Cardiac Finding in fetal cardiac tumors and TRAP, Cerebrovascular Findings in TRAP

Endocrinology » Larry Dolan, MD; Sarah Lawson, PhD

Young "Turner" Syndrome: Aim- Vasculopathy in Turner Syndrome Funded: Industry

Gastroenterology, Hepatology & Nutrition » Jaime Echarte-Gonzalez, MD

Liver Study: Aim- Hemodynamic profile and biochemical markers of Cardiomyopathy in children with chronic and end stage liver disease Funded: CTRC

Gastroenterology, Hepatology & Nutrition » Jaime Echarte Gonzalez, MD; James Heubi, MD

Characterization of cardiac disease in patients requiring liver transplantation

Hem & Cancer Bio. - Molecular Genetics » Punam Malik, MD

Sickle Cell Study: Aim- Evaluation Cardiovascular indices of subjects with Sickle Cell syndrome Funded: Insurance

Hem & Cancer Bio. - Molecular Genetics » Punam Malik, MD

Zileuton Study: Aim- Determine a safe and tolerable does of Zileuton in patients with SCD Funded:Division

Human Genetics » Lisa Martin, PhD

Quantitative Genetic Origins of Pediatric Heart Disease

Human Genetics » Robert Hopkin, MD

Amicus/Fabry study: Aim- A Double-Blind, randomized, placebo-controlled study to evaluate the efficacy, safety and pharmacodynamics of AT1001 in patients with Fabry disease and AT1001-responsive GLA mutations. Funded: Industry

Human Genetics » Thomas A. Burrow, MD

Encore Study: Aim- A phase 3, Randomized, Multi-Center, Multinational, Open –Label, Active Comparator study to evaluate the efficacy and safety in Genz-112638 in patients with Gaucher Disease Type 1 who have reached therapeutic goals with enzyme replacement therapy. Genzyme corporation-Funded: Industry

Human Genetics » Robert Hopkin, MD

Cardiocore Field Study: Aim- Open label study to evaluate the efficacy (GL-3 clearance), PK and safety parameters for 2 alternative dose regimens of Fabrazyme in treatment-naïve make pediatric patients with Fabry disease without severe symptoms. Funded: Industry Genzyme Corporation sponsor

Human Genetics » Robert Hopkin, MD

Characterization of cardiac disease in Fabry's disease

Human Genetics » Raouf Samy Amin, MD

Amin VF Study: Aim- Mechanism Mediating Cardiac and Vascular Disease in children with obstructive sleep Apnea. 1) to compare inflammatory cardiovascular disease mechanisms d children with varying degrees of sleep disordered breathing SDB to those in normal controls; 2) to determine how cytokine levels in plasma relate to those in tonsils; 3) to examine the relationship between inflammatory markers and prognostically important cardiovascular measures such as carotid intimal thickness, carotid compliance, pulse pressure, aortic stiffness and left ventricular mass and function before and after adenotonsillectomy. Funded: Division

Infectious Disease » Margaret Hostetter, MD

Heart Transplantation

Interventional Cardiology Research Center University of Cincinnati » James Wilkin, MD

Helmy/AKA Capsaicin Study

Nephrology » Mark Mitsnefes, MD

The use of cardiac MR to describe the subtle cardiac abnormalities in chronic dialysis and renal transplant patients

Nephrology/Center for Acute Care Nephrology » Prasad Devarajan, MD; Stuart Goldstein, MD

Research in Acute Kidney Injury after Cardiopulmonary Bypass Related acute Kidney Injury

Nephrology/Center for Acute Care Nephrology » Stuart Goldstein, MD

(CACN) and CICU

Nephrology/Center for Acute Care Nephrology » Prasad Devarajan, MD; Stuart Goldstein, MD

Assessment of AKI and CRI in pediatric heart failure

Nephrology/Center for Acute Care Nephrology » Prasad Devarajan, MD

Faculty recruitment and new Program building (CACN)

Nephrology/Center for Acute Care Nephrology » Prasad Devarajan, MD

NIH Grant - Pediatric Heart Network

Nephrology/Center for Acute Care Nephrology » Stuart Goldstein, MD; Ahmad Kaddourah, MD

Submission of CCF grant regarding Cardiorenal syndrome in pediatric heart failure

Nephrology » Stuart Goldstein, MD

Consultant for his study on the vascular effects of peritoneal vs hemodialysis in children with chronic kidney disease

Nephrology » Mark Mitsnefes, MD

Working on a grant currently under review at NIH. This multi-center trial will follow youth with pre-hypertension longitudinally to evaluate risk for development of sustained hypertension and target organ damage.

Nephrology » Mark Mitsnefes, MD; Benjamin Laskin, MD

Frequent Hemodialysis Study: Aim- Improve cardiovascular outcome with more frequent hemodialysis, improve BP and LVH Funded: Federal/Non profit sponsor CTRC

Nephrology » Mark Mitsnefes, MD; Janaka Wansapura, PhD

Study aimed at determining the markers of cardiac function in patients with renal disease on chronic dialysis or post renal transplant.

Neurology » Brenda Wong, MD

Neuromuscular Cardiology

Neurology » Donald Gilbert, MD

Neurodevelopmental Clinic

Pediatric Cardiothoracic Surgery; Behavioral Medicine and Clinical Psychology; Child Life; Developmental & Behavioral Pediatrics; Gastroenterology, Hepatology and Nutrition; Cancer & Blood Diseases Institute; Neurology; Nutrition Therapy; Occupational and Physical Therapy; Social Services; Speech Pathology »
Betsy Adler, RN, CNP; Lori Stark, PhD, ABPP; Jessica Kichler, PhD; Dean Beebe, PhD, ABPP-Cn; David Baker; Miranda Shearer; Donna Murray, PhD, CCC-SLP; Ajay Kaul, MBBS, MD; Mary Kay Irwin; Patti Towbin; Joan Kiefer; Mark Schapiro, MD; Cameron Thomas, MD; Donald Gilbert, MD, MD; Megan Horsley, RD; Becky Reder, OTD, OTR/L; Lisa Dodd; Ann Kummer, PhD, CCC-SLP

The Heart Institute Neurodevelopmental Clinic (NDC)

Rationale:

Over the last several decades, new surgical techniques and advances in cardiopulmonary bypass, intensive care, cardiac catheterization, non-invasive imaging, and medical therapies have significantly lowered mortality rates for children and adolescents with complex congenital heart disease (CHD) and high-risk acquired heart disease (AHD) (i.e. heart failure and heart transplant patients). However, survivors are at risk for neurodevelopmental (ND) morbidity resulting from their underlying genotype, the circulatory system abnormalities specific to their heart defect, and the medical and surgical therapies they have received. The focus of clinical research in the pediatric cardiac population has paralleled this population shift and transitioned from short-term surgical survival to the assessment of long-term morbidity. Among pediatric patients with complex CHD and high-risk AHD, there is a distinctive pattern of ND and behavioral dysfunction characterized by mild cognitive impairment, impaired social interaction, and impairments in core communication skills including pragmatic language as well as inattention, impulsive behavior, and impaired executive function. In addition, these patients often have fine and gross motor skills and issues with anxiety and depression. Many school-age survivors of infant cardiac surgery require remedial services including tutoring, special education, and physical, occupational, and speech therapy. The sequelae of complex CHD and high-risk AHD and their treatment are likely to limit their ultimate educational achievements,

employability, life-long earnings, insurability, and health-related quality of life (HRQOL). A significant proportion of these patients may need specialized services into adulthood. Incorporation of this knowledge into clinical practice may significantly improve ND and behavioral outcomes of patients with CHD.

Goals:

- To identify a group of children with heart disease who are at high risk for neurodevelopmental abnormalities and have them follow-up in the HI Neurodevelopmental Follow-up clinic for surveillance, screening, evaluation, and management of their neurodevelopmental and behavioral problems
- To prevent poor neurodevelopmental and behavioral outcomes in patients with complex heart disease and acquired heart disease when possible and treat those children and adolescents with deficits with interventions utilizing proven methodologies supported by research to maximize the Health-Related Quality of Life of the patient and minimize the potential impact on the family unit
- To be able to answer clinically important hypothesis-driven research questions that will Increase funding opportunities to prevent and treat ND and behavioral disability
- To educate the larger community of general pediatricians and family practitioners about the issues that these children and families face from an educational and social perspective and the potential ramifications on the family unit
- To provide a resource that parents/guardians of children with neurodevelopmental and behavioral issues can partner with to assist with obtaining resources and services

Pediatric Surgery » Thomas Inge, MD

Gastric Bypass/Bariatric: Aim- Evaluate the Cardiac indices of pre and post gastric bypass surgery Funded: Insurance

Pediatric Surgery » Barb Tofani, RN

Cardiac OR staffing and policies

Perinatal Institute » James Greenberg, MD

Neonatal Cardiology and Perinatal Cardiology

Pulmonology » Raouf Amin, MD

Assisting in analyses of arterial stiffness data collected in a study of youth with obstructive sleep apnea

Radiology/Imaging Research Center » Chuck Dumoulin, PhD

We are developing a new dedicated infant cardiac MR imaging coil. The coil will be used in the newly dedicated neonatal MR system housed in the NICU. This system will allow novel cardiac MR imaging of critically ill neonates.

Radiology » Chuck Dumoulin, PhD

MRI Research on Electrophysiology

Radiology » Janaka Wansapura, PhD

Muscular dystrophy research

Radiology » Robert Fleck, Jr., MD

Cardiac MRI

Rheumatology » John Harley, MD, PhD

EMerge grant

Sports Medicine » Nicholas Edwards

Assisting in data analyses exploring the relationship between physical activity and CV risk factors in youth

Faculty Members

Jeffrey A. Towbin, MD, FAAP, FACC, FAHA, Professor

Executive Co-Director, The Heart Institute

Director and Chief, Division of Cardiology

Research Interests Cardiomyopathy and Genetics

Jeffrey B. Anderson, MD, MPH, Assistant Professor

Research Interests Syncope, nutritional failure in congenital heart disease, quality improvement

Robert Beekman, MD, Professor

Research Interests Cardiac Catheterization & Intervention, Quality Improvement, Coarctation of the Aorta

D. Woodrow Benson, MD, PhD, Professor

Director, Cardiovascular Genetics

Research Interests Cardiovascular Genetics

James F. Cnota, MD, Associate Professor

Research Interests Fetal Cardiology

Linda H. Cripe, MD, Associate Professor

Research Interests Cardiomyopathies, Neuromuscular Disorders, Echocardiography

Richard Czosek, MD, Assistant Professor

Research Interests Cardiac pacing devices in pediatric and congenital heart disease patients and arrhythmia risk stratification in the pediatric population

Allison Divanovic, MD, Assistant Professor

Research Interests Fetal Echocardiography

Paula Goldenberg, MD, MSCE, MSW, FAAP, FACMG, Associate Professor

Research Interests Cardiovascular Genetics

Michelle Grenier, MD, Associate Professor

Director, 3 Dimensional Echocardiography

Research Interests Cardiomyopathy, Heart Failure, 3 Dimensional Echocardiography

Haleh Heydarian, MD, Assistant Professor

Research Interests Echocardiography Synchrony/Strain Imaging and Quality Improvement

Robert B. Hinton, MD, Assistant Professor

Research Interests Cardiovascular Genetics & Developmental Biology

Russel Hirsch, MD, Associate Professor

Director, Cardiac Catheterization and Intervention

Research Interests Cardiac Catheterization & Intervention, Device Development

Kan Hor, MD, Assistant Professor

Research Interests MRI technology to diagnose and follow heart disease, in particular DMD cardiomyopathy.

Holly M. Ippisch, MD, MS, FAAP, Assistant Professor

Research Interests Echocardiography, preventive cardiology, exercise and pediatric obesity.

John Lynn Jefferies, MD, MPH, FACC, FAAP, Associate Professor

Director, Cardiomyopathy/Heart Failure & Transplantation

Co-Director, CV Genetics

Associate Director, HIRC

Research Interests Cardiomyopathy, Heart Failure, Cardiovascular Genetics and drug trials

Beth Ann Johnson, MD, MA, Assistant Professor

Research Interests Premature infants with congenital heart defects, Fetal diagnosis

Thomas R. Kimball, MD, Professor

Medical Director, Heart Institute

Director, Cardiac Echocardiography & Cardiovascular Core Imaging

Research Interests Echocardiography, Ventricular function, Cardiovascular Effects of Obesity and Type II Diabetes.

Shelley Kirk, PhD, RD, LD, Assistant Professor

Research Interests The efficacy, safety and feasibility of interventions for the management of pediatric obesity.

Timothy Knilans, MD, Professor

Director, Clinical Cardiac Electrophysiology and Pacing

Director, Pediatric Cardiac Electrophysiology Fellowship

Research Interests Identification and risk stratification of causes of sudden death.

Catherine Krawczeski, MD, Associate Professor

Director, Heart Institute Quality Improvement and Clinical Effectiveness

Co-Director, Center for Acute Care Nephrology

Research Interests Bypass associated acute kidney injury (biomarkers, epidemiology, early therapy

Cong Liu, PhD, Assistant Professor

Associate Director of HIDL

Research Interests Genetic etiology of cardiomyopathy, congenital heart disease and cardiovascular diseases. New technology development in clinical genetic testing and clinical viral testing.

Angela Lorts, MD, Assistant Professor

Research Interests Heart failure and myocardial remodeling

Bradley S. Marino, MD, MPP, MSCE, Associate Professor

Director, Heart Institute Research Core

Research Interests Outcomes Research

Erik Michelfelder, MD, Associate Professor

Director, Fetal Cardiology

Research Interests Fetal Cardiology and Echocardiography

David Nelson, MD, PhD, Professor

Medical Director, CICU

Research Interests Inflammatory injury after cardiac surgery

Enkhsaikhan Purevjav, MD, PhD, Assistant Professor

Research Interests Genetics of Cardiovascular Disease

Robert Siegel, MD, Professor

Medical Director, The Center for Better Health and Nutrition

Research Interests

Robert Spicer, MD, Professor

Director Fellowship Program

Research Interests Heart Failure Transplant

Arnold Strauss, MD, Professor

BK Rachford Professor and Chair, Department of Pediatrics, University of Cincinnati College of Medicine

Director, Cincinnati Children's Research Foundation

Chief Medical Officer, Cincinnati Children's Hospital Medical Center

Research Interests

Michael Taylor, MD, PhD, Assistant Professor

Director of Advanced Imaging Innovation and Cardiac MRI (CMR)

Research Interests Non-invasive study of cardiovascular physiology and metabolism; Pre-clinical imaging of cardiomyopathy models with cardiac MR and positron emission tomography.

Elaine Urbina, MD, MS, Associate Professor

Director, Preventive Cardiology

Research Interests Non-invasive assessment of vascular structure and function and relationship to CV risk factors, obesity, diabetes, renal disease and sleep disorders. Treatment of high blood pressure and cholesterol.

Karen Uzark, PhD, CPNP, Associate Professor

Director of Process Improvement and Outcomes Research

Research Interests Heart Transplant, Quality of Life, Outcomes in Children with Heart Disease

Gary Webb, MD, FRCP(C), FACC, FAHA, Professor

Director, Adolescent and Adult Congenital Heart Disease Program

Research Interests Adolescent and Adult Congenital Heart Disease

Joint Appointment Faculty Members

Jeanne James, MD, Associate Professor

Molecular Cardiovascular Biology

Research Interests Molecular cardiology and animal models of cardiac disease.

Stephanie Ware, MD, Associate Professor

Molecular Cardiovascular Biology

Research Interests Cardiovascular Genetics

Clinical Staff Members

- Lisa Lee, MD
- Chad Connor, MD

Trainees

- Christopher Cheng, MD, PhD, PL4, New York Methodist
- David Crowley, MD, PL7, Barbara Bush Children's Hospital, Portland, ME
- Sam Hanke, MD, PL5, Cincinnati Children's Hospital/University of Cincinnati
- Chike Madueme, MD, PL6, Cincinnati Children's Hospital/University of Cincinnati
- Mark Norris, MD, PL7, Cincinnati Children's Hospital/University of Cincinnati
- Thomas Ryan, MD, PhD, PL5, Cincinnati Children's Hospital/University of Cincinnati
- Christopher Statile, MD, PL5, Cincinnati Children's Hospital/University of Cincinnati
- Tamara Thomas, MD, PL4, Vanderbilt University, Nashville, Tennessee
- Chet Villa, MD, PL4, Cincinnati Children's Hospital/University of Cincinnati
- Mark Walsh, MD, PL10, Hospital for Sick Children, Toronto, Canada
- Dingding Xiong, MD, PhD, PL5, Driscoll Children's Hospital, Corpus Christi, TX
- Matt Zussman, MD, PL6, UNC, Chapel Hill, North Carolina
- Anne-Cecile Huby, PhD, UPMC (Pierre and Marie Curie University, Paris, France)

- Sarkies Ruben Mattheus, Martherus, PhD, Maastricht University, Maastricht, The Netherlands
- Kathryn M. Rafferty, PhD, Cincinnati Children's Hospital/University of Cincinnati
- Ken Takagi, MD, Baylor College of Medicine, Houston, TX
- Varun Krishnamurthy, BS, PL5, University of Cincinnati, Cincinnati, Ohio

Division Publications

1. Acehan D, Vaz F, Houtkooper RH, James J, Moore V, Tokunaga C, Kulik W, Wansapura J, Toth MJ, Strauss A, Khuchua Z. **Cardiac and skeletal muscle defects in a mouse model of human Barth syndrome**. *The Journal of biological chemistry*. 2011; 286:899-908.
2. Anderson JB, Beekman RH, 3rd, Eghtesady P, Kalkwarf HJ, Uzark K, Kehl JE, Marino BS. **Predictors of poor weight gain in infants with a single ventricle**. *The Journal of pediatrics*. 2010; 157:407-13, 413 e1.
3. Anderson JB, Benson DW. **Genetics of sick sinus syndrome**. *Cardiac electrophysiology clinics*. 2010; 2:499-507.
4. Anderson JB, Kalkwarf HJ, Kehl JE, Eghtesady P, Marino BS. **Low weight-for-age z-score and infection risk after the Fontan procedure**. *The Annals of thoracic surgery*. 2011; 91:1460-6.
5. Atz AM, Trivison TG, Williams IA, Pearson GD, Laussen PC, Mahle WT, Cook AL, Kirsh JA, Sklansky M, Khaikin S, Goldberg C, Frommelt M, Krawczeski C, Puchalski MD, Jacobs JP, Baffa JM, Rychik J, Ohye RG. **Prenatal diagnosis and risk factors for preoperative death in neonates with single right ventricle and systemic outflow obstruction: screening data from the Pediatric Heart Network Single Ventricle Reconstruction Trial(*)**. *The Journal of thoracic and cardiovascular surgery*. 2010; 140:1245-50.
6. Baker-Smith CM, Neish SR, Klitzner TS, Beekman RH, 3rd, Kugler JD, Martin GR, Lannon C, Jenkins KJ, Rosenthal GL. **Variation in postoperative care following stage I palliation for single-ventricle patients: a report from the Joint Council on Congenital Heart Disease National Quality Improvement Collaborative**. *Congenital heart disease*. 2011; 6:116-27.
7. Banchs J, Jefferies JL, Plana JC, Hundley WG. **Imaging for cardiotoxicity in cancer patients**. *Texas Heart Institute journal / from the Texas Heart Institute of St. Luke's Episcopal Hospital, Texas Children's Hospital*. 2011; 38:268-9.
8. Baumgartner H, Bonhoeffer P, De Groot NM, de Haan F, Deanfield JE, Galie N, Gatzoulis MA, Gohlke-Baerwolf C, Kaemmerer H, Kilner P, Meijboom F, Mulder BJ, Oechslin E, Oliver JM, Serraf A, Szatmari A, Thaulow E, Vouhe PR, Walma E, Vahanian A, Auricchio A, Bax J, Ceconi C, Dean V, Filippatos G, Funck-Brentano C, Hobbs R, Kearney P, McDonagh T, Popescu BA, Reiner Z, Sechtem U, Sirnes PA, Tendera M, Vardas P, Widimsky P, Swan L, Andreotti F, Beghetti M, Borggrefe M, Bozio A, Brecker S, Budts W, Hess J, Hirsch R, Jondeau G, Kokkonen J, Kozelj M, Kucukoglu S, Laan M, Lionis C, Metreveli I, Moons P, Pieper PG, Pillossoff V, Popelova J, Price S, Roos-Hesselink J, Uva MS, Tornos P, Trindade PT, Ukkonen H, Walker H, Webb GD, Westby J. **ESC Guidelines for the management of grown-up congenital heart disease (new version 2010)**. *European heart journal*. 2010; 31:2915-57.
9. Beery TA, Smith CR, Kudel I, Knilans T. **Measuring sports participation decisional conflict in youth with cardiac pacemakers and/or ICDs**. *Journal of advanced nursing*. 2011; 67:821-8.
10. Belmont JW, Craigen W, Martinez H, Jefferies JL. **Genetic disorders with both hearing loss and cardiovascular abnormalities**. *Advances in oto-rhino-laryngology*. 2011; 70:66-74.
11. Bergersen L, Gauvreau K, Marshall A, Kreutzer J, Beekman R, Hirsch R, Foerster S, Balzer D, Vincent J, Hellenbrand W, Holzer R, Cheatham J, Moore J, Lock J, Jenkins K. **Procedure-type risk categories for pediatric and congenital cardiac catheterization**. *Circulation. Cardiovascular interventions*. 2011; 4:188-94.
12. Boat A, Mahmoud M, Michelfelder EC, Lin E, Ngamprasertwong P, Schnell B, Kurth CD, Crombleholme TM,

Sadhasivam S. **Supplementing desflurane with intravenous anesthesia reduces fetal cardiac dysfunction during open fetal surgery.** *Paediatric anaesthesia*. 2010; 20:748-56.

13. Breinholt JP, Moulik M, Dreyer WJ, Denfield SW, Kim JJ, Jefferies JL, Rossano JW, Gates CM, Clunie SK, Bowles KR, Kearney DL, Bowles NE, Towbin JA. **Viral epidemiologic shift in inflammatory heart disease: the increasing involvement of parvovirus B19 in the myocardium of pediatric cardiac transplant patients.** *The Journal of heart and lung transplantation : the official publication of the International Society for Heart Transplantation*. 2010; 29:739-46.
14. Broberg CS, Aboulhoshn J, Mongeon FP, Kay J, Valente AM, Khairy P, Earing MG, Opatowsky AR, Lui G, Gersony DR, Cook S, Ting JG, Webb G, Gurvitz MZ. **Prevalence of left ventricular systolic dysfunction in adults with repaired tetralogy of fallot.** *The American journal of cardiology*. 2011; 107:1215-20.
15. Brown DW, Connor JA, Pigula FA, Usmani K, Klitzner TS, Beekman RH, 3rd, Kugler JD, Martin GR, Neish SR, Rosenthal GL, Lannon C, Jenkins KJ. **Variation in preoperative and intraoperative care for first-stage palliation of single-ventricle heart disease: a report from the Joint Council on Congenital Heart Disease National Quality Improvement Collaborative.** *Congenital heart disease*. 2011; 6:108-15.
16. Brunetti-Pierri N, Pignatelli R, Fouladi N, Towbin JA, Belmont JW, Craigen WJ, Wong LJ, Jefferies JL, Scaglia F. **Dilation of the aortic root in mitochondrial disease patients.** *Molecular genetics and metabolism*. 2011; 103:167-70.
17. Buber J, Mathew J, Moss AJ, Hall WJ, Barsheshet A, McNitt S, Robinson JL, Zareba W, Ackerman MJ, Kaufman ES, Luria D, Eldar M, Towbin JA, Vincent M, Goldenberg I. **Risk of Recurrent Cardiac Events After Onset of Menopause in Women With Congenital Long-QT Syndrome Types 1 and 2.** *Circulation*. 2011; 123:2784-91.
18. Calloway TJ, Martin LJ, Zhang X, Tandon A, Benson DW, Hinton RB. **Risk factors for aortic valve disease in bicuspid aortic valve: a family-based study.** *American journal of medical genetics. Part A*. 2011; 155A:1015-20.
19. Carlo WF, Nelson DP. **Inhaled nitric oxide improves oxygen saturation in children with pulmonary arteriovenous malformations after the Fontan procedure.** *Pediatric critical care medicine : a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies*. 2011; 12:e152-4.
20. Chakraborty S, Wirrig EE, Hinton RB, Merrill WH, Spicer DB, Yutzey KE. **Twist1 promotes heart valve cell proliferation and extracellular matrix gene expression during development in vivo and is expressed in human diseased aortic valves.** *Developmental biology*. 2010; 347:167-79.
21. Chio SS, Urbina EM, Lapointe J, Tsai J, Berenson GS. **Korotkoff sound versus oscillometric cuff sphygmomanometers: comparison between auscultatory and DynaPulse blood pressure measurements.** *Journal of the American Society of Hypertension : JASH*. 2011; 5:12-20.
22. Costanzo MR, Dipchand A, Starling R, Anderson A, Chan M, Desai S, Fedson S, Fisher P, Gonzales-Stawinski G, Martinelli L, McGiffin D, Smith J, Taylor D, Meiser B, Webber S, Baran D, Carboni M, Dengler T, Feldman D, Frigerio M, Kfoury A, Kim D, Kobashigawa J, Shullo M, Stehlik J, Teuteberg J, Uber P, Zuckermann A, Hunt S, Burch M, Bhat G, Canter C, Chinnock R, Crespo-Leiro M, Delgado R, Dobbels F, Grady K, Kao W, Lamour J, Parry G, Patel J, Pini D, Towbin J, Wolfel G, Delgado D, Eisen H, Goldberg L, Hosenpud J, Johnson M, Keogh A, Lewis C, O'Connell J, Rogers J, Ross H, Russell S, Vanhaecke J. **The International Society of Heart and Lung Transplantation Guidelines for the care of heart transplant recipients.** *The Journal of heart and lung transplantation : the official publication of the International Society for Heart Transplantation*. 2010; 29:914-56.
23. Crombleholme TM, Lim FY, Habli M, Polzin W, Jaekle R, Michelfelder E, Cnota J, Liu C, Kim MO. **Improved recipient survival with maternal nifedipine in twin-twin transfusion syndrome complicated by TTTS cardiomyopathy undergoing selective fetoscopic laser photocoagulation.** *American journal of*

obstetrics and gynecology. 2010; 203:397 e1-9.

24. Cuneo BF, Fruitman D, Benson DW, Ngan BY, Liske MR, Wahren-Herlineus M, Ho SY, Jaeggi E. **Spontaneous rupture of atrioventricular valve tensor apparatus as late manifestation of anti-Ro/SSA antibody-mediated cardiac disease**. *The American journal of cardiology*. 2011; 107:761-6.
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Grants, Contracts, and Industry Agreements

Grant and Contract Awards	Annual Direct / Project Period Direct
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ANDERSON, J

Nutritional Deficiencies in Infants with Single Ventricle

Thrasher Research Fund

10/01/10-09/30/12

\$12,500

BENSON, W

Musculoskeletal Ancillary Study

Marfan Foundation(The Johns Hopkins University)

07/01/10-06/30/11

\$3,750

Quality of Life Study-Pediatric Heart Network

National Institutes of Health(New England Research Institutes)

U01 HL 068270

07/01/10-06/30/11

\$500

Trial of Beta Blocker vs Angiotensin Receptor Blocker

National Institutes of Health(New England Research Institutes)

U01 HL 068270

07/01/10-06/30/11

\$72,010

IPPISCH, H

Effects of Dietary Fat and Exercise Challenges in Obese Children

National Institutes of Health

K23 HL 091174

09/01/08-07/31/13

\$126,085

KIMBALL, T

Chronic Kidney Disease in Children

National Institutes of Health(Children's Mercy Hospital)

U01 DK 066143

08/01/08-07/31/13

\$55,222

MARINO, B

Understanding Mechanisms of Fontan Failure and Key Predictors for Patient Outcome

National Institutes of Health(Georgia Tech Research Corp)

R01 HL 098252	02/01/10-01/31/14	\$18,488
SIEGEL, R		
Collaborative Community Based Initiative to Improve the Health of Overweight and Obese Children		
WellPoint Foundation		
	01/01/11-12/31/11	\$76,223
URBINA, E		
Accelerated CV Aging in Youth Related to CV Risk Factor Clusters		
National Institutes of Health		
R01 HL 105591	01/01/11-12/31/15	\$383,528
Modifying Dietary Behavior in Adolescents with Elevated Blood Pressure		
National Institutes of Health(University of Cincinnati)		
R01HL088567	02/01/08-01/31/12	\$37,818
Current Year Direct		\$786,124
Industry Contracts		
BEEKMAN		
AGA Medical, LLC		\$4,177
HIRSCH		
AGA Medical, LLC		\$12,199
KRAWCZESKI		
Asklepiion Pharmaceuticals, LLC		\$26,209
Current Year Direct Receipts		\$42,585
Total		\$828,709