

2015 Research Annual Report

Cardiology

RESEARCH AND TRAINING DETAILS

Faculty	50
Joint Appointment Faculty	3
Research Fellows	3
Research Students	1
Support Personnel	59
Direct Annual Grant Support	\$6,750,552
Direct Annual Industry Support	\$67,863
Peer Reviewed Publications	151

CLINICAL ACTIVITIES AND TRAINING

Clinical Staff	132
Staff Physicians	1
Clinical Fellows	20
Other Students	2
Inpatient Encounters	1,504
Outpatient Encounters	17,959

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Significant Publications

Burns KM, Byrne BJ, Gelb BD, Kuhn B, Leinwand LA, Mital S, Pearson GD, Rodefeld M, Rossano JW, Stauffer BL, **Taylor MD**, Towbin JA, Redington AN. **New mechanistic and therapeutic targets for pediatric heart failure: report from a National Heart, Lung, and Blood Institute working group.** *Circulation*. 2014 Jul 1;130(1):79-86.

This publication reports the deliberations of a working group established by National Heart, Lung, and Blood Institute and chaired by Dr. Redington, to report on the current knowledge and recommend future directions for basic and clinical research in pediatric heart failure.

Heusch G, Botker HE, Przyklenk K, **Redington A**, Yellon D. **Remote ischemic conditioning.** *J Am Coll Cardiol*. 2015 Jan 20;65(2):177-95.

This paper is a state of the art review of the underlying mechanisms, indications for, and outcomes of remote ischemic conditioning in cardiovascular disease. It was an invited article, written by the leading academic contributors in the field, in one of the highest impact sub-specialty journals in cardiology.

Maahs DM, Daniels SR, de Ferranti SD, Dichek HL, Flynn J, Goldstein BI, Kelly AS, Nadeau KJ, Martyn-Nemeth P, Osganian SK, Quinn L, Shah AS, **Urbina E**. **Cardiovascular disease risk factors in youth with diabetes mellitus: a scientific statement from the American Heart Association**. *Circulation*. 2014 Oct 21;130(17):1532-58.

This manuscript from the Atherosclerosis, Hypertension and Obesity in Youth committee of the American Heart Association, of which Dr. Urbina is chair, summarizes the published data demonstrating higher cardiovascular (CV) risk in youth with both type I and type II diabetes. The paper also summarizes recommendations for management of this increased CV risk.

Morris PB, Ballantyne CM, Birtcher KK, Dunn SP, **Urbina EM**. **Review of clinical practice guidelines for the management of LDL-related risk**. *J Am Coll Cardiol*. 2014 Jul 15;64(2):196-206.

This publication summarizes the work of an American College of Cardiology-sponsored workshop that brought together experts in lipids. Dr. Urbina provided the most up-to-date guidelines on diagnosis and management of high cholesterol in children and adolescents.

Veldtman GR, Webb GD. **Improved survival in Fontan-associated protein-losing enteropathy**. *J Am Coll Cardiol*. 2014 Jul 8;64(1):63-5.

Protein losing enteropathy (PLE) has long been recognized as a potentially devastating complication of a Fontan procedure, with an estimated mortality of 50% five years after diagnosis. This editorial commented on a recent paper from the Mayo Clinic looking at clinical outcomes and improved survival in patients with PLE. The study found an 88% survival at five years. Seven of the 11 deaths were due to sepsis. The editorial commented on possible reasons for the improved outcomes, including the availability of pulmonary vasodilator therapies and oral budesonide. Further research is needed to confirm the results of this study, as well as to explore the role of inflammation, malnutrition, and immunosuppression in PLE as possible targets for therapy.

Division Publications

1. Aiyagari R, Rhodes JF, Shrader P, Radtke WA, Bandisode VM, Bergersen L, Gillespie MJ, Gray RG, Guey LT, Hill KD, Hirsch R, Kim DW, Lee KJ, Pelech AN, Ringewald J, Takao C, Vincent JA, Ohye RG, Pediatric Heart Network I. **Impact of pre-stage II hemodynamics and pulmonary artery anatomy on 12-month outcomes in the Pediatric Heart Network Single Ventricle Reconstruction trial**. *J Thorac Cardiovasc Surg*. 2014; 148:1467-74.
2. Albrecht LV, Zhang L, Shabanowitz J, Purevjav E, Towbin JA, Hunt DF, Green KJ. **GSK3- and PRMT-1-dependent modifications of desmoplakin control desmoplakin-cytoskeleton dynamics**. *J Cell Biol*. 2015; 208:597-612.
3. Alman AC, Talton JW, Wadwa RP, Urbina EM, Dolan LM, Daniels SR, Hamman RF, D'Agostino RB, Marcovina SM, Mayer-Davis EJ, Dabelea DM. **Cardiovascular health in adolescents with type 1 diabetes: the SEARCH CVD study**. *Pediatr Diabetes*. 2014; 15:502-10.
4. Alsaied T, Madueme PC. **International medical graduates in cardiology fellowship: brain drain or brain gain?**. *J Am Coll Cardiol*. 2015; 65:507-9; discussion 509-10.
5. Anderson JB, Beekman RH, 3rd. **Addressing Nutrition and Growth in Children with Congenital Heart Disease**. In:

PR Barach, JP Jacobs, SE Lipshultz, PC Laussen, eds. *Pediatric and Congenital Cardiac Care: Quality Improvement and Patient Safety*. London, UK: Springer; 2014:153-164.

6. Anderson JB, Beekman RH, 3rd, Kugler JD, Rosenthal GL, Jenkins KJ, Klitzner TS, Martin GR, Neish SR, Darbie L, King E, Lannon C. **Use of a learning network to improve variation in interstage weight gain after the norwood operation**. *Congenit Heart Dis*. 2014; 9:512-20.
7. Anderson JB, Beekman RH, 3rd, Martin GR, Lannon C. **Quality Improvement in Pediatric Cardiology: The National Pediatric Cardiology Quality Improvement Collaborative**. In: PR Barach, JP Jacobs, SE Lipshultz, PC Laussen, eds. *Pediatric and Congenital Cardiac Care: Quality Improvement and Patient Safety*. London, UK: Springer; 2014:51-68.
8. Anderson JB, Grenier M, Edwards NM, Madsen NL, Czosek RJ, Spar DS, Barnes A, Pratt J, King E, Knilans TK. **Usefulness of combined history, physical examination, electrocardiogram, and limited echocardiogram in screening adolescent athletes for risk for sudden cardiac death**. *Am J Cardiol*. 2014; 114:1763-7.
9. Apers S, Kovacs AH, Luyckx K, Alday L, Berghammer M, Budts W, Callus E, Caruana M, Chidambarathanu S, Cook SC, Dellborg M, Enomoto J, Eriksen K, Fernandes SM, Jackson JL, Johansson B, Khairy P, Kutty S, Menahem S, Rempel G, Sluman MA, Soufi A, Thomet C, Veldtman G, Wang JK, White K, Moons P. **Assessment of Patterns of Patient-Reported Outcomes in Adults with Congenital Heart disease - International Study (APPROACH-IS): rationale, design, and methods**. *Int J Cardiol*. 2015; 179:334-42.
10. Armsby L, Beekman RH, 3rd, Benson L, Fagan T, Hagler DJ, Hijazi ZM, Holzer R, Ing F, Kreutzer J, Lang P, Levi DS, Latson L, Moore P, Mullins C, Ruiz C, Vincent R. **SCAI expert consensus statement for advanced training programs in pediatric and congenital interventional cardiac catheterization**. *Catheter Cardiovasc Interv*. 2014; 84:779-84.
11. Averin K, Lorts A, Connor C. **Anaphylactic shock after amiodarone infusion resulting in haemodynamic collapse requiring a temporary ventricular assist device**. *Cardiol Young*. 2015; 25:164-6.
12. Barac A, Murtagh G, Carver JR, Chen MH, Freeman AM, Herrmann J, Iliescu C, Ky B, Mayer EL, Okwuosa TM, Plana JC, Ryan TD, Rzeszut AK, Douglas PS. **Cardiovascular Health of Patients With Cancer and Cancer Survivors: A Roadmap to the Next Level**. *J Am Coll Cardiol*. 2015; 65:2739-46.
13. Benoit S, Antommaria AH, Weidner N, Lorts A. **Difficult decision: what should we do when a VAD-supported child experiences a severe stroke?** *Pediatr Transplant*. 2015; 19:139-43.
14. Boczek NJ, Miller EM, Ye D, Nesterenko VV, Tester DJ, Antzelevitch C, Czosek RJ, Ackerman MJ, Ware SM. **Novel Timothy syndrome mutation leading to increase in CACNA1C window current**. *Heart Rhythm*. 2015; 12:211-9.
15. Brown DW, Cohen KE, O'Brien P, Gauvreau K, Klitzner TS, Beekman RH, 3rd, Kugler JD, Martin GR, Neish SR, Rosenthal GL, Lannon C, Jenkins KJ. **Impact of prenatal diagnosis in survivors of initial palliation of single ventricle heart disease: analysis of the national pediatric cardiology quality improvement collaborative database**. *Pediatr Cardiol*. 2015; 36:314-21.
16. Burns KM, Byrne BJ, Gelb BD, Kuhn B, Leinwand LA, Mital S, Pearson GD, Rodefeld M, Rossano JW, Stauffer BL, Taylor MD, Towbin JA, Redington AN. **New mechanistic and therapeutic targets for pediatric heart failure: report from a National Heart, Lung, and Blood Institute working group**. *Circulation*. 2014; 130:79-86.
17. Byrnes JW, Bhutta AT, Rettiganti MR, Gomez A, Garcia X, Dyamenahalli U, Johnson C, Jaquiss RD, Imamura M, Prodhan P. **Steroid therapy attenuates acute phase reactant response among children on ventricular assist**

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18. Caterini JE, Elzibak AH, Michel EJ, McCrindle BW, Redington AN, Thompson S, Noseworthy MD, Wells GD. **Characterizing blood oxygen level-dependent (BOLD) response following in-magnet quadriceps exercise.** *Magma.* 2015; 28:271-8.
19. Chamberlain AR, Sawyer JE, Cooper DS. **Pharmacoeconomics.** In: R Munoz, EM da Cruz, VL Vetter, DS Cooper, eds. *Handbook of Pediatric Cardiovascular Drugs.* New York, NY: Springer; 2014:59-72.
20. Cooper DS, Klugman D, Kinstler AJ, Nelson DP, Muething S. **The Cardiac Intensive Care Unit and Operating Room Continuum: Quality and Safety in the Cardiac Intensive Care Unit.** In: PR Barach, JP Jacobs, SE Lipshultz, PC Laussen, eds. *Pediatric and Congenital Cardiac Care: Quality Improvement and Patient Safety.* London, UK: Springer; 2014:91-104.
21. Cooper DS, Knilans TK. **Arrhythmias.** In: DS Wheeler, HR Wong, TP Shanley, eds. *Pediatric Critical Care Medicine: Respiratory, Cardiovascular and Central Nervous Systems.* London, UK: Springer; 2014:451-466.
22. Cooper DS, Lorts A. **Anticoagulation for Mechanical Circulatory Support.** In: R Munoz, EM da Cruz, VL Vetter, DS Cooper, eds. *Handbook of Pediatric Cardiovascular Drugs.* New York, NY: Springer; 2014:365-374.
23. Cooper DS, Morales DLS, del Corral M, Paden ML, Thiagarajan RR. **Databases for Extracorporeal Membrane Oxygenation and Ventricular Assist Devices.** In: PR Barach, JP Jacobs, SE Lipshultz, PC Laussen, eds. *Pediatric and Congenital Cardiac Care: Outcome Analysis.* London, UK: Springer; 2014:211-218.
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25. Czosek RJ, Cassidy AE, Wray J, Wernovsky G, Newburger JW, Mussatto KA, Mahony L, Tanel RE, Cohen MI, Franklin RC, Brown KL, Rosenthal D, Drotar D, Marino BS. **Quality of life in pediatric patients affected by electrophysiologic disease.** *Heart Rhythm.* 2015; 12:899-908.
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Leadership Director, Cardiac Rhythm Device Management

Research Interests Cardiac pacing device and arrhythmia management in pediatric patients with congenital heart disease and cardiomyopathy.

Holly C. DeSena, MD, Assistant Professor

Research Interests Cardiac critical care.

Allison Divanovic, MD, Assistant Professor

Research Interests Fetal echocardiography.

Bryan H. Goldstein, MD, Assistant Professor

Research Interests Congenital heart disease outcomes research; novel transcatheter interventions; single ventricle physiology; vascular endothelial function; ventricular mechanics and diastolic function; renal injury in congenital heart disease.

Eunice Hahn, MD, Assistant Professor

Research Interests Echocardiography; fetal echocardiography.

Samuel Hanke, MD, MS, Assistant Professor

Leadership Quality Scholar in Healthcare Transformation, James M. Anderson Center for Health Systems Excellence

Research Interests Improvement of hospital care transition and its impact on hospital readmissions in patients with congenital and acquired heart disease; infant mortality reduction/ sudden unexpected infant death (SUID).

Haleh Heydarian, MD, Assistant Professor

Leadership Medical Director, Heart Institute Single Ventricle Clinic

Research Interests Echocardiography synchrony/strain imaging and quality improvement.

Robert B. Hinton, MD, Associate Professor

Leadership Director, Heart Institute BioRepository

Research Interests Cardiovascular genetics and developmental biology.

Russel Hirsch, MD, Associate Professor

Leadership Director, Pulmonary Hypertension Service; Director, Cardiac Catheterization Laboratory

Research Interests Cardiac catheterization and intervention; device development.

Ilias Iliopoulos, MD, Assistant Professor

Research Interests Hemodynamic management and use of inotropes in cardiac intensive care.

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

Research Interests Pediatric preventative cardiology; lipids; hypertension; cardiovascular effects of pediatric obesity; cardiovascular effects of exercise.

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

Leadership Co-Director, Advanced Heart Failure; Cardiomyopathy; Associate Professor, Human Genetics

Research Interests Cardiomyopathy; advanced heart failure; drug trials; novel gene discovery; quality of life; quality improvement.

Thomas R. Kimball, MD, Professor

Leadership Medical Director, Heart Institute; Chair, Clinical Medical Directors

Research Interests Echocardiography; ventricular function; cardiovascular effects of obesity and type II diabetes.

Shelley Kirk, PhD, RD, LD, Associate Professor

Leadership Director, HealthWorks!

Research Interests To evaluate the effectiveness and safety of clinical interventions for the treatment of pediatric obesity and other obesity-related health outcomes within the context of a comprehensive pediatric weight management program.

Timothy Knilans, MD, Professor

Leadership Director, Clinical Cardiac Electrophysiology; Director, Pediatric Cardiac Electrophysiology Fellowship

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

Christopher Learn, MD, Assistant Professor

Leadership Co-Director, Adolescent and Adult Congenital Cardiology Fellowship Program

Research Interests Non-invasive imaging in congenital heart disease; adolescent/young adult transition care for persons with congenital heart disease; heart disease in pregnancy.

Lisa A. Lee, MD, Assistant Professor

Leadership Director, Community Based Cardiology

Angela Lorts, MD, Associate Professor

Leadership Director, Ventricular Assist Device Program

Research Interests Mechanical circulatory support; myocardial remodeling; anticoagulation.

Nicolas Madsen, MD, MPH, Assistant Professor

Leadership Medical Director, Inpatient Cardiology

Research Interests Outcomes of congenital heart disease: inpatient quality improvement projects addressing length of stay and adverse outcomes; understanding long-term implications of traditional lifestyle cardiovascular risk factors.

Peace Madueme, MD, MS, Assistant Professor

Research Interests 3D heart modeling; MRI/echo quantification and aortopathies.

Erik Michelfelder, MD, Professor

Leadership Co-Director, Heart Institute Imaging Service; Director, Fetal Heart Program

Research Interests Fetal cardiology and echocardiography.

Erin Miller, MS, LGC, Assistant Professor

Research Interests Genetic etiology of cardiovascular disease; utilization and uptake of genetic testing for diagnosis and management of inherited arrhythmias, cardiomyopathies, aortopathies, and congenital heart disease.

David Nelson, MD, PhD, Professor

Leadership Medical Director, CICU

Research Interests Inflammatory injury after cardiac surgery; endocrine dysfunction in critical illness.

Enkhsaikhan Purevjav, MD, PhD, Assistant Professor

Research Interests Genetics of cardiovascular disease.

Alexis Ramby, DO, Assistant Professor

Research Interests Inflammatory response to cardiopulmonary bypass; quality improvement.

Lindsay S. Rogers, MD, Assistant Professor

Research Interests Cardiac morphology; fetal cardiology; echocardiography; medical education.

Thomas D. Ryan, MD, PhD, FACC, Assistant Professor

Research Interests Patients at risk to develop cardiomyopathy, including those with Duchenne muscular dystrophy; malignancy and anthracycline exposure; epidermolysis bullosa.

Jennifer Shoreman, MD,

Leadership Medical Director, Cardiopulmonary Exercise Physiology Program, Cardiac Rehabilitation, Exercise Therapy Program, Transition Medicine

Research Interests Exercise testing; cardiac rehabilitation; transition medicine.

Robert Siegel, MD, Professor

Leadership Medical Director, The Center for Better Health and Nutrition

David Spar, MD, Assistant Professor

Research Interests Pediatric and congenital electrophysiology.

Christopher Joseph Statile, MD, Assistant Professor

Research Interests Functional analysis of the fetal heart; quality improvement within cardiac imaging.

Joshua James Sticka, MD, Assistant Professor

Leadership Co-Director, Heart Institute Resident; Medical Student Education

Research Interests Non-invasive cardiac imaging; myocardial mechanics; Fontan physiology.

Arnold W. Strauss, MD, Professor

Leadership Associate Director, External Relations and Strategic Projects, Cincinnati Children's Research Foundation

Research Interests Genetic disorders of mitochondrial function, including fatty acid oxidation defects, and cardiomyopathy.

Michael Taylor, MD, PhD, Associate Professor

Leadership Director of Advanced Imaging Innovation and Cardiac MRI (CMR); Co-Director, The Heart Institute Imaging Service

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

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

Research Interests Cardiomyopathy and genetics.

Elaine M. Urbina, MD, MS, Professor

Leadership 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.

Gruschen Veldtman, MBChB, FRCP, Professor

Leadership Associate Director, AACHD Program; Inpatient Medical Director, AACHD Program

Research Interests The Fontan circulation and end-organ damage; risk stratification in high-risk pregnancy; pulmonary hypertension; Fontan circulation; physiology and end-organ impact; thrombotic risk; late outcomes; cardiac risk stratification in pregnancy.

Chet Villa, MD, Assistant Professor

Research Interests Heart failure; heart transplant and ventricular assist devices.

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

Leadership Director, Adult Congenital Heart Disease Program

Research Interests Adult congenital heart disease.

Wendy Whiteside, MD, Assistant Professor

Research Interests Interventional cardiology; quality improvement in the catheterization lab.

Ivan Wilmot, MD, Assistant Professor

Research Interests Quality of life in children with cardiomyopathy, heart transplants, mechanical circulatory support; cardiorenal syndrome and early biomarkers to detect cardiovascular involvement; early neurobiomarker detection in children with mechanical support.

Wenying Zhang, MD, PhD, FACMG, Assistant Professor

Leadership Clinical Director, Heart Institute Diagnostic Laboratory

Research Interests Clinical molecular genetics; molecular pathology; molecular diagnosis of heritable cardiovascular disease.

Joint Appointment Faculty Members

Stuart L. Goldstein, MD, Professor (Nephrology)

Research Interests Acute kidney injury; continuous renal replacement therapy; end-stage renal disease; health-related quality of life.

Jeanne James, MD, Professor (Molecular Cardiovascular Biology)

Research Interests Manifestations and etiologies of misfolded protein response and echocardiography.

Jessica Woo, MHSA, PhD, Associate Professor (Biostatistics and Epidemiology)

Research Interests Molecular epidemiology; pediatric obesity; genetics and early life influences on obesity; insulin resistance; dyslipidemia.

Clinical Staff Members

- **Chad Connor, MD**

Trainees

- **Catherine Allen, MD**, PL6, A.I. duPont Children's
- **Tarek Alsaied, MD**, PL4, Cincinnati Children's Hospital Medical Center
- **Konstantin Averin, MD**, PL6, Cincinnati Children's/University of Cincinnati
- **Ram Bishnoi, MD**, PL7, Johns Hopkins University
- **Nicole M. Brown, MD**, PL9, Children's Hospital of Pittsburgh, UPMC
- **Ahmad Sami Chaouki, MD**, PL7, Northwestern University/Ann & Robert H. Lurie Children's of Chicago

- **Joshua Daily, MD**, PL6, Cincinnati Children's/University of Cincinnati
- **Karine Guerrier, DO**, PL6, Cleveland Clinic
- **Brandon Hays, MD**, PL5, University of Minnesota
- **Benjamin Landis, MD**, PL7, Columbia University
- **Candice Li, MD**, PL4, Baylor College of Medicine
- **Namheon Lee, PhD**, University of Cincinnati
- **Smita Mehta, MD**, PL7, Cleveland Clinic
- **Ryan Moore, MD**, PL7, Cincinnati Children's/University of Cincinnati
- **Melissa L. Morello, MD**, PL5, Case Western Reserve University
- **Charu Munjal, PhD**, University of Louisville
- **Preeti Ramachandran, MD**, PL5, Cincinnati Children's/University of Cincinnati
- **James J. Starc, MD**, PL5, Mt. Sinai School of Medicine
- **Tuerdi Subati, MD, PhD**, York University, Canada
- **Pieter A. Verhoeven, MD**, PL5, Vanderbilt University Medical Center
- **Samuel G. Wittekind, MD**, PL4, University of Washington
- **Betul Yilmaz, MD**, PL7, Columbia University/Morgan Stanley Children's

Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct

Cnota, J

Pediatric Heart Network Prairieland Consortium

National Institutes of Health

U10 HL109673	9/1/2011-6/30/2016	\$367,500
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Trial of Beta Blocker vs Angiotensin Receptor Blocker

National Institutes of Health(New England Research Institutes)

U01 HL068270	12/1/2006-12/31/2014	\$10,819
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Czosek, R

Automated ECG Screening for Hypertrophic Cardiomyopathy

Children's Cardiomyopathy Foundation

3/1/2015-2/29/2016

\$28,200

Goldstein, B**Utilizing Vascular Function to Predict Functional Outcomes in Fontan Survivors**

American Heart Association

1/1/2014-12/31/2015

\$59,999

Evaluation of Growth and Puberty in Adolescent and Young Adult Fontan Survivors

National Institutes of Health(University of Utah)

U01 HL068270

7/1/2013-6/30/2015

\$5,198

Phase I/II Dose Escalation Trial of Udenafil in Adolescents with Single Ventricle Physiology after Fontan Palliation

National Institutes of Health(New England Research Institutes)

U01 HL109673

7/1/2014-6/30/2015

\$13,337

Hinton Jr., R**Angiogenesis due to Elastic Fiber Fragmentation in Early Aortic Valve Disease**

National Institutes of Health

R56 HL117851

9/1/2014-8/31/2015

\$250,000

James, J**Medtronic Fellowship in Pediatric Electrophysiology**

Medtronic, Inc.

7/1/2014-6/30/2015

\$15,000

Towbin, J**Biomarkers in Pediatric Cardiomyopathy**

National Institutes of Health(Wayne State University)

R01 HL109090

7/16/2014-6/30/2016

\$38,778

Genetics, Mechanisms and Clinical Phenotypes of Arrhythmogenic Cardiomyopathy

National Institutes of Health

R01 HL116906

8/23/2013-6/30/2018

\$2,034,219

Cardiac Biomarkers in Pediatric Cardiomyopathy_Per Patient

National Institutes of Health(Wayne State University)

R01 HL109090

7/16/2014-6/30/2016

\$7,450

Vanish Trial Participating Site Reimbursement-HCMNET Stage 2 Trial		
National Institutes of Health(Brigham & Women's Hospital)		
P50 HL112349	5/15/2012-7/31/2015	\$17,439
Urbina, E		
Validation of Circulating Endothelial Cells and Microparticles in Youth Study Coordinating Center - Per Patient		
National Institutes of Health(University of Minnesota)		
R01 HL110957	8/1/2013-11/30/2015	\$4,501
Study of Hypertension in Pediatrics - Adult Hypertension		
American Heart Association		
	4/1/2015-3/31/2019	\$879,852
Early Identification of World Trade Center Conditions in Adolescents		
Ctr for Disease Control and Prevention(NYU Sponsored Programs Administration)		
	7/1/2013-6/30/2016	\$17,500
Search Nutrition Ancillary Study 2		
National Institutes of Health(University of Cincinnati)		
R01 DK077949	4/15/2014-3/31/2018	\$11,591
Accelerated CV Aging in Youth Related to CV Risk Factor Clusters		
National Institutes of Health		
R01 HL105591	1/1/2011-12/31/2015	\$301,278
The Studies to Treat or Prevent Pediatric Type 2 Diabetes		
National Institutes of Health(George Washington University)		
U01 DK061230	3/1/2012-7/31/2015	\$48,816
Pediatric HIV/AIDS Cohort Study (PHACS)		
National Institutes of Health(Tulane University)		
U01 HD052104	8/1/2013-7/31/2015	\$13,325
Vascular Core for Dyslipidemia of Obesity Intervention Trial (DO IT!) Reimbursement		
National Institutes of Health(New England Research Institutes)		
U01 HL068270	7/1/2014-6/30/2017	\$193,367

Urbina, E / Woo, J**Childhood CV Risk and Adult CVD Outcomes: an International Long-term Follow-up**

National Institutes of Health

R01 HL121230

12/1/2014-11/30/2019

\$2,432,383

Current Year Direct**\$6,750,552****Industry Contracts****Byrnes, J**

Daiichi Sankyo C, Ltd

\$9,818

Chin, C

Roche Laboratories, Inc

\$909

Cooper, D

Cadence Pharmaceuticals, Inc

\$38,600

Hirsch, R

AGA Medical, LLC

\$2,310

United Therapeutics Corporation

\$404

Jefferies, J

Medtronic, Inc

\$6,875

Lorts, A

Berlin Heart, Inc

\$3,311

Nelson, D

Novartis Pharmaceuticals

\$4,697

Webb, G

Actelion Pharmaceuticals, Inc

\$939

Current Year Direct Receipts**\$67,863****Total****\$6,818,415**

