2015 Research Annual Report

Cardiology

RESEARCH AND TRAINING DETAILS

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<td>Peer Reviewed Publications</td>
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CLINICAL ACTIVITIES AND TRAINING

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Significant Publications


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.

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.


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.


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.


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**


5. Anderson JB, Beekman RH, 3rd. Addressing Nutrition and Growth in Children with Congenital Heart Disease. In:


32. DeSena HC, Nelson DP, Cooper DS. Cardiac intensive care for the neonate and child after cardiac surgery. *Curr


45. Heiberg J, Ringgaard S, Schmidt MR, Redington A, Hjortdal VE. Structural and functional alterations of the right ventricle are common in adults operated for ventricular septal defect as toddlers. Eur Heart J Cardiovasc


60. In: Jones MB, Klugman D, Fitzgerald RK, Kohr LM, Berger JT, Costello JM, Bronicki R, Cooper DS, eds.


Munjal C, Opoka AM, Osinska H, James JF, Bressan GM, Hinton RB. TGF-beta mediates early angiogenesis and


147. Whiteside W, Christensen J, Zampi JD. Three-dimensional magnetic resonance imaging overlay to assist with percutaneous transhepatic access at the time of cardiac catheterization. Ann Pediatr Cardiol. 2015; 8:150-2.


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**Faculty, Staff, and Trainees**

**Faculty Members**

Andrew Redington, MD, FRCP,
Leadership Executive Co-Director, The Heart Institute; Director and Chief, Cardiology
Research Interests Ischemia-reperfusion injury; myocardial function.

Jeffrey B. Anderson, MD, MPH, MBA, Associate Professor
Leadership Chief Quality Officer, Heart Institute
Research Interests Quality and value improvement; nutritional failure in congenital heart disease; syncope.

Robert H. Beekman, III, MD, Professor
Research Interests Cardiac catheterization and intervention; quality improvement.

Jonathan W. Byrnes, MD, Assistant Professor
Research Interests Coagulation; hemostasis and thrombosis in the critically ill.

Chesney Castleberry, MD, Assistant Professor
Research Interests Immunosuppression therapy in cardiac transplantation; clinical outcomes after transplantation.

Clifford Chin, MD, Professor
Leadership Medical Director, Pediatric Heart Transplant Service; Co-Director, Advanced Cardiomyopathy Program
Research Interests Cardiomyopathy; heart failure; cardiac transplantation.

James F. Cnota, MD, Associate Professor
Leadership Director, Neonatal Cardiology
Research Interests Fetal cardiology; multicenter clinical trials.

David S. Cooper, MD, MPH, Associate Professor
Leadership Associate Medical Director, Cardiac Intensive Care Unit; Director, Cardiac ECMO Program; Chief Safety Officer, Heart Institute; Co-Director, Center for Acute Care Nephrology
Research Interests Acute kidney injury in critical cardiac disease; anticoagulation on extracorporeal support; outcomes research.

Richard J. Czosek, MD, Associate Professor
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, Assistant Professor
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

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**Grants, Contracts, and Industry Agreements**

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Urbina, E / Woo, J  
**Childhood CV Risk and Adult CVD Outcomes: an International Long-term Follow-up**  
National Institutes of Health  
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**Industry Contracts**

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