

Clinical Research Center

DIVISION PROFILE

Number of Faculty	1
Number of Other Students (full and part-time)	1
Number of Support Personnel	36
Annual Total Grant Support (direct)	\$1,927,631
Annual Total Industry Contracts (direct)	\$6,321
Patient Encounters	
Outpatient	1,698
Inpatient	17,094

FACULTY LISTING

James E. Heubi, MD, Professor of Pediatrics, Division Director

OVERVIEW

During this annual report period, the Clinical Research Center (CRC) was in the second and third year of five years of funding supported by the National Center for Research Resources, National Institutes of Health. Robust usage of the inpatient and outpatient facilities on A3, as well as the CCCR, has continued. A variety of studies performed by investigators from 18 divisions of Cincinnati Children's Hospital Medical Center (CCHMC) and members of the Departments of Medicine and Psychiatry and School of Allied Health utilized the resources of the GCRC. A well-trained research nursing staff, research dietitian, core laboratory staff, administrative personnel, and a part-time biostatistician are available to assist investigators in the execution of research protocols. The Nutrition Core provides a valuable resource for investigators by providing assistance in nutrient analysis, body composition measurements, assessing resting energy expenditure, and meal preparation for selected studies. Informatics and biostatistical support are available for all projects utilizing the CRC, including consultative services for investigators regarding study design and data management. The Core Laboratory has been divided into three sections: 1. Biochemistry Core, 2. Body Composition Core, and 3. Tissue Procurement Facility. With a recently developed initiative, comprehensive standard operating procedures are now available for all aspects of the GCRC operation.



J. Heubi

The CRC provides support for educational and training programs, including the 6-module course, entitled "Introduction to Clinical Research," with lectures by members of the faculty of CCHMC and the University of Cincinnati. The modules presented include: "Getting Started in Clinical Research, Epidemiology, Developing a Research Protocol, Outcomes Research, Presenting and Writing Skills and Molecular Biology." This curriculum is designed to be a more comprehensive introduction to clinical research with the goal of enhancing participants' knowledge of patient-oriented research and to encourage fellows, young faculty and other interested staff to pursue patient-oriented research as a portion of their academic activities. During the last year, the Introduction to Clinical Research Series was taped and is now available on the GCRC website in a streaming video format. The CRC sponsors a monthly Clinical Research Forum that showcases clinical research at CCHMC and University of Cincinnati, and encourages investigators to share ideas and foster collaboration. The *CRC News*, a newsletter produced three times a year, has helped to update faculty on patient-oriented research at the CCHMC and the CRC. The CRC website provides user-friendly access to

information regarding the CRC and its resources, and how they can be utilized. The use of “paperless” review of submitted projects to the GCRC Scientific Advisory Committee has now been demonstrated to facilitate the review process and be cost-effective. Plans are in place to expand this “paperless” method to the Institutional Review Board of CCHMC. The CRC continues to support research for entry level faculty and fellows interested in pursuing careers in biomedical research. This program, entitled the Clinical Research Enhancement Feasibility Fund (CReFF) has now supported four young investigators, of whom all but one have received extramural support in the form of mentored research awards from the NIH (K23).

HIGHLIGHTS

During the last grant year, there were 121 investigators (including co-investigators) with 70 active protocols utilizing resources supplied by the CRC. Fifty-two of the protocols were from investigators from the Department of Pediatrics, while six were from the Department of Medicine, one from the Center for Health Related Programs, one from College of Applied Health and two from the Department of Psychiatry. The remaining eight projects utilized the Tissue Procurement Core facility at University of Cincinnati. Predominant users in the CCRF include investigators from the Divisions of Gastroenterology, Cardiology, Endocrinology, Human Genetics, General and Community Pediatrics, Psychology, Mass Spectrometry, Neonatology, Rheumatology, Nephrology, Pulmonary Medicine, Adolescent Medicine, Allergy, CCDD, and Critical Care. The major focus areas of patient-oriented research include mechanisms of bone accretion and bone disease in health and associated disease conditions; body composition with maturation including obesity; cholera vaccine studies; cholesterol metabolism; diabetes mellitus in children and adults; inborn errors of bile acid metabolism; peroxisomal disorders; diarrheal diseases; renal disease, cystic fibrosis; juvenile rheumatoid arthritis; Gaucher Disease; and isoflavones. Research subjects comprised 3,999 outpatient visits and were hospitalized for 205 inpatient days on the CRC between December 1, 2002 and November 30, 2003. Subjects were studied outside the CRC in "scatter beds" for a total of 47 days. During that same period of time, industry-sponsored subjects accounted for 12 inpatient bed days and 339 outpatient visits, while non-research patients comprised 1,441 inpatient bed days and 12,756 outpatient visits. A high percentage of both inpatient and outpatient utilization are studies initiated by externally funded investigators who need CRC resources to perform their patient-oriented research projects. There were 25 peer-reviewed journal articles that resulted from research conducted on the CRC. Publications are listed individually in the reports of the divisions, and a copy of each is kept on the Center in the official CRC bibliography. The following is a summary report of CRC inpatient and outpatient utilization for each CHMC division or UC department and its study protocols:

Division	Inpatient Days	Outpatient Visits	Title of Protocol
Allergy/Immunology	0	15	Phase I/II Study of Effect of Intravenous Anti-IL5 (Mepolizumab) on the Outcome/ Management of Hypereosinophilic Syndromes ¹
Cardiology	0	1,213	Epidemiology of BMI Rebound
	0	248	Visceral Adiposity and CVD Risk in Women ²
	63	6	Genetic Epidemiology of Energy Metabolism ³
	0	12	Neurohormonal Activation in Single Ventricular Physiology
Ctr. For Health-Related Programs	2	24	Effects of Ketogenic Diet on Body Weight/Cardiovasc. Risk Factors ⁴
College of Applied Health	0	4	Drug and Nutrition Therapy on HBA1c Levels of Women with Type 2 Diabetes ⁵
Clinical Mass Spectrometry	22	63	Pharmacokinetics of the Supplement, Secoisolariciresinol Diglycoside ⁶
Clinical Pharmacology	0	1	Risperidone Pharmacokinetics in Children with Pervasive Development Disorder (PDD) ⁷
Critical Care	*1	0	Adrenal Dysfunction in Children with Septic Shock ⁸
Developmental Disorders	0	28	Growth and Maturation of Children with Autism and Autism Spectrum Disorder

	0	17	BMD in Adults with Rubinstein-Taybi Syndrome ⁹
Endocrinology	0	3	Diabetes Prevention Trial – 1 ⁵
	0	8	RhIGF-1 in Children with Short Stature Due to Growth Hormone Insensitivity Syndrome (GHIS)
	0	297	SEARCH for Diabetes in Youth ¹⁰
	28	54	Biochemical Characteristics of Type 2 Diabetes Mellitus ⁵
	0	2	Endocrinopathies after Head Injury ¹¹
	0	18	Metformin and Diet in Managing Weight Gain After Initiation of Olanzapine ¹²
Epidemiology/ Biostatistics	0	13	Immune Phenotypes in Children with Autism Spectrum Disorder ¹³
Experimental Hematology	0	23	Donation of Peripheral Blood Stem Cells for Use in Experiments Involving In Vitro Expansion and Gene Transfer
Gastroenterology & Nutrition	4	0	Investigations in the Pathogenesis of Liver Disease in Patients with Inborn Errors of Bile Acid Metabolism/Investigations of Potential Benefit of Bile Acid Therapy for Patients with Peroxisomal Disorders Affecting Bile Acid Metabolism ¹⁴
	0	276	Cholesterol Absorption and Fractional Synthetic Rate in Adults ¹⁵
	*38	0	Multi-Center Group Study of Acute Liver Failure
	0	52	Antiresorptive Therapy for Osteopenia Associated with Chronically Immobilized Children ¹⁶
	0	160	Prevalence and Determinants of Non-Alcoholic Fatty Liver Disease in Young Adult Women ¹⁷
	0	6	Bone Mineral Density and Calcium Balance in TPN-Dependent Children
General Pediatrics	0	117	Bone Density and Forearm Fractures ¹⁸
	0	380	Bone Mineral Density in Childhood Study ¹⁹
	0	97	Structural Effects of Renal Osteodystrophy During Growth ²⁰
Hematology-Oncology	1	1	Biotinylated Erythrocytes in Patients with Sickle Cell Disease
Human Genetics	0	31	Studies of Gaucher Disease: A Prototype Lipidosis
	0	6	Trial of Alendronate Disodium in Pediatric Gaucher Disease ²¹
	0	62	RhGAA Treatment in Patients Over 6 and Less than 36 Months Old
	0	1	Iduronate-2-Sulfatase Replacement Therapy in MPS II
Internal Medicine (Endocrinology)	0	3	Discordant Hemoglobin A1C: Mechanisms and Implications ²²
	0	21	Pancreatic Islet Cell Function and Glucose Tolerance Following Transplant ²³
	0	7	Regulation of Nutrient-Stimulated Insulin Secretion by GLP-1
Internal Medicine (Gastroenterology)	18	84	Response of Hepatitis C Virus to Pegylated Interferon Alpha-2A and Ribavirin in Hemophilic Patients with/without Coinfection with HIV

Internal Medicine (Infectious Dis.)	1	0	ACTG A5108: Efavirenz/ Nelfinavir Pharmacokinetic Study
Neonatology	8*	0	Randomized Calcium Trial in Early Inhaled Nitric Oxide in Term and Near Term Infants with Respiratory Failure
	0	101	Development of Quantitative Human Models for the Investigation of Cellulite ²⁴
Nephrology	0	39	Vascular Abnormalities in Children and Adolescents with Chronic Renal Disease ¹²
	0	2	Normalization of Hematocrit in Patients with Chronic Renal Failure ²⁵
	0	31	Rapamycin Therapy of Renal Angiomyolipomas ²⁶
Psychiatry (UC)	0	18	Genetic Study of Patients with Fibromyalgia (A Family Study) ²⁷
	0	2	Hypothalamic-Pituitary-Adrenal Axis Dysregulation and Phenomenology of Major Depression
Psychology	0	92	Increasing Dietary Calcium through Behavioral Intervention in Children with JRA ²⁸
	0	92	Behavioral Assessment of Feeding in Preterm Infants ⁶
	0	9	Nutrition/Behavior in Children with Chronic Illness ²⁹
	0	59	Behavior, Treatment and Nutrition in Pediatric Chronic Disease ⁶
	0	3	Neuropsychological Functioning in Adolescents with Spina Bifida ¹³
	0	102	Children's Health and Natural Growth Evaluation Study ³⁰
	0	23	Depression and Nutrition in Pediatric Sickle Cell Disease ²²
	13	0	Obstructive Sleep Apnea among Obese Teens and Preteens ³¹
	0	10	Quality of Life in Children Pursuing Weight Management Intervention ¹²
Pulmonary Medicine	17	0	Effect of Obstructive Sleep Apnea on Cardiac Function and Structure in Children ¹²
	29	19	Mechanisms Mediating Cardiovascular Disease in Children with OSA ¹⁰
	2	0	Aztreonam for Inhalation in Patients with Cystic Fibrosis
Rheumatology	0	4	JRA as a Complex Genetic Trait ³²
	0	3	Long-Term Outcomes and Gonadal Function in Childhood Onset Systemic Lupus Erythematosus ²⁰
Totals	205 (*47)	3,999	*Scatter Beds (Subjects studied in beds off of CRC Unit)

Collaboration of various CHMC Divisions and University of Cincinnati Departments other than Pediatrics on projects utilizing the CRC:

¹with the Division of Experimental Hematology

²with the Division of Biostatistics

³with the Division of Adolescent Medicine

⁴with the Departments of Internal Medicine (Endocrinology) and Psychiatry

- ⁵with the Department of Internal Medicine-Endocrinology
- ⁶with the Division of Gastroenterology and Nutrition
- ⁷with the Division of Developmental Disorders and Dept. of Psychiatry (UC)
- ⁸with the Division of Endocrinology
- ⁹with the Divisions of Gastroenterology and Endocrinology
- ¹⁰with the Divisions of Cardiology and Biostatistics
- ¹¹with the Division of Rehabilitation
- ¹²with the Division of Cardiology
- ¹³with the Division of Developmental Disorders
- ¹⁴with the Divisions of Mass Spectrometry and Pathology
- ¹⁵with the Division of Mass Spectrometry
- ¹⁶with the Divisions of Biostatistics, Radiology and Community Pediatrics
- ¹⁷with the Divisions of Cardiology and Radiology
- ¹⁸with the Divisions of Cardiology, Radiology and Biostatistics
- ¹⁹with the Divisions of Adolescent Medicine and Gastroenterology
- ²⁰with the Division of Nephrology
- ²¹with the Division of General Pediatrics
- ²²with the Division of Hematology/Oncology
- ²³with the Department of Surgery, U.C.
- ²⁴with the Departments of Surgery and Pharmacy, U.C.
- ²⁵with the Division of Psychology
- ²⁶with the Division of Neurology and the Department of Internal Medicine (Pulmonary. Med.)
- ²⁷with the Division of Department of Internal Medicine (Immunology)
- ²⁸with the Division of Rheumatology
- ²⁹with the Divisions of Endocrinology and Pulmonary Medicine
- ³⁰with the Division of Adolescent Medicine and Department of Psychiatry
- ³¹with the Divisions of Pulmonary Medicine and Cardiology
- ³²with the Division of Human Genetics

TRAINING

The Clinical Research Center provides the facility and resources for the divisions of CCHMC and University of Cincinnati departments to admit their patients and train fellows and medical students. The Clinical Research Center does not have its own assigned fellows. The CRC provides educational seminars and the tools for academic achievement for young clinicians and researchers.

GRANTS, CONTRACTS AND INDUSTRY AGREEMENTS

Grant and Contract Awards	Annual Direct/Project Period Direct
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Boat, T. – P.I.	
Heubi, J. – Program Director	
General Clinical Research Center	
National Institutes of Health	
M01 RR08084	12/30/93 - 11/30/06
	\$1,927,631/9,601,897

Current Year Direct	\$1,927,631
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Industry Contracts to Division P.I.s

Current Year Direct Receipts	\$6,321
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TOTAL	\$1,933,952
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PUBLICATIONS

All publications resulting from projects utilizing the Clinical Research Center are listed in the divisional sections of this annual report. A complete listing of these publications is available in the CRC Bibliography, along with a copy of each journal article and book chapter.