

Division of Epidemiology & Biostatistics

DIVISION PROFILE	
Number of Faculty	11
Number of Graduate Students	2
Number of Fellows	
Research Fellows	1
Number of Support Personnel	16
Annual Total Grant Support (direct)	\$1,475,048
Number of Peer Reviewed Publications	33

FACULTY LISTING

Ardythe L. Morrow, PhD, Professor of Pediatrics, Director, Center for Epidemiology and Biostatistics

Mekibib Altaye, PhD, Assistant Professor of Pediatrics

Judy A. Bean, PhD, Professor of Pediatrics, Director, Biostatistics

Sheela R. Geraghty, MD, MS, Instructor of Pediatrics

Bin Huang, PhD, Assistant Professor of Pediatrics

M. Louise Lawson, PhD, Assistant Professor

Lisa J. Martin, PhD, Assistant Professor Pediatrics

Cynthia A. Molloy, MD, MS, Instructor of Pediatrics

Irene E. Olsen, PhD, RD, Assistant Professor of Pediatrics

Josefa M. Rangel, MD, Instructor of Pediatrics

Siva Sivaganesan, PhD, Professor of Pediatrics, Professor of Mathematics

OVERVIEW

The Center for Epidemiology and Biostatistics (CEB) was established in 2001 to advance the capacity of Cincinnati Children's for clinical, translational, and population-based research to improve child health. The overall CEB is directed by Dr. Ardythe Morrow. Dr. Judy Bean is director of biostatistics. CEB faculty conduct independent research and interact with nearly all divisions of Cincinnati Children's Hospital Medical Center to provide consultation and core support for the research programs of many pediatric investigators, research mentorship for junior investigators, and to teach in research training programs for residents, fellows, and graduate students.

The independent and collaborative research of CEB faculty involves the application of epidemiologic and statistical methods to determine risk factors for disease and the effectiveness of interventions used to prevent or treat diseases in children. The common theme of the CEB is thus methodology for the design and conduct of research and the statistical analysis of biomedical research data. We use epidemiologic and statistical methods to address a variety of child health issues, e.g., the prevention of infectious diseases by human milk and the specific milk factors that inhibit pathogens; the use of new vaccines and their effectiveness; the histo-blood group types associated with higher risk of specific infectious diseases in children; the genetic epidemiology of complex diseases such as obesity, diabetes, and autism spectrum disorder; immune phenotypes associated with autism spectrum disorder; the impact of obesity on the health of adolescents; factors in early childhood that are associated with later development of obesity; and the effectiveness of medical and surgical treatments for morbid obesity.

As of the end of FY04, the CEB had grown to include eleven faculty, nine with primary appointments and two with secondary appointments in the CEB. Faculty with primary appointments in the CEB include six in epidemiology (Drs. Ardythe Morrow, Louise Lawson, Lisa Martin, Cynthia Molloy, Irene Olsen, and Josefa Rangel) and three in biostatistics (Drs. Judy Bean, Mekibib Altaye, and Bin Huang). Faculty with secondary appointments in the CEB are, Dr. Sheela Geraghty, shared with General and Community Pediatrics, and Dr. Siva Sivaganesan, whose primary appointment is in the University of Cincinnati (UC), Department of Mathematical Sciences (west campus). The CEB also maintains an affiliated faculty of approximately 60

pediatric faculty whose primary appointments are in other divisions of CCHMC. During the past year we made substantial progress towards our goal of a program that is internationally recognized for innovative, interdisciplinary, and rigorous research. In FY05, we will continue to recruit talented faculty to initiate and support research at CCHMC that helps to improve child health.



Left to Right: (1st row) B. Huang, J. Bean, M. Altaye, A. Morrow, (2nd row) I. Olsen, C. Molloy, A. Dawodu, L. Lawson, J. Rangel, S. Geraghty

HIGHLIGHTS

During its third academic year, the Center for Epidemiology and Biostatistics (CEB) continued to develop rapidly. Five new faculty were added (Drs. Geraghty, Lawson, Olsen, Rangel, and Sivaganesan). The Center's interactions were strengthened through joint appointments of new faculty with neonatology (Dr. Olsen), surgery (Dr. Lawson), and General and Community Pediatrics (Dr. Geraghty). Dr. Sivaganesan was given a secondary appointment to continue his faculty mentorship and development of applications of Bayesian statistical methods to pediatric research. As of the end of June 2004, the CEB had a total of 27 faculty and staff. A senior clinical epidemiologist, Dr. Adekunle Dawodu, was successfully recruited to join the faculty in FY05 as the Director of International Patient Care and Education. The CEB also initiated a search for another biostatistics faculty member.

This was a productive year. CEB faculty authored 33 manuscripts that were published in peer-reviewed journals and books. In addition, Dr. Morrow was co-editor of a book, *Protecting Infants through Human Milk: Advancing the Evidence Base* (Kluwer) and was the primary author of a monograph published by the World Health Organization (WHO). Dr. Bean had continuing NIH funding for the biostatistics cores of two multi-site studies. Dr. Molloy was awarded a Trustee grant and the second year of her grant from the Cure Autism Now Foundation to study immune phenotypes in autism spectrum disorder. Dr. Lawson was co-Principal Investigator on a grant from Ethicon (Dr. Tom Inge, PI) to initiate the multi-site follow-up of the Adolescent Bariatric Surgery (FABS) project. Dr. Martin completed her first of 5 years of an American Diabetes Association career development award, continued subcontracts for statistical genetic analysis of NIH-funded studies, and was a co-investigator on the SCCOR grant (Dr. Woody Benson, PI) awarded this year. Dr. Morrow's program project on the role of human milk in infant nutrition and health completed the first of 5 years of the current grant cycle. Through a cooperative agreement with the Center for Disease Control and Prevention (CDC; Dr. Mary Staat, PI), Dr. Morrow was also awarded two subcontracts to study the delivery of vaccines in pediatric practices, and she received a second year from the Translational Research Initiative to extend the human milk research core to obtain data and milk samples from a cohort of mothers and their preterm and term infants. In addition, CEB faculty were co-investigators on 26 externally funded grants

awarded to principal investigators in other CCHMC divisions. Demand for CEB consulting increased, resulting in support from 25 CCHMC divisions and several other UC departments.

During the past year, CEB faculty and trainees were visible in professional conferences and activities locally, nationally and internationally, and presented their work at the meetings of the American Statistical Association, the Pediatric Academic Societies, the International Genetic Epidemiology Society and other societies. Dr. Morrow served as chair of a CDC grant review panel, the Milk Club at the Pediatric Academic Societies meeting, served on the editorial board of the Journal of Human Lactation, and was an invited speaker on human milk oligosaccharides at the 2004 Experimental Biology meeting. Dr. Bean served on grant review panels at the National Cancer Institute and the CDC and on the editorial board of Statistical Methods in Medical Research. Dr. Altaye received a travel award to attend the junior researcher workshop of the international biometric society. Dr. Martin served on the executive board of the American Association of Anthropological Genetics. Dr. Olsen joined the Dietetics Advisory Board, School of Human and Consumer Sciences, Ohio University. Drs. Geraghty and Olsen were invited presenters at the Interdisciplinary Neonatal Nutrition and Gastroenterology Symposium. Ms. Jareen Meinzen-Derr, a CEB senior epidemiology research associate and doctoral student, received a travel award to present at a conference on HIV, and was recognized by the Society for Pediatric Epidemiologic Research for a “poster of distinction.” Ms. Jessica Woo, also a CEB senior epidemiology research associate and doctoral student, was given the “outstanding poster presentation” award at the UC graduate poster forum. CEB faculty served as peer reviewers for more than ten journals. Dr. Huang organized the CEB’s multi-divisional journal club and Dr. Martin initiated the CEB’s research-in-progress meeting. CEB faculty and staff taught in the genetic counseling program, the dental graduate program, the neonatology fellowship program, the GCRC Clinical Research seminar series, UC Department of Environmental Health Epidemiology Seminar, the Cardiovascular Epidemiology course, the CCHMC Genetics seminar, the CCHMC Prevention Research Seminar, and CEB seminars. The faculty also served on several Data Safety and Monitoring Boards.

TRAINING

Graduate Students

Jareen Meinzen-Derr, MPH

University of Cincinnati College of Medicine,
Department of Environmental Health

Jessica Woo, MSHA

University of Cincinnati College of Medicine,
Department of Environmental Health

Research Fellow

Sarbelio Moreno-Espinosa, MD

Instituto Nacional de Ciencias Medicas y
Nutricion; Cincinnati Children’s Hospital Medical
Center, Department of Infectious Disease

GRANTS, CONTRACTS AND INDUSTRY AGREEMENTS

Grant and Contract Awards

Annual Direct/Project Period Direct

Bean, J

Effects of Inhaled Florida Red Tide Brevetoxins

National Institutes of Health (University of Miami subcontract)

P01 ES 10594

07/01/00-04/30/05

\$26,818/\$76,878

Recanalization Therapies and Markers of Outcomes in Acute Ischemic Stroke

National Institutes of Health (University of Cincinnati subcontract)

P50 NS 44283

09/30/02 – 08/31/07

\$69,470/\$413,000

Martin, L

The Metabolic Syndrome: the Role of Plasma Adiponectin and Common Genetic Polymorphisms in Adolescents

American Diabetes Association

07/01/03 – 06/30/08

\$121,169/\$586,341

Genomic Dissection of a QTL Affecting the Lipid Profile

National Institutes of Health (Medical College of Wisconsin)

R01 HL 074168

07/01/03 – 06/30/08

\$10,919/\$98,173

Genetics of CRP in Families with Myocardial Infarction

National Institutes of Health (Medical College of Wisconsin)

R01 HL 074321

07/01/03 – 06/30/08

\$10,919/\$59,140

Molloy, C

Immune Phenotypes in Children with Autism Spectrum Disorder

Cure for Autism Now Foundation

06/01/03 – 05/31/05

\$55,331/\$109,051

Morrow, A

Molecular Epidemiology and Impact of Human Astroviruses

National Institutes of Health (Eastern Virginia Medical School subcontract)

R01 AI 04587

04/01/02 – 05/31/05

\$12,514/\$36,248

Role of Human Milk in Infant Nutrition and Health

National Institutes of Health

P01 HD 13021

06/30/03 – 03/31/08

\$912,688/\$4,699,005

Morrow, A

\$ 93,265

Administrative Core

Morrow, A

\$149,770

Epidemiology Core

Jiang, X

\$ 97,052

Molecular Biology Core

Jiang, X

\$129,708

Gastroenteritis Project

Service Collaborations

University of Cincinnati

07/01/03 – 06/30/04

\$490

Wesleyan University

07/01/03 – 06/30/04

\$12,180

Internal CCHMC

07/01/03 – 06/30/04

\$242,550

Current Year Direct**\$1,475,048****Industry Contracts****Current Year Direct Receipts****\$0****TOTAL****\$1,475,048****Funded Collaborative Efforts**

Altaye, M

fMRI of Normal Language Development in Children

National Institutes of Health

PI: Holland, S

02/01/00 – 01/31/05

7%

Gene Transfer into Hematopoietic Stem Cells

Doris Duke

PI: Kelly, P

07/01/03 – 06/30/04

3%

Study of Prevalent Neurotoxicants in Children

Environmental Protection Agency

PI: Lanphear, B

4%

Bean, J

Anti-IL-5 for Hypereosinophilia

Food and Drug Administration

PI: Rothenberg, M

09/30/03 – 09/29/06

4%

Bone Density and Forearm Fractures Among Injured Children National Institutes of Health PI: Kalkwarf, H	09/01/00 – 06/30/04	5%
Child and Family Sequelae of Preschool Brain Injury National Institutes of Health PI: McMahon, M	09/10/02 – 08/31/07	5%
General Clinical Research Center National Institutes of Health PI: Boat, T	12/01/01 – 11/30/05	30%
Landmarks in the Progression to Type 2 Diabetes National Institutes of Health PI: Dolan, L	09/30/00 – 09/30/05	5%
Mechanisms Mediating Disease in Children with OSA National Institutes of Health PI: Amin,	04/01/03 – 03/31/08	4%
Pediatric Bipolar Collaborative Mood Stabilizer Trial National Institutes of Health PI: Kowatch, R	09/07/00 – 08/31/04	5%
Visceral Adiposity and CVD Risk in Women National Institutes of Health PI: Daniels, S	03/05/01 – 02/18/05	10%
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Huang, B		
Cancer Prevention Behaviors in Adolescence American Cancer Society PI: Kahn, J	01/01/04 – 12/31/07	15%
Cincinnati Rheumatic Diseases Core Center National Institutes of Health PI: Thompson, S	03/15/01 – 02/18/06	27%
Developmental Psychobiology of Premature Demarche National Institutes of Health PI: Dorn, L	07/01/03 – 04/30/05	15%
Endocrine Changes and Treatment of Conduct Problems National Institutes of Health PI: Dorn, L	09/15/03 – 06/30/08	20%
Puberty and Cancer Initiation: Environment, Diet and Obesity National Institutes of Health PI: Biro, F	09/29/03 – 07/31/10	5%
Smoking and Metabolic Complications in Adolescent Girls National Institutes of Health PI: Dorn, L	02/01/03 – 01/31/09	5%
Understanding Social Status Impact on Adolescent Health National Institutes of Health PI: Dolan, L	02/01/03 – 01/31/05	5%
Urinary Symptoms in Adolescent Females: STI or UTI? National Institutes of Health PI: Huppert, J	04/01/03 – 03/31/05	5%
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Martin, L		
Molecular Mechanisms of Valve Development and Disease National Institutes of Health PI: Benson, W	01/01/04 – 12/31/08	10%

Morrow, A

Enhanced Surveillance for Newly Vaccine Preventable Diseases
Centers for Disease Control and Prevention
PI: Staat, M

09/30/02 – 09/29/04

20%

PUBLICATIONS

1. Newburg DS, Ruiz-Palacios GM, **Altaye M**, Chaturvedi P, Meinzen-Derr J, Guerrero ML, **Morrow AL**. Innate protection conferred by fucosylated oligosaccharides of human milk against diarrhea in breastfed infants. *Glycobiology* 2004;14(3):253-63.
2. Amin RS, Carroll JL, Jeffries JL, Grone C, **Bean JA**, Chini B, Bokulic R, Daniels SR. Twenty-four-hour ambulatory blood pressure in children with sleep-disordered breathing. *Am J Respir Crit Care Med* 2004;169(8):950-6.
3. Cavallo A, Daniels SR, Dolan LM, **Bean JA**, Khoury JC. Blood pressure-lowering effect of melatonin in type 1 diabetes. *J Pineal Res* 2004;36(4):262-6.
4. Demirovic J, Prineas R, Loewenstein D, **Bean J**, Duara R, Sevush S, Szapocznik J. Prevalence of dementia in three ethnic groups: the South Florida program on aging and health. *Ann Epidemiol* 2003;13(6):472-8.
5. Englehardt JD, An H, Fleming LE, **Bean JA**. Analytical predictive Bayesian assessment of occupational injury risk: municipal solid waste collectors. *Risk Anal* 2003;23(5):917-27.
6. Halsted MJ, Racadio JM, Emery KH, Kreymerman P, Poe SA, **Bean JA**, Donnelly LF. Oral contrast agents for CT of abdominal trauma in pediatric patients: a comparison of dilute hypaque and water. *AJR Am J Roentgenol* 2004;182(6):1555-9.
7. Halsted MJ, Kumar H, Paquin JJ, Poe SA, **Bean JA**, Racadio JM, Strife JL, Donnelly LF. Diagnostic errors by radiology residents in interpreting pediatric radiographs in an emergency setting. *Pediatr Radiol* 2004;34(4):331-6.
8. Tamer R, Voti L, Fleming LE, MacKinnon J, Thompson D, Blake M, **Bean JA**, Richardson LC. A feasibility study of the evaluation of the Florida breast cancer early detection program using the statewide cancer registry. *Breast Cancer Res Treat* 2003;81(3):187-94.
9. **Geraghty SR**, Pinney SM, Sethuraman G, Roy-Chaudhury A, Kalkwarf HJ. Breast milk feeding rates of mothers of multiples compared to mothers of singletons. *Ambul Pediatr* 2004;4(3):226-31.
10. Bonny AE, Britto MT, **Huang B**, Succop P, Slap GB. Weight gain, adiposity, and eating behaviors among adolescent females on depot medroxyprogesterone acetate (DMPA). *J Pediatr Adolesc Gynecol* 2004;17(2):109-15.
11. Goodman E, Slap GB, **Huang B**. The public health impact of socioeconomic status on adolescent depression and obesity. *Am J Public Health* 2003;93(11):1844-50.
12. Goodman E, **Huang B**, Wade TJ, Kahn RS. A multilevel analysis of the relation of socioeconomic status to adolescent depressive symptoms: does school context matter? *J Pediatr* 2003;143(4):451-6.
13. Kahn JA, Slap GB, **Huang B**, Rosenthal SL, Wanchick AM, Kollar LM, Hillard PA, Witte D, Groen P, Bernstein DI. Comparison of adolescent and young adult self-collected and clinician-collected samples for human papillomavirus. *Obstet Gynecol* 2004;103(5 Pt 1):952-9.
14. Mrus JM, Biro FM, **Huang B**, Tsevat J. Evaluating adolescents in juvenile detention facilities for urogenital chlamydial infection: costs and effectiveness of alternative interventions. *Arch Pediatr Adolesc Med* 2003;157(7):696-702.

15. McElhane JE, Herre JM, **Lawson ML**, Cole SK, Burke BL, Hooton JW. Effect of congestive heart failure on humoral and ex vivo cellular immune responses to influenza vaccination in older adults. *Vaccine* 2004;22(5-6):681-8.
16. Cole SA, **Martin LJ**, Peebles KW, Leland MM, Rice K, VandeBerg JL, Blangero J, Comuzzie AG. Genetics of leptin expression in baboons. *Int J Obes Relat Metab Disord* 2003;27(7):778-83.
17. Comuzzie AG, Mitchell BD, Cole S, **Martin LJ**, Hsueh WC, Rainwater DL, Almasy L, Stern MP, Hixson J, MacCluer JW, Blangero J. The genetics of obesity in Mexican Americans: the evidence from genome scanning efforts in the San Antonio family heart study. *Hum Biol* 2003;75(5):635-46.
18. Fairbanks LA, Newman TK, Bailey JN, Jorgensen MJ, Breidenthal SE, Ophoff RA, Comuzzie AG, **Martin LJ**, Rogers J. Genetic contributions to social impulsivity and aggressiveness in vervet monkeys. *Biol Psychiatry* 2004;55(6):642-7.
19. Goldin LR, Camp NJ, Keen KJ, **Martin LJ**, Moslehi R, Ghosh S, North KE, Wyszynski DF, Blacker D. Analysis of metabolic syndrome phenotypes in Framingham Heart Study families from Genetic Analysis Workshop 13. *Genet Epidemiol* 2003;25 Suppl 1:S78-89.
20. **Martin LJ**, North KE, Dyer T, Blangero J, Comuzzie AG, Williams J. Phenotypic, genetic, and genome-wide structure in the metabolic syndrome. *BMC Genet* 2003;4 Suppl 1:S95.
21. **Martin LJ**, Carey KD, Comuzzie AG. Variation in menstrual cycle length and cessation of menstruation in captive raised baboons. *Mech Ageing Dev* 2003;124(8-9):865-71.
22. **Martin LJ**, Comuzzie AG, Sonnenberg GE, Myklebust J, James R, Marks J, Blangero J, Kissebah AH. Major quantitative trait locus for resting heart rate maps to a region on chromosome 4. *Hypertension* 2004;43(5):1146-51.
23. **Martin LJ**, Cianflone K, Zakarian R, Nagrani G, Almasy L, Rainwater DL, Cole S, Hixson JE, MacCluer JW, Blangero J, Comuzzie AG. Bivariate linkage between acylation-stimulating protein and BMI and high-density lipoproteins. *Obes Res* 2004;12(4):669-78.
24. North KE, **Martin LJ**, Dyer T, Comuzzie AG, Williams JT. HDL cholesterol in females in the Framingham Heart Study is linked to a region of chromosome 2q. *BMC Genet* 2003;4 Suppl 1:S98.
25. Rogers J, **Martin LJ**, Comuzzie AG, Mann JJ, Manuck SB, Leland M, Kaplan JR. Genetics of monoamine metabolites in baboons: overlapping sets of genes influence levels of 5-hydroxyindolacetic acid, 3-hydroxy-4-methoxyphenylglycol, and homovanillic acid. *Biol Psychiatry* 2004;55(7):739-44.
26. Sonnenberg GE, Krakower GR, **Martin LJ**, Olivier M, Kwitek AE, Comuzzie AG, Blangero J, Kissebah AH. Genetic determinants of obesity-related lipid traits. *J Lipid Res* 2004;45(4):610-5.
27. Manning-Courtney P, Brown J, **Molloy CA**, Reinhold J, Murray D, Sorensen-Burnworth R, Messerschmidt T, Kent B. Diagnosis and treatment of autism spectrum disorders. *Curr Probl Pediatr Adolesc Health Care* 2003;33(9):283-304.
28. **Molloy CA**, Dietrich KN, Bhattacharya A. Postural stability in children with autism spectrum disorder. *J Autism Dev Disord* 2003;33(6):643-52.
29. Butterfoss FD, **Morrow AL**, Webster JD, Crews RC. The Coalition Training Institute: training for the long haul. *J Public Health Manag Pract* 2003;9(6):522-9.
30. Gonzalez KA, Meinzen-Derr J, Burke BL, Hibler AJ, Kavinsky B, Hess S, Pickering LK, **Morrow AL**. Evaluation of a lactation support service in a children's hospital neonatal intensive care unit. *J Hum Lact* 2003;19(3):286-92.
31. Huang P, Farkas T, Marionneau S, Zhong W, Ruvoen-Clouet N, **Morrow AL**, **Altaye M**, Pickering LK, Newburg DS, LePendou J, Jiang X. Noroviruses bind to human ABO, Lewis, and secretor histo-blood group antigens: identification of 4 distinct strain-specific patterns. *J Infect Dis* 2003;188(1):19-31.
32. **Morrow AL**. Community-based strategies for breastfeeding promotion and support in developing countries. Geneva: World Health Organization; 2003.
33. **Olsen IE**, Richardson DK, Schmid CH, Ausman LM, Dwyer JT. The impact of early transfer bias in a growth study among neonatal intensive care units. *J Clin Epidemiol* 2003;56(10):998-1005.