

Biostatistics and Epidemiology

Division Photo



First Row: M. Butsch-Kovacic, J. Woo, S. Salisbury, L. Martin, B. Huang; Second Row: M. Kim, J. Bean, R. VanDyke, J. Meizen-Derr, A. Morrow, M. Altaye, R. Ittenbach, T. Nick

Division Data Summary

Research and Training Details

Number of Faculty	14
Number of Joint Appointment Faculty	5
Number of Research Students	6
Number of Support Personnel	21
Direct Annual Grant Support	\$654,519
Peer Reviewed Publications	80

Clinical Activities and Training

Number of Other Students	3
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Faculty Members

Ardythe L. Morrow, PhD, Professor ; *Division Director*

Research Interests: Molecular epidemiology of human milk, epidemiologic methods, prevention of infectious disease

Mekibib Altaye, PhD, Research Assistant Professor

Research Interests: Design and analysis of correlated, clustered and longitudinal data. Design and analysis of functional brain image data Inference procedures for reliability data.

Judy A. Bean, PhD, Professor ; *Director of Biostatistics*

Research Interests: General biostatistics consulting

Bin Huang, PhD, Research Assistant Professor

Research Interests: Application motivated statistics development include statistical modeling of mediation or

surrogacy effect, censored outcome and measurement errors, statistics evaluation of gene by environment interaction

Richard F. Ittenbach, PhD, Research Associate Professor

Research Interests: Mixed methods: combining qualitative and quantitative methods within a single study

Jane C. Khoury, PhD, Research Assistant Professor

Research Interests: The diverse fields of epidemiology and clinical trials, in particular experimental design, and logistic and mixed modeling

Mi-Ok Kim, PhD, Assistant Professor

Research Interests: Cancer Biostatistics: Advancing statistical methods frequently applied in clinical and preclinical cancer studies.

Lisa J. Martin, PhD, Research Assistant Professor

Research Interests: Genetic Epidemiology, Obesity, Heart Malformations

Jareen Meinzen-Derr, PhD, Research Assistant Professor

Research Interests: Hearing and deafness, neonatal outcomes

Cynthia A. Molloy, MD, Research Assistant Professor

Research Interests: Molecular epidemiology of autism

Todd G. Nick, PhD, Professor

Research Interests: Development of reliable statistical models with particular emphasis in statistical genetics and pharmacogenetics

Shelia R. Salisbury, PhD, Research Assistant Professor

Research Interests: Cancer research: Design and analysis of correlated longitudinal data

Rhonda VanDyke, PhD, Research Assistant Professor

Research Interests: Mixture Models and Functional Data Analysis, integration of fMRI and MEG modalities; classification of arterial pressure waveform data from children with obstructive sleep apnea through Bayesian statistics

Jessica G. Woo, PhD, Research Assistant Professor

Research Interests: Molecular epidemiology, with a particular research interest in pediatric obesity

Joint Appointment Faculty Members

Melinda Butsch-Kovacic, PhD, Assistant Professor

Personalized & Predictive Medicine
Epidemiologic methods

Adekunle Dawodu, MD, Professor

Center for Global Child Health
Vitamin D and child health

Sheela R. Geraghty, MD, Associate Professor

General & Community Pediatrics
Breastfeeding research

Richard Hornung, DrPH, Professor

General & Community Pediatrics
Statistical methods

Jennie G. Noll, PhD, Associate Professor

Behavioral Medicine & Clinical Psychology
Statistical methods

Trainees

- **Meredith Tabangin, MPH**,
- **Stephanie Donauer, MS**,
- **Matthew Fenchel, MS**,

Significant Accomplishments in FY08

The Human Milk Research Program

This program, directed by Dr. Ardythe Morrow, has two major goals: 1) characterization of bioactive factors in human milk and their health effects in breastfed children and 2) understanding factors that promote or impede breastfeeding. This unique research program is supported by a number of grants and contracts, including a longstanding NICHD-

sponsored program project grant (PPG, HD 13021), “The Role of Human Milk in Infant Nutrition and Health,” which was submitted for competitive renewal this year. This is only one of two program project grants in the U.S. focused on human milk or lactation, and the only one focused on child health outcomes. The PPG team (including, Drs. X. Jiang, K. Schibler, J. Meinen-Derr, P. Huang, T. Farkas, M. Tan) has discovered that the oligosaccharides (molecules containing 3-32 sugars) of human milk have powerful anti-infective, prebiotic, and anti-inflammatory effects. The human milk oligosaccharides are a novel class of antimicrobial agents, and research is focused on identifying high risk populations for whom these agents provide protection against infectious and inflammatory diseases. We have found that oligosaccharide expression, measured using salivary or genomic markers, identifies premature neonates at high risk of death and necrotizing enterocolitis, and aim to test the hypothesis that human milk oligosaccharide given to premature infants helps protect against these outcomes. Other human milk bioactive factors that are being studied include major cytokines - adiponectin (Drs. J. Woo and L. Martin) and TGF-beta (Drs. M. Wills-Karp, L. Zuo, and A. Assa'ad) – in relation to immune system development and protection against inflammatory diseases. This program is further committed to research and education in breastfeeding: Dr. Woo has reported that in adolescents, a breastfeeding history is associated with protection against obesity, underscoring the importance of breastfeeding for lifelong health. Also, Dr. Geraghty has found that most breastfeeding mothers use pumps to maintain their milk supply, and that greater support of these mothers is needed. The human milk research program is a multi-disciplinary, multi-divisional effort and is planning to expand the depth of its work in collaboration with Neonatology and other divisions.

The Statistical Genetics Program

Drs. Lisa Martin, Todd Nick, Jessica Woo, and Cynthia Molloy have been developing this research program over the past five years in collaboration with the Division of Human Genetics and others. Faculty in this program conduct independent and collaborative studies of genomic risk factors/modifiers for disease and for drug metabolism. Areas of research include family based linkage, population based association, microarray, and pharmacogenomic studies. In the past year, Dr. Martin has lead the development of the infrastructure to perform genome-wide association (GWA). These datasets include thousands of individuals each with up to a million genotypes. To be able to perform these cutting edge analyses, infrastructure had to be developed to address high-level data management and analysis requirements. Drs. Martin and Woo have worked with Dr. Michael Wagner in the Division of Bioinformatics to set up these needed resources; additionally Dr. Martin obtained a Schmidlapp Award which helped offset these costs. Since January, a database (using a MySQL server) has been established to house and manage various genotyping datasets, including the Genomic Control Cohort. Now, any CCHMC investigator with permission to use the Genomic Control Cohort can access these data. In addition, with collaboration with Bioinformatics and the Department of Environmental Health at UC, we have established the ability to perform Affymetrix genotyping calling on our high-throughput computing cluster. Whereas a run of 48 samples previously required 13 hours, we can now perform analyses of 1400 individuals in approximately 10 hours. Thus, we can now handle a critical step in GWA studies. The next step is focusing on ensuring that the calling algorithms are have the highest validity possible, and that our statistical methods are optimized to help us better identify which significant associations are most likely true associations. Along with these advances, we are now performing GWA studies sponsored by NIH and foundations, positioning CCHMC for success in this era of genomic research.

General Consulting in Study Design and Analysis

This is a major function of the division. Oversight of this effort has been overseen by the Director of Biostatistics, Dr. Judy Bean, and coordinated by a new faculty hire, Dr. Shelia Salisbury. Nearly all faculty and staff of this division participate in consultation and support to research programs throughout CCHMC. During this past year, the Division of Biostatistics and Epidemiology provided support to 36 CCHMC divisions, 76 investigators, and supported 75 grants. In order to maximize the quality and efficiency of this consulting, the faculty of this division also undertake methodologic research to develop the tools necessary to address important new research arenas, such as genomic research (see above), imaging research (Dr. Mekibib Altaye conducts statistical research in imaging), or arenas hampered by complex variables and study designs, such as adolescent medicine (Dr. Bin Huang has an NIH-funded study to advance statistical methods in studies of puberty). This division has also been highly engaged in the development of the UCCOM-CCHMC collaboration known as the Clinical Center for Translational Sciences and Training (CCTST), which is under review as a grant application to NIH to provide a single “researcher’s gateway” and support the career development of clinical and translational researchers. The general consulting arena is dynamic and growing, and provides a dimension that is critical to the overall research enterprise.

Significant Publications in FY08

Martin LJ, Woo JG, Avery CL, Chen HS, North KE, Au K, Broet P, Dalmasso C, Guedj M, Holmans P, Huang B, Kuo PH, Lam AC, Li H, Manning A, et al (2007). Multiple testing in the genomics era: findings from Genetic Analysis Workshop 15, Group 15. *Genet Epidemiol*, 31 Suppl 1, S124-131, PMID 18046761

Recently, geneticists have been presented with a wealth of data which can be used to better understand the underlying etiology of disease. While these data offer the potential for improving human health, the large amount of data can also increase the risk of chance events being called significant due to the large number of statistical tests (multiple testing). This paper provides an overview of the current state of multiple testing in the context of genetic analyses with a major focus on data coming from high-density arrays.

Tabangin ME, Woo JG, Liu C, Nick TG, & Martin LJ (2007). Comparison of false-discovery rate for genome-wide and fine mapping regions. *BMC Proc*, 1 Suppl 1, S148, PMID 18466492, PMC 2367535.

The false discovery rate (FDR) is a method designed to minimize the number of false discoveries called significant. This method has been demonstrated to be appropriate for genetic studies that examine the entire genome, but its performance for exploring regions with prior evidence of effect (fine mapping) has not been explored. This study demonstrated that FDR did not reduce the number of tests called significant; thus, caution should be employed when using FDR for fine mapping.

Woo JG, Dolan LM, Morrow AL, Geraghty SR, & Goodman E (2008). Breastfeeding helps explain racial and socioeconomic status disparities in adolescent adiposity. *Pediatrics*, 121(3), e458-465, PMID 18310167

This study found that differences by race or parental education in adolescents' body mass index scores were partially due to the lower prevalence of sustained breastfeeding in these groups. Thus, increasing the rate and duration of breastfeeding among African-Americans and the socially disadvantaged may help decrease differences in obesity and overweight among teens in those populations.

Woo, J. G., Sun, G., Haverbusch, M., Indugula, S., Martin, L. J., Broderick, J. P., Deka, R., & Woo, D. (2007). Quality assessment of buccal versus blood genomic DNA using the Affymetrix 500 K GeneChip. *BMC Genet*, 8, 79, PMID 17996058

The utility of DNA from buccal brushes in the context of genome-wide genotyping has been questioned. This study demonstrates that buccal brush DNA extracted after long-term storage is sufficient to achieve high genotyping call rates and high concordance with DNA from blood samples. This makes existing buccal brushes a viable alternative to blood in large genetic epidemiologic studies.

Huang J, & Huang B (2008). Proportion of Treatment Effects Explained by a Continuous Surrogate Marker in Randomized Clinical Trial. *Proceedings of the American Statistical Association, American Statistical Association*, 490-495

This paper extended existing literature for the case of continuous surrogate marker and binary outcome, one of the most common settings in randomized clinical trials. We provided a more accurate solution to the estimation of the proportion of treatment effect being explained by a continuous surrogate endpoint. In addition, we proposed a new graphical presentation of the surrogate effect.

Division Highlights

Bin Huang, Mekibib Altaye, Mi-Ok Kim

The Graduate Statistics Internship Program, established this year, is a new collaboration with the Dept. of Mathematical Sciences of the University of Cincinnati. The aim of the program is provide PhD graduate students with educational and research experiences in biomedical research and statistical methods development, under the close supervision of faculty statisticians in the division. The program is overseen by Professors Siva and Deddens from the Department of Mathematics. It currently engages 6 graduate students. Three faculty statisticians of this division (Drs. Altaye, Huang, Kim) are actively involved with mentoring and supervising these students.

Lisa J. Martin

Dr. Lisa Martin has been responsible for leading development of the necessary framework at CCHMC to perform genome wide association (GWA). The specific objectives have been to: 1) develop an efficient and accurate method to process raw Affymetrix genotype files, 2) modify existing data management tools to be flexible enough to be used by the general research community for GWA data, and 3) evaluate existing GWA analysis strategies to determine the

optimal approaches for specific study designs and develop a web interface to facilitate analyses. Collaborations within the division and with Bioinformatics have led to completion of the first two aims, and progress has been made on the evaluation of existing analytic strategies. This investment in the infrastructure has resulted in the funding of one GWA study and a promising score on another.

Melinda Butsch Kovacic

Dr. Butsch Kovacic led the revision and formal validation study of the New Patient Visit Questionnaire in the CCHMC Allergy Clinics and Asthma Center. Revised the Asthma Follow Up Questionnaire. Collectively, these questionnaires are used as the primary clinical data collection tools and also function as the primary data collection instruments for the CCHMC Pediatric Asthma and Allergy Study (CPAAS) cohort, the main cohort within the Hershey Asthma and Allergic Disease Database and Biorepository. Leading an effort to optimize recruitment and recapture incomplete data from families for CPAAS. She also optimized the protocol to evaluate expression of IL13 receptor alpha 2 in lesional and non-lesional skin of children with atopic dermatitis. Made revisions of the Atopic Dermatitis Questionnaire used to collect data from participating children and their families.

Todd Nick

Dr. Todd Nick was elected to Chair Elect of the American Statistical Association Section on Statistical Consulting, a manuscript reviewer for Statistics in Medicine. He was also on the Editorial Board for Pharmacogenetics and Genomics, an Ad Hoc Member of NIH Kidney, Nutrition, Obesity, Diabetes Study Section, and co-organizer for the Quantitative Genetics Seminar Series, Division of Human Genetics.

Division Collaboration

Collaboration with Adolescent Medicine

Collaborating Faculty: Dr. Frank Biro; Dr. Lorah Dorn; Dr. Jessica Kahn; Dr. Jill Huppert; Dr. Chris Kraus; Dr. Lea Widdice

Statistical support by Dr. Bin Huang, Dr. Shelia Salisbury

Collaboration with Allergy and Immunology

Collaborating Faculty: Dr. Marc Rothenberg

Research with Dr. Lisa J. Martin, Dr. Melinda Butsch Kovacic

Collaboration with Anesthesiology

Collaborating Faculty: Dr. Dean Kurth; Dr. Joel Gunter; Dr. Anna Varughese; Dr. Anne Boat; Dr. Clifford Hoffman; Dr. Matthias Konig; Dr. Andreas Loepke; Dr. Mohamed Mahmoud; Dr. John McAuliffe; Dr. Mario Patino; Dr. Senthikumar Sadhasivam; Dr. Thomas Sheckleford; Dr. Alexandra Szabova

Statistical support by Dr. Todd Nick

Collaboration with Asthma Research and Personalized & Predictive Medicine

Collaborating Faculty: Dr. Neeru Hershey; Dr. Melinda Butsch-Kovacic

Statistical support by Dr. Todd Nick

Research by Dr. Melinda Butsch Kovacic

Collaboration with Behavioral Medicine and Clinical Psychology

Collaborating Faculty: Dr. Lori Stark; Dr. Scott Powers; Dr. Dennis Drotar; Dr. Avani Modi; Dr. Korey Hood; Dr. Kevin Hommel; Dr. Ahna Pai; Christina Ramey; Dr. Robert Ammerman; Dr. Jeffrey Epstein; Dr. Joshua Langberg; Dr. Kelly Byars

Statistical support by Drs. Judy Bean, Richard Ittenbach, Mekibib Altaye, Todd Nick

Research with Dr. Cynthia Molloy

Collaboration with Biomedical Informatics

Collaborating Faculty: Dr. Jun Ma; Dr. Michael Wagner; Dr. Jarek Meller

Statistical support by Dr. Rhonda VanDyke

Informatics consultation provided by BMI to Drs. Lisa J. Martin, Ardythe L. Morrow, Dr. Jessica Woo

Collaboration with Cardiology

Collaborating Faculty: Dr. Woody Benson; Dr. Thomas Kulik; Dr. Brad Marino; Dr. William Gottliebson; Dr. Kan Hor; Dr. Erik Michelfelder; Dr. Jeanne James; Dr. Elaine Urbina; Dr. John Morrison

Statistical support by Drs. Richard Ittenbach, Rhonda VanDyke

Genetic research with Dr. Lisa Martin

Collaboration with Clinical Pharmacology

Collaborating Faculty: Dr. Sander Vinks; Dr. Michael Spigarelli; Dr. Shannon Saldana

Statistical support by Dr. Todd Nick

Collaboration with Developmental Disabilities & Behavioral Pediatrics

Collaborating Faculty: Dr. Tanya Froehlich; Dr. Patty Manning; Dr. Donna Murray; Dr. Susan Wiley; Dr. Sandra Grether; Dr. Bonnie Patterson; Dr. Michelle Zimmer; Dr. Heidi Castillo

Autism research collaboration with Dr. Cynthia Molloy.

Hearing and deafness research collaboration with Dr. Jareen Meinzen-Derr

Statistical support by Dr. Todd Nick

Collaboration with Emergency Medicine

Collaborating Faculty: Dr. Melinda Mahabee-Gittens

Statistical support by Dr. Bin Huang, Dr. Jane Khoury

Collaboration with Endocrinology

Collaborating Faculty: Dr. Larry Dolan; Dr. Nancy Crimmins; Dr. Debra Elder; Dr. Philippe Backeljauw; Dr. Meilan Rutter; Dr. Susan Rose; Dr. Iris Little; Dr. Amy Shah

Research with Dr. Jessica Woo, Dr. Lisa J. Martin, Dr. Shelia Salisbury

Statistical support by Dr. Jane Khoury

Collaboration with Every Child Succeeds

Collaborating Faculty: Dr. Robert Ammerman

Statistical collaboration with Dr. Mekibib Altaye.

Collaboration with Experimental Hematology

Collaborating Faculty: Dr. Susanne Wells; Dr. James Mulloy; Dr. Tim Cripe; Dr. Nancy Ratner; Dr. Punam Malik; Dr. Marie-Dominique Filippi; Dr. Jose Cancelas-Perez; Dr. Pan Dao

Statistical support by Dr. Mi-Ok Kim

Collaboration with Gastroenterology, Hepatology, & Nutrition

Collaborating Faculty: Dr. Lee Denson; Dr. Kathleen Campbell; Dr. Ajay Kaul

Research with Dr. Ardythe L. Morrow

Research collaboration with Dr. Cynthia Molloy

Statistical support by Dr. Todd Nick, Dr. Mi-Ok Kim

Collaboration with General and Community Pediatrics

Collaborating Faculty: Dr. Robert Kahn; Dr. Kieran Phelan; Dr. Kim Yolton; Dr. Sheela Geraghty; Dr. Richard Hornung

Statistical support by Dr. Bin Huang, Dr. Jane Khoury

Research with Dr. Ardythe Morrow

Collaboration with General Clinical Research Center

Collaborating Faculty: Dr. James Heubi et al

Study design, review, and analysis support by Drs. Judy Bean, Shelia Salisbury, and Ardythe Morrow

Collaboration with Global Child Health

Collaborating Faculty: Dr. Adekunle Dawodu; Dr. Mark Steinhoff

Statistical support by Drs. Shelia Salisbury, Mekibib Altaye

Research with Dr. Ardythe L. Morrow

Collaboration with Health Policy and Clinical Effectiveness

Collaborating Faculty: Dr. Jacqueline Grupp-Phelan

Statistical support by Dr. Jane Khoury

Collaboration with Hematology-Oncology

Collaborating Faculty: Dr. Frank Smith; Dr. Tim Cripe; Dr. Nancy Ratner; Dr. Rajaram Nagarajan; Dr. Rebecca Marsh; Dr. Denis Adams; Dr. James Geller; Dr. John Perentesis; Dr. Lisa Filipovich; Dr. Maryam Fouladi; Stella Davies

Statistical support by Dr. Mi-Ok Kim

Research by Dr. Melinda Butsch Kovacic

Collaboration with Human Genetics

Collaborating Faculty: Dr. Greg Grabowski; Dr. Cindy Prows; Dr. Dan Prows; Dr. Brad Tinkle; Dr. Min Xin Guan; Dr. Mehdi Keddache; Dr. Qi Xiaoyang; Dr. Kejian Zhang; Dr. Bill Nichols; Dr. Betty Schorry; Dr. Nancy Leslie

Research collaborations with Dr. Lisa J. Martin

Research collaborations with Dr. Cynthia Molloy

Statistical support by Dr. Todd Nick

Collaboration with Immunobiology

Collaborating Faculty: Dr. Marsha Wills-Karp

Research with Dr. Cynthia Molloy

Collaboration with Infectious Disease

Collaborating Faculty: Dr. Xi Jiang; Dr. Mary Staat; Dr. David Bernstein

Statistical support by Dr. Mekibib Altaye, Dr. Shelia Salisbury

Research with Dr. Ardythe L. Morrow

Collaboration with Molecular Immunology

Collaborating Faculty: Dr. Clare Chougnnet

Statistical support by Dr. Bin Huang

Collaboration with Nephrology and Hypertension

Collaborating Faculty: Dr. John Bissler; Dr. Jens Goebel; Dr. David Hooper; Dr. Mark Mitsneref

Statistical support by Drs. Shelia Salisbury, Todd Nick

Research with Dr. Lisa J. Martin

Collaboration with Neurology

Collaborating Faculty: Dr. Tracy Glauser; Dr. Douglas Rose; Dr. Diego Morita; Dr. Andrew Hershey; Dr. Brenda Wong

Statistical support by Drs. Rhonda VanDyke, Todd Nick

Research collaborations with Dr. Cynthia Molloy

Collaboration with Orthopaedics

Collaborating Faculty: Dr. Eric Wall

Statistical support by Dr. Todd Nick

Collaboration with Otolaryngology

Collaborating Faculty: Dr. David Brown; Dr. Dan Choo; Dr. John Greinwald; Dr. Ellis Arjmand

Research with Dr. Jareen Meinzen-Derr

Collaboration with Pediatric Dentistry

Collaborating Faculty: Dr. Erwin G. Turner

Teaching residents by Dr. Todd Nick

Collaboration with Pediatric General and Thoracic Surgery

Collaborating Faculty: Dr. Thomas Inge; Dr. Gregory Tiao; Dr. Timothy Crombleholme

Statistical support by Dr. Judy Bean, Dr. Shelia Salisbury

Research with Dr. Jessica Woo

Collaboration with Pediatric Physical Medicine and Rehabilitation

Collaborating Faculty: Dr. Shari Wade

Statistical support by Dr. Shelia Salisbury

Collaboration with Psychiatry

Collaborating Faculty: Dr. Robert Kowatch

Statistical support by Dr. Judy Bean

Collaboration with Pulmonary Medicine

Collaborating Faculty: Dr. Michael Seid; Dr. Raouf Samy Amin; Dr. Daniel Grosseohme; Dr. Jamie Wooldridge

Statistical support by Dr. Bin Huang, Dr. Rhonda VanDyke, Dr. Shelia Salisbury

Research with Dr. Jessica Woo

Collaboration with Radiology

Collaborating Faculty: Dr. Scott Holland; Dr. Robert Fleck; PNR

Statistical support by Dr. Rhonda VanDyke, Research collaboration with Dr. Mekibib Altaye

Collaboration with Rheumatology

Collaborating Faculty: Dr. Ed Giannini; Dr. Dan Lovell

Statistical support by Dr. Bin Huang

Collaboration with Schmidlapp Center

Collaborating Faculty: Dr. Lorah Dorn

Schmidlapp awardee - Dr. Lisa Martin

Mentorship and committee service by Dr. Ardythe Morrow

Collaboration with Section of Neonatology, Perinatal and Pulmonary Biology

Collaborating Faculty: Dr. Kurt Schibler; Dr. Tanya Cahill; Dr. James Greenberg

Statistical and teaching support by Dr. Jareen Meizen-Derr

Research collaboration and mentorship by Dr. Ardythe L. Morrow

Research collaboration with Dr. Sheela Geraghty

Collaboration with Sports Medicine

Collaborating Faculty: Dr. Timothy Hewett; Dr. Gregory Myer; Dr. Mark Paterno

Statistical support by Drs. Jane Khoury, Todd Nick

Mentions in Consumer Media

Division Publications

1. Cecil KM, Brubaker CJ, Adler CM, Dietrich KN, Altaye M, Egelhoff JC, Wessel S, Elangovan I, Hornung R, Jarvis K, Lanphear BP. [Decreased brain volume in adults with childhood lead exposure](#). *PLoS Med*. 2008; 5: e112.
2. DiFrancesco MW, Holland SK, Ris MD, Adler CM, Nelson S, DelBello MP, Altaye M, Brunner HI. [Functional magnetic resonance imaging assessment of cognitive function in childhood-onset systemic lupus erythematosus: a pilot study](#). *Arthritis Rheum*. 2007; 56: 4151-63.
3. Eaton KP, Szaflarski JP, Altaye M, Ball AL, Kissela BM, Banks C, Holland SK. [Reliability of fMRI for studies of language in post-stroke aphasia subjects](#). *Neuroimage*. 2008; 41: 311-22.
4. Karunanayaka PR, Holland SK, Yuan W, Altaye M, Jones BV, Michaud LJ, Walz NC, Wade SL. [Neural substrate differences in language networks and associated language-related behavioral impairments in children with TBI: a preliminary fMRI investigation](#). *NeuroRehabilitation*. 2007; 22: 355-69.
5. Amin R, Somers VK, McConnell K, Willging P, Myer C, Sherman M, McPhail G, Morgenthal A, Fenchel M, Bean J, Kimball T, Daniels S. [Activity-adjusted 24-hour ambulatory blood pressure and cardiac remodeling in children with sleep disordered breathing](#). *Hypertension*. 2008; 51: 84-91.
6. Bissler JJ, McCormack FX, Young LR, Elwing JM, Chuck G, Leonard JM, Schmithorst VJ, Laor T, Brody AS, Bean

- J, Salisbury S, Franz DN. [Sirolimus for angiomyolipoma in tuberous sclerosis complex or lymphangiomyomatosis](#). *N Engl J Med*. 2008; 358: 140-51.
7. Deutsch GH, Young LR, Detering RR, Fan LL, Dell SD, Bean JA, Brody AS, Nogee LM, Trapnell BC, Langston C, Albright EA, Askin FB, Baker P, Chou PM, Cool CM, Coventry SC, Cutz E, Davis MM, Dishop MK, Galambos C, Patterson K, Travis WD, Wert SE, White FV. [Diffuse lung disease in young children: application of a novel classification scheme](#). *Am J Respir Crit Care Med*. 2007; 176: 1120-8.
 8. Fleming LE, Jerez E, Stephan WB, Cassedy A, Bean JA, Reich A, Kirkpatrick B, Backer L, Nierenberg K, Watkins S, Hollenbeck J, Weisman R. [Evaluation of harmful algal bloom outreach activities](#). *Mar Drugs*. 2007; 5: 208-19.
 9. Inge TH, Zeller M, Harmon C, Helmrath M, Bean J, Modi A, Horlick M, Kalra M, Xanthakos S, Miller R, Akers R, Courcoulas A. [Teen-Longitudinal Assessment of Bariatric Surgery: methodological features of the first prospective multicenter study of adolescent bariatric surgery](#). *J Pediatr Surg*. 2007; 42: 1969-71.
 10. Kim HK, Laor T, Shire NJ, Bean JA, Dardzinski BJ. [Anterior and posterior cruciate ligaments at different patient ages: MR imaging findings](#). *Radiology*. 2008; 247: 826-35.
 11. McNeal MM, Basu M, Bean JA, Clements JD, Lycke NY, Ramne A, Lowenadler B, Choi AH, Ward RL. [Intrarectal immunization of mice with VP6 and either LT\(R192G\) or CTA1-DD as adjuvant protects against fecal rotavirus shedding after EDIM challenge](#). *Vaccine*. 2007; 25: 6224-31.
 12. Milian A, Nierenberg K, Fleming LE, Bean JA, Wanner A, Reich A, Backer LC, Jayroe D, Kirkpatrick B. [Reported respiratory symptom intensity in asthmatics during exposure to aerosolized Florida red tide toxins](#). *J Asthma*. 2007; 44: 583-7.
 13. Stevenson MD, Heaton PC, Moomaw CJ, Bean JA, Ruddy RM. [Inhaled corticosteroid use in asthmatic children receiving Ohio Medicaid: trend analysis, 1997-2001](#). *Ann Allergy Asthma Immunol*. 2008; 100: 538-44.
 14. Dawodu A, Wagner CL. [Mother-child vitamin D deficiency: an international perspective](#). *Arch Dis Child*. 2007; 92: 737-40.
 15. List BA, Ballard JL, Langworthy KS, Vincent AM, Riddle SW, Tamayo OW, Geraghty SR. [Electronic health records in an outpatient breastfeeding medicine clinic](#). *J Hum Lact*. 2008; 24: 58-68.
 16. Lanphear BP, Hornung RW, Khoury J, Dietrich KN, Cory-Slechta DA, Canfield RL. [The conundrum of unmeasured confounding: Comment on: "Can some of the detrimental neurodevelopmental effects attributed to lead be due to pesticides? by Brian Gulson"](#). *Sci Total Environ*. 2008; 396: 196-200.
 17. Dorn LD, Rose SR, Rotenstein D, Susman EJ, Huang B, Loucks TL, Berga SL. [Differences in endocrine parameters and psychopathology in girls with premature adrenarche versus on-time adrenarche](#). *J Pediatr Endocrinol Metab*. 2008; 21: 439-48.
 18. Goodman E, Huang B, Schafer-Kalkhoff T, Adler NE. [Perceived socioeconomic status: a new type of identity that influences adolescents' self-rated health](#). *J Adolesc Health*. 2007; 41: 479-87.
 19. Gray SH, Austin SB, Huang B, Frazier AL, Field AE, Kahn JA. [Predicting sexual initiation in a prospective cohort study of adolescents](#). *Arch Pediatr Adolesc Med*. 2008; 162: 55-9.
 20. Kahn JA, Huang B, Gillman MW, Field AE, Austin SB, Colditz GA, Frazier AL. [Patterns and determinants of physical activity in U.S. adolescents](#). *J Adolesc Health*. 2008; 42: 369-77.
 21. Kahn JA, Rosenthal SL, Jin Y, Huang B, Namakydoust A, Zimet GD. [Rates of human papillomavirus vaccination, attitudes about vaccination, and human papillomavirus prevalence in young women](#). *Obstet Gynecol*. 2008; 111: 1103-10.
 22. Mahabee-Gittens EM, Huang B, Slap GB, Gordon JS. **An emergency department intervention to increase parent-child tobacco communication: a pilot study**. *J Child Adolesc Subst Abuse*. 2007; 17: 71-83.
 23. Shishov M, Henrickson M, Burgos-Vargas R, Rubio-Perez N, Baca V, Romero-Feregrino R, Solis-Vallejo E, Huang B, Grom AA, Lovell DJ. [Systemic features and early prognostic factors in Hispanic and non-Hispanic children from the United States of America and Mexico with systemic juvenile idiopathic arthritis](#). *Clin Exp Rheumatol*. 2007; 25: 907-14.
 24. Ballweg JA, Wernovsky G, Ittenbach RF, Bernbaum J, Gerdes M, Gallagher PR, Dominguez TE, Zackai E, Clancy RR, Nicolson SC, Spray TL, Gaynor JW. [Hyperglycemia after infant cardiac surgery does not adversely impact neurodevelopmental outcome](#). *Ann Thorac Surg*. 2007; 84: 2052-8.
 25. Ben Sivarajan V, Chrisant MR, Ittenbach RF, Clark BJ, 3rd, Hanna BD, Paridon SM, Spray TL, Wernovsky G, Gaynor JW. [Prevalence and risk factors for tricuspid valve regurgitation after pediatric heart transplantation](#). *J Heart Lung Transplant*. 2008; 27: 494-500.
 26. Khan AR, Birbach M, Cohen MS, Ittenbach RF, Spray TL, Levy RJ, Gaynor JW. [Chronic hypoxemia increases ventricular brain natriuretic peptide precursors in neonatal swine](#). *Ann Thorac Surg*. 2008; 85: 618-23.
 27. Mandell DS, Ittenbach RF, Levy SE, Pinto-Martin JA. [Disparities in diagnoses received prior to a diagnosis of](#)

- [autism spectrum disorder](#) . *J Autism Dev Disord*. 2007; 37: 1795-802.
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Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct / Project Period Direct

Cassedy, A

Developing a Corporate Feedback System for Use in Curricular Reform

US Department of Education (Miami University)

G01030

03/01/08 - 08/31/08

\$8,233 / \$8,233

Meinzen, J

Outcome of Children with Hearing Loss and Developmental Disabilities

Thrasher Research Fund

06/01/07 - 11/30/08

\$10,425 / \$22,600

Molloy, C

Genome Wide Association Study of Autism Characterized by Developmental Regression

Autism Speaks

07/01/07 - 06/30/10

\$136,309 / \$408,856

Huang, B

Innovating Modeling of Puberty and Substance Use Risk

National Institutes of Health

R01 DA 019965

04/10/06 - 12/31/09

\$136,652 / \$603,257

Bean, J.

Effects of Inhaled Florida Red Tide Toxins

National Institutes of Health (University of Miami)

P01 ES 010594

09/08/06 - 06/28/11

\$28,333 / \$155,147

Effects of Inhaled Florida Red Tide Brevetoxins - Environmental Database

National Institutes of Health (University of North Carolina Wilmington)

P01 ES 010594

08/01/07 - 05/31/08

\$11,450 / \$11,450

Kim, M**Empirical Likelihood and Censored Quantile Regression**

National Science Foundation (University of Kentucky)

604920

08/01/06 - 07/31/09

\$12,132 / \$28,125

Martin, L**Sexual Maturation and Common Genetic Polymorphisms in Adolescents on Adiponectin**

American Diabetes Association

7-03-CD-06

07/01/03 - 06/30/08

\$98,959 / \$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

\$22,347 / \$98,173

Genetics of CRP in Families with Myocardial Infarction

National Institutes of Health (Medical College of Wisconsin)

R01 HL 074321

07/01/03 - 06/03/08

\$12,474 / \$59,140

Nick, T**Epithelial Genes in Allergic Inflammation - Scientific Core**

National Institutes of Health

U19 AI 070235

09/15/06 - 08/31/11

\$67,205 / \$427,305

Expanding the Genetic/Genomic Data Analysis Core

University of Texas Health Science Center at San Antonio

U19 AI 070412

03/01/08 - 02/28/09

\$110,000 / \$110,000

Current Year Direct**\$654,519****Total \$654,519**