

SPHHS RESEARCH BEAT

May, 2005

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NEW FACULTY RECEIVE GRANTS

Andrea Foulkes (PI):

Dr. Foulkes, Assistant Professor of Biostatistics, Department of Public Health, received a \$1.125 million award from the National Institute of Allergy and Infectious Diseases to develop novel statistical methods for high-dimensional data in HIV research. The title of the proposal is "Methods for High Dimensional Data in HIV Research" R01 AI056983-01A2. The vast array of molecular and cellular level data now available presents an exciting opportunity to tailor treatment decisions to the specific characteristic of patients and their infecting viral population. However, how best to use this information continues to be a great analytic challenge due to the large number of potentially relevant parameters and the complex, uncharacterized relationships among them. This research will integrate and advance several analytic methods to arrive ultimately at the best strategies for delaying clinical disease and death. Through the development of novel statistical methods, Dr. Foulkes will draw from information on viral genetic sequences and cellular immune modulation to characterize the progression from sensitive to resistant virus, and through varying stages of disease. The methods developed will apply broadly to several areas of HIV/AIDS research as well as complex diseases, such as cancer and cardiovascular disease.

The award will begin on March 1, 2005 and continue over 5 years. Collaborators include faculty at Harvard, University of Pennsylvania and the Wistar Institute in Philadelphia.

Alayne Ronnenberg (PI):

Maternal Nutritional Status and Pregnancy Outcome In Minority Women

Faculty Research Grant

As is true in other cities, adverse birth outcomes are also common among low-income minority women in Springfield. Data from the Wesson Women's Clinic at Baystate Medical Center in Springfield, which serves primarily low-income minority women in the metro area, indicate that preterm births are 50% more common in clinic deliveries than they are in non-Hispanic whites nationwide. Understanding the modifiable factors, such as nutritional status, that contribute to adverse pregnancy outcomes is crucial to developing interventions to improve maternal and infant health. Despite food fortification and efforts to increase prenatal supplement use, deficiencies of many nutrients, including folate, vitamin B6, vitamin D, and iron, persist among low-income and minority women in many areas, although no information is currently available on the nutritional status of low-income women in Springfield. This pilot project will assess dietary intake and biomarkers of nutritional status in a group of 150 pregnant women and their neonates and will identify sociodemographic factors that influence nutritional status. This study is intended to provide preliminary data to support an intervention study aimed at improving maternal nutritional status and pregnancy outcome in at-risk women.

Brian Hunt:

Can statin treatment reduce arterial stiffness independent of lowering cholesterol?

Faculty Research Grant

High blood pressure (hypertension) is an independent risk factor for the development of cardiovascular disease which continues to be the leading cause of death in the United States. Whereas relatively few young adults are affected (~10%), nearly two-thirds of men and women over the age of 55 years have hypertension associated with increased arterial stiffness. Drugs known as statins are primarily prescribed by physicians to reduce another cardiovascular disease risk factor, cholesterol. Several studies in animals indicate that statins directly affect the arterial wall, promoting the production of several molecules that cause dilatation of the artery, thereby reducing stiffness, independent of cholesterol. If true in humans, these changes would be expected to reduce arterial stiffness and improve the regulation of blood pressure. Therefore, the specific aims of this study are to determine if statin treatment decreases arterial stiffness independent of its cholesterol lowering effect, and determine if the reduced arterial stiffness translates into more sensitive regulation of arterial blood pressure. To accomplish these aims middle-aged and older adults will first be put on a non-statin, cholesterol lowering regime for 6 weeks. Arterial stiffness and blood pressure regulation will be compared before and after treatment. This will provide an index of how cholesterol itself affects arterial stiffness within each volunteer. After cholesterol has returned to pre-treatment levels (about six weeks), volunteers will be put on low-dose statin therapy for 6 weeks. Arterial stiffness and blood pressure regulation will be compared before and after statin treatment, adjusting for the previously measured affect of cholesterol. This will provide insight to the cholesterol-independent affects of statins on arterial stiffness and blood pressure regulation, and may shed light on why statin treatment is associated with a greater reduction in cardiovascular disease than would be expected from their cholesterol lowering affects alone.

RECENTLY SUBMITTED CENTER GRANT PROPOSAL

Associate Professor **Maria Idali Torres (PI)** coordinated the development of NIH proposal for the establishment of The Center for Multicultural and Participatory Action Research (CMPAR) in Springfield, Massachusetts. The proposed center will be a partnership between the University of Massachusetts

School of Public Health and Health Sciences, the School of Nursing and the College of Social and Behavioral Sciences and Partners for a Healthier Community, Inc. a coalition of community organizations and activists in the City of Springfield. CMAPAR's mission is to build capacity for promoting health in minority communities and eliminating health disparities in local communities. Using a multicultural socio-ecological framework and a participatory action research approach, CMAPAR will provide the infrastructure to conduct formative research for community health intervention and policy development as well as testing the effectiveness of culturally appropriate measurement theories and tools aimed at changing behavioral, cultural, organizational and socio-environmental factors contributing to negative health outcomes and disparities in minority communities. The center's infrastructure will be comprised of four core areas, administration, research training, research implementation and community outreach and action. The following faculty are involved in the proposal:

Co-Principal Investigators for Main Proposal:

Douglas Anderton, Sociology

Sally Powers, Psychology

Frank Robinson, Partners for a Healthier Community

Co-Investigators for Main Proposal:

Penelope Pekow, Public Health

Elaine Puleo, Public Health

Principal Investigators of the Pilot Projects of the Research Core:

Jean Anliker, Nutrition

David Marquez, Exercise Science

Dean Robinson, Political Sciences

Jeanne Stacciarini, School of Nursing

Co-Investigators for Pilot Projects:

Elena Carbone, Nutrition

Internal Advisors:

Priscilla Clarkson, Exercise Science

Nancy Cohen, Nutrition

Patty Freedson, Exercise Science

Dorothy Gilbert, School of Nursing

Paul Kostecki, Public Health

SPHHS INTERDISCIPLINARY RESEARCH GRANT AWARD RECIPIENTS

The School of Public Health and Health Sciences offered a competitive small grant program to foster interdisciplinary research in the public health and health sciences fields. The School announces the following 3 Research Grant Recipients:

1) Kinematic Differentiation of Dysarthria vs. Apraxia

PI-Shelly L. Velleman, Communication Disorders

Co-Investigator- Richard Van Emmerik, Exercise Science
Co-Investigator- Mary V. Andrianopoulos, Communication Disorders

Purpose: to investigate the potential for differentiating childhood dysarthria of speech symptoms from childhood apraxia of speech symptoms using infrared kinematic tracking of articulators (lips, jaw).

2) A Feasibility Pilot Study: Exercise and Gestational Diabetes
PI- Lisa Chasan-Taber, Public Health
Co-Investigator- Patty Freedson, Exercise Science
Co-Investigator- Ed Stanek, Public Health
Co-Investigator- David Marquez, Exercise Science

Purpose: to further their research on gestational diabetes mellitus (GDM) complications approximately 4% of pregnancies with rates consistently higher in Hispanic and African-American women. GDM requires costly surveillance as well as insulin therapy in up to 50% of cases, yet does not eliminate the risks of fetal macrosomia, operative delivery and neonatal morbidity characteristic of this disorder. After delivery, women with GDM are at substantially increased risk of developing type 2 diabetes and obesity, current at epidemic rates in the United States.

3) Pilot Test of Intervention to Relieve Distress in Advanced Cancer Patients
PI- David Buchanan, Public Health
Co-Investigator- Wilson Mertens, Baystate Medical Center
Co-Investigator- Phil Nasca, Epidemiology

Purpose: to further their research on the feasibility of conducting a full-scale randomized controlled trial to test an intervention designed to reduce psychological distress, and thereby improve quality of life, among patients diagnosed with advanced, metastatic cancer.

Kinematic Differentiation of Dysarthria vs. Apraxia

Principal Investigator: Shelley L. Velleman, Communication Disorders.

Co-Investigator: Richard Van Emmerik, Exercise Science.

Co-Investigator: Mary V. Andrianopoulos, Communication Disorders.

WEBSITE WITH USEFUL INFORMATION ABOUT GRANTS

<http://www.grantlink.org>

OTHER GRANTS RECEIVED

Awards Accepted Jan 1st – April 20, 2005

Communications Disorders

Freyman, Richard

CO-PI: Helfer, Karen S

CO-PI: Keen, Rachel K Psychology

"Precedence: Its Role in Recognizing Speech in Noise"

National Institutes of Health

US Dept of Health and Human Services/5 RO1 DC001625-10

\$155,000

Exercise Science

Clarkson, Priscilla M.

"Gene Expression Profiling of Skeletal Muscle After Spinal
Cord Injury"
Reeve Foundation, Christopher
Foundations/CBC2-0202-2B
Total \$74,687

Nutrition

Olson, Rita Brennan

"Nutrition and Food Safety Education for CACFP and ADH
Programs"
MA Dept of Education
Commonwealth of Massachusetts/DOE 7140UMA 5UMAHHERST05
\$50,327

Public Health

Bertone-Johnson, Elizabeth R.

Total costs: \$136,946
Title: Diet and Lifestyle Factors and Prevention of Premenstrual Syndrome

Calabrese, Edward J.

CO-PI: Kostecki, Paul T. Provost's Office
"Distributions for Monte-Carlo Soil Ingestion Risk
Assessment"
Dow Chemical Co Industry/ Research/Contract
\$160,470

Pekow, Penelope Susan

CO-PI: Hosmer, David W.
"Diabetes Therapy to Improve BMI and Lung Function in CF"
University of Minnesota
\$79,657

Stanek, Edward

"Mixed Models for Finite Populations"
National Institutes of Health
US Dept of Health and Human Services/1 R01 HL071828-01A2
\$331,392

Torres, M. Idali

"Formative Evaluation for the Springfield Walks/Healthy
Trails"
Rails to Trails Conservancy
Research/Contract

\$15,000

RESEARCH DAY MARCH 31, 2005



LIST OF PRESENTATIONS

Monica Hubal, Exercise Science

Genotype Associations with Increases in Blood Creatine Kinase and Myoglobin Following Intense Eccentric Exercise

Jeffrey M. Haddad, Exercise Science

The Development of Motor Skill and Coordination in Infants and Young Children

Maria L. Urso, Exercise Science

Extracellular Matrix and Ubiquitin Proteasome Gene Expression Following 48h Knee Immobilization in Humans

Jai R. Ghanekar, Nutrition

Impact of Weekly Iron Supplementation on Anemia Prevalence among Adolescent Girls: Rural-Urban Comparison in Shivpuri, Madhya Pradesh, India

Kristin Lefebvre, Nutrition

Evaluation of the Relevance and Cultural Appropriateness of the UMass Extension Family Nutrition Program (FNP) After-School Nutrition Lessons for Hispanic Children Aged 6-13 Living in Holyoke, Massachusetts

Kimberly Sewright, Exercise Science

A Preliminary Investigation of Gene Expression of C2C12 Myotubes Following In Vitro Simvastatin Application

Dawn Roberts, Exercise Science

Physical Activity in School-Aged Children With and Without Down Syndrome

Karen L. Riska, Exercise Science

Gene Expression Profiling of Skeletal Muscle After Spinal Cord Injury

Rebecca E. Hasson, Exercise Science

Validation of the Omron Walking Style Pedometer®

Rebecca E. Hasson, Exercise Science

Effects of Prior Exercise on Glucose Tolerance in African-American Women

Mariko Tansey Holbrook, Exercise Science

Variability of Creatine Kinase Increase and Strength Loss in Men and Women Following Eccentric Exercise

Joseph Seay, Exercise Science

Coordination Variability in the Gait Transition Region: Effects of Varying Speed Intervals

Cynthia F. C. Hill, Exercise Science

Effects of simvastatin and CoQ10 on an in vitro model of skeletal muscle

Jennifer Atkinson Griffith, Epidemiology

Association between dietary glycemic index, glycemic load and high-sensitivity C-reactive protein

Anita Christie, Exercise Science

Evidence of Self-Sustained Motoneuron Firing in Young and Older Adults

Jebb Remelius, Exercise Science

Postural Control in Women with Multiple Sclerosis

2005 RESEARCH DAY SPEAKER



Kristine Gebbie, Dr.PH,RN

Individual Genius or Many Minds Make Light Work

2005 RESEARCH DAY AWARD RECIPIENTS

First Place: Maria L. Urso, Exercise Science

Second Place: Kristin Lefebvre, Nutrition

Thirds Place: Dawn Roberts, Exercise Science

FACULTY PUBLICATIONS FROM 1/1/05 TO 5/1/05

Communication Disorders

Albyn Davis:

Davis, G.A. (2005). PACE Revisited. *Aphasiology*, 19, 21-38.

Karen Helfer:

Helfer, K.S., Freyman, R.L. (2005). The Role of Visual Speech Cues in Reducing Energetic and Informational Masking. *Journal of the Acoustical Society of America*, 117, 842-849.

Exercise Science**Stuart R. Chipkin:**

Chipkin, SR., Black, SE., Braun, B. The Balance Between Exercise and Diet: Impact on Insulin Sensitivity. *Current Opin Endocrinal Diabetes*, 12:152-156, 2005.

Priscilla Clarkson:

Clarkson, PM., Devaney, JM., Gordish-Dressman, H., Thompson, PD., Hubal, MJ., Urso, M., Price, TB., Angelopoulos, TJ., Gordon, PM., Moyna, NM., Pescatello, LS., Visich, PS., Zoeller, RF., Seip, RL., Hoffman, EP. ACTN3 Genotype is Associated with Increases in Muscle Strength and Response to Resistance Training in Women. *J Appl Physiol*. 2005 Feb 17; [Epub ahead of print].

Clarkson, PM., Hoffman, EP., Zamburski, E., Gordish-Dressman, H., Kearns, A., Hubal, M., Harmon, B., Devaney, JM. ACTN3 and MLCK Genotype Associations with Exertional Muscle Damage. *J Appl Physiol*. 2005 Apr 7; [Epub ahead of print]

Nutrition**Elena Carbone:**

Quintilliani, L., Carbone, ET. Impact of Diet-Related Cancer Prevention Messages Written in Cognitive and Affective Formats on Message Reactions, Stage of Change, and Self-Efficacy. *Journal of Nutrition Education and Behavior*, 37(1):20-26, 2005.

Public Health**David Buchanan:**

Buchanan, D. Quality of Life Assessment in the Symptom Management Trials of the National Cancer Institute-supported Community Clinical Oncology Program. *Journal of Clinical Oncology* 23(3): 591-8, 2005.

Elizabeth Bertone-Johnson:

Bertone-Johnson, ER. Epidemiology of Ovarian Cancer: a Status Report. *Lancet* 2005;365:101-2.

Hooven, F., Pekow, P., Gelbach, S., Bertone, E., Benjamin, E. Follow-Up Treatment of Osteoporosis After Fracture. *Osteoporosis Int* 2005; 16:296-301.

Ma, Y., Bertone-Johnson, ER., Stanek, EJ Jr., Reed, GW., Hebert, JR., Cohen, NL., Olendzki, BC., Rosal, MC., Merriam, PA., Ockene, IS. Eating Patterns in a Free-Living Health U.S. Adult Population. *Ecol Food Nutr* 2005; 44:37-56.

Andrea Foulkes:

Foulkes, AS., Reilly, M., Zhou, L., Wolfe, M., Rader, DJ. (2005). Mixed Modeling to Characterize Genotype-Phenotype Associations. *Statistics in Medicine*, 24:775-789.

Bastone, L., Reilly, M., Rader, DJ., Foulkes, A.S. (2005). MDR and PRP: A Comparison of Methods for High-Order Genotype-Phenotype Associations. *Human Heredity*, 58:82-92.

DeGruttola, V., Foulkes, AS. (2005). Validation and Discovery in Markov Models of Genetics Data. *Statistical Applications in Genetics and Molecular Biology*, 3(1):art38.

Penny Pekow:

Hooven, F., Gehlbach, S., Pekow, P., Bertone, E., Benjamin, E. (2005). Follow-Up Treatment for Osteoporosis after Fracture. *Osteoporosis International* 16(3):296-301. Epub 2004 Jun 17.

Susan Sturgeon:

Baik, I., Devito, WJ., Ballen, K., Becker, PS., Okulicz, W., Liu, Q., Delpapa, E., Lagiou, P., Sturgeon, S., Trichopoulos, D., Queensberry, PJ., Hsieh, CC. Association of Fetal Hormone Levels with Stem Cell Potential: Evidence for Early Life Roots of Human Cancer. *Cancer Res.* 2005 Jan 1; 65(1):358-63.

Maria Idali Torres:

Torres, M.I. Organizing, Education and Advocating for Health and Human Rights in Vieques, Puerto Rico. *American Journal of Public Health* 95(1):9-12; 2005