

# BiosRhythms

GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Department of Biostatistics

## Kosorok awarded \$12.5 million by NCI, leads research to improve clinical trials for cancer treatments



*Dr. Michael Kosorok*

Michael Kosorok, PhD, professor and chair of UNC's biostatistics department, is leading researchers from UNC, Duke University, and N.C. State University to find ways to design more powerful clinical trials for cancer treatments. "Statistical Methods for Cancer Clinical Trials," a \$12.5 million, five-year grant from the National Cancer Institute (NCI), is one of the largest grants of its kind to be awarded by the NCI. The project is led by three principal investigators -- Kosorok, lead principal investigator on the project; Marie Davidian, PhD, William Neal Reynolds Professor of Statistics and director of the Center for Quantitative Sciences in Biomedicine at N.C. State; and Stephen L. George, PhD, professor of biostatistics at Duke. The project will support a major collaborative, multidisciplinary effort that takes advantage of the unrivaled concentration of leading statistical and clinical experts at the three institutions and the two highly-rated cancer centers at UNC and Duke.

The leadership team also includes co-principal investigators Joseph G. Ibrahim, PhD, Alumni Distinguished Professor of biostatistics and director of the Center for Innovative Clinical Trials at UNC; Sin-Ho Jung, PhD, professor of biostatistics at Duke; and Anastasios A. Tsiatis, PhD, Drexel Professor of Statistics at N.C. State.



*Dr. Joseph Ibrahim*

The principal investigators, co-principal investigators, and project leaders Jianwen Cai, PhD, professor and associate chair of biostatistics and Danyu Lin, PhD, Dennis Gillings Distinguished Professor of Biostatistics, form the steering committee that will provide overall guidance for the project.



*Dr. Jianwen Cai*



*Dr. Danyu Lin*

Other UNC co-investigators are based in the departments of epidemiology and health policy and management (also in the Gillings School of Global Public Health); the departments of computer science and statistics and of operations research (College of Arts and Sciences); the Department of Medicine (School of Medicine); the Eshelman School of Pharmacy; and the UNC Lineberger Comprehensive Cancer Center.

The project's statistical researchers and clinical investigators will apply state-of-the-art statistical techniques to address the challenges for trial design and analysis posed by complex clinical endpoints, diagnostic markers, personalized medicine, and sequential courses of treatment in melanoma, breast, colorectal, lung and prostate cancer settings. The goal is to dramatically improve the efficiency of the cancer clinical trial process and ultimately to improve the health and longevity of cancer patients.

More than \$2.5 million from the National Cancer Institute will fund the first year of the project.

## MESSAGE FROM THE CHAIR



*Dr. Michael Kosorok,  
Professor and Chair*

This past year has been very eventful for the department. We have accomplished many things and have pondered our past and considered the future. Much has happened in the state of North Carolina, our country and in the world. The times continue to be challenging economically. Through all of this, I continue to be amazed at everything our faculty, staff, students and alumni accomplish. We continue to thrive in our research and educational productivity, and we have much to be optimistic about as we look to the future. I believe that things will continue to get better. I will now discuss some of the highlights of 2010.

In March, we held an inspirational memorial for Dr. Barry H. Margolin, former chair of biostatistics from 1987 to 1997, with many distinguished speakers and guests, including Barry's wife Constance (Connie) Margolin. In August, a special invited scientific session in memory of Dr. Margolin was held during JSM in Vancouver. In April, Dr. Antonio Sanhueza, who received his PhD from the Department of Biostatistics in 2000, was the 2010 recipient of the James E. Grizzle Distinguished Alumni Award. He is on the faculty of the Departamento de Matemática y Estadística at the Universidad de La Frontera, Temuco, Chile. In May, the 2010 Greenberg Lecturer, Professor Marvin Zelen from Harvard, gave a series of very interesting lectures on using biostatistical modeling for understanding of and early detection of disease. In June, the department held a moving reception and tribute to honor and recognize Professor Larry Kupper at his retirement for his many years of distinguished and dedicated service to the department.

This past year was successful for our students and for student recruitment. We welcomed 45 new graduate students and 12 new undergraduate students in fall 2010, bringing our total number of students to 153 graduate students (89 PhD, 29 DrPH, 24 MS and 11 MPH) and 23 undergraduate students. We want to express thanks for the excellent work of the admission committees, chaired by Chirayath Suchindran (graduate admissions) and Jane Monaco (undergraduate admissions), and also the students and staff members who helped. We also wish to acknowledge doctoral students Se Hee Kim, who received an ENAR Distinguished Student Paper Award; Yingqi Zhao, who received an ASA Young Investigator's Award; Jaeun Choi, who received an ASA Biometrics Section Byar Award for student paper travel; and Dustin Long, who received the 2010 UNC Tanner Teaching Assistant Award for Excellence in Undergraduate Teaching.

We acknowledge bachelor's degree students Sendhilnathan (Hari) Ramalingam, who received a prestigious Goldwater Scholarship, and William K. (Keith) Funkhouser III, who received a 2010 UNC Phillips Ambassador Award to study abroad in Asia. Moreover, several of our brave students joined with a few staff and faculty members (13 people all together), to complete the Outer Banks Half-Marathon in November. We also were thrilled to learn that one of our recent graduates, Jean Orelie, DrPH, president and chief executive officer of SciMetrika LLC in Durham, N.C., had been selected as one of this year's "Top 10 Black Entrepreneurs" by *Inc.* magazine.

We were very fortunate to add several new faculty members to our ranks. Rosalie Dominik, DrPH, is a research associate professor who comes to us from the UNC School of Medicine, and Daniela Sotres-Alvarez, DrPH, is a research assistant professor who recently graduated from our department. Both Rosalie and Daniela will be working primarily in our Collaborative Studies Coordinating Center.

Our faculty members continue to be exceptionally productive in research and service. Professor Pranab K. Sen received the highly prestigious ASA Samuel S. Wilks Award for 2010. We also congratulate associate professor Amy Herring for becoming president-elect of ENAR as of January, 2010, and also congratulate her for receiving the McGavran Award for Excellence in Teaching in May from the Gillings School of Global Public Health.

We congratulate Associate Professor Donglin Zeng for becoming a fellow of the Institute of Mathematical Statistics (IMS). Other IMS fellows in the department include Drs. Sen (1968), Lin (1999), Ibrahim (2000), Kosorok (2007) and Cai (2009), as well as faculty members with joint appointments in the department, Drs. Marron (1989), Smith (1991) and Nobel (2008). In addition, Drs. Amy Herring, John Preisser and Haibo Zhou became fellows of the American Statistical Association. It is extremely rare for any department of biostatistics or statistics to have three new ASA Fellows in one year.

As in past years, faculty members and students have published many excellent papers in top-tier journals. Several new research grants were also awarded to the department this year. I would like to mention a few of these specifically. Dr. Lloyd Edwards co-authored an influential paper appearing in the June 16, 2010 issue of the *Journal of the American Medical Association* which provided insight into why black patients with lung cancer have surgery less often than whites. The Survey Research Unit designed and conducted a poll of citizens in North Carolina in March and April and found that smoke-free policies are supported by a large majority. Our department also received a prestigious program project (P01) grant from the National Cancer Institute to develop statistical methods for clinical trials and personalized medicine. The grant is a collaboration between UNC, N.C. State and Duke, and provides \$2.5 million funding per year for five years.

More details on these and other grants -- as well as more information on many other departmental achievements -- can be found in this newsletter, which I invite you to enjoy.

With warmest regards,  
Michael

## FROM THE REGISTRARS

Hello, everyone! Thanks for patiently awaiting the arrival of *BiosRhythms*. We are more than happy to provide another year's worth of exciting news for you to enjoy. A lot has been going on around here this year.

Alumni are the reason we are as well known as we are, and your accomplishments have laid the foundation for us to continue building our strong department. For that, we must say a heartfelt "thank you." You contribute in so many ways -- by sharing your experiences in the department with a prospective graduate student, offering a graduate research assistantship or summer internship to a current student looking for practical experience, or offering financial support to the department to help meet a student's needs. Your kindness and generosity are appreciated more than you can imagine.

As usual, we hosted a UNC biostatistics alumni reception at ENAR this year and will also be holding one at ASA. Both ENAR and ASA's 2011 meetings are in Miami. It was wonderful seeing so many of you at the ENAR reception, and we look forward to the ASA alumni reception. Plans for the ASA reception will be posted on the Web when finalized. Visit our website ([www.sph.unc.edu/bios](http://www.sph.unc.edu/bios)) to keep up with all current events and plans. The receptions are a great way to catch up with friends and colleagues.

Speaking of catching up, be sure to check out Alumni News (p. 4) to see who's doing what in the career world, whose family is growing, who's getting hitched and everything else in between. If you have news, we will look forward to printing those tidbits in the next issue. Email them to [mhobgood@bios.unc.edu](mailto:mhobgood@bios.unc.edu). While we're on the subject of catching up and keeping in touch, let us remind you to visit our alumni Web page ([www.sph.unc.edu/alumni/alumni\\_directory.html](http://www.sph.unc.edu/alumni/alumni_directory.html)) and update your contact information. You don't have to be a member to update your information, but you are welcome to join the School's Alumni Association and contribute to the Department of Biostatistics, the School or the University. If you are interested in donating to the department directly, contact Stephen Couch ([stephen\\_couch@unc.edu](mailto:stephen_couch@unc.edu)). We appreciate all the support from our alumni and friends.

That should about do it for us in this issue! You'll hear more from us by e-mail closer to our events. Please feel free to send an e-mail to say "hi." We love to hear from you all. We hope your holidays were joyous and your new year is a happy and prosperous one.

Warmest regards,  
Melissa and Veronica

### Alumni Mentoring Listserv

The department is planning to establish an email network of alumni so that we can provide prospective applicants, applicants and newly admitted and current students an opportunity to converse with those who have completed the program and are in the workforce. More and more frequently, we receive this request. If you are interested in being a participant, please contact Melissa Hobgood at [hobgood@unc.edu](mailto:hobgood@unc.edu), with "Alumni Mentoring" as the subject, and we will include you in our list of alumni mentors. It would be great for us to be able to list your degree, job title and employer as a means to direct you to the appropriate mentee. Who better to direct these interested students than our alumni? It is because of you and your successes that we have the reputation that we do! We look forward to hearing from you soon.

### INSIDE *BiosRhythms* 2010

- 2 Message from the Chair
- 3 From the Registrars
- 4 Alumni News
- 6 Department Happenings
- 9 Survey Research Unit
- 10 Collaborative Studies  
Coordinating Center
- 12 Department Grants
- 14 Faculty and Staff News
- 20 Student News
- 26 Opportunities for Giving

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*Special thanks to Linda Kastleman!*

## Sanhueza Receives Grizzle Award



*Drs. Antonio Sanhueza and Michael Kosorok*

Dr. Antonio Sanhueza (MPH, 1998; PhD, 2000) is the 2010 recipient of the James E. Grizzle Distinguished Alumnus Award.

Sanhueza received his doctorate under the direction of Dr. Pranab K. Sen. During his time in the department, Sanhueza was the recipient of the Max Halperin Scholarship Award and the International Clinical Epidemiology Network (INCLIN) Scholarship. Upon graduation, he joined the Department of Mathematics and Statistics at the Universidad de La Frontera, Temuco, Chile.

Sanhueza may be the only person in Chile involved in both the academic mathematical statistical program as well as in health sciences. He has an extensive list of publications, with 35 papers published or in press in the past five years alone. He is an active researcher who teaches in both mathematical statistics and biostatistics, he is regarded as one of the most pioneering

researchers in statistical science in Chile.

Sanhueza presented a lecture following the UNC Biostatistics Awards Day ceremony titled, “New Families of Distributions on the Birnbaum-Saunders Model.”

The Grizzle Award was established to honor James E. Grizzle, PhD, former department chair, for his outstanding contributions to biostatistical research and consulting. It is presented to a graduate of the UNC-Chapel Hill Department of Biostatistics in recognition of an outstanding record in the development of new statistical methodology and application of statistical methods to important public health problems. Evidence of an outstanding record is measured by the quality and quantity of peer-reviewed publications in both statistical and subject-matter journals. The intent of the award is to recognize and encourage rising stars in the field of biostatistics.

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## Alumni Notes

John Christopher Crandell was born Nov. 12, 2010 to proud parents Brian and **Jamie Bigelow Crandell** (MS, 2003; PhD, 2006). Weighing in at 8 lbs., 15 oz., Jamie and Brian are having lots of fun getting to know their family’s new addition.

**Ceib Phillips** (MPH, 1990), professor in the UNC School of Dentistry, was named assistant dean for graduate/advanced dental education in May 2010. In her new role, Phillips is responsible for planning and implementing policies, procedures and systems related to the advanced education programs at the School of Dentistry. Before assuming this position, Phillips had served as interim chair of the Department of Orthodontics for 18 months. Phillips continues her clinical research activities related to orthodontic and oral and maxillofacial surgery treatments and patient perception of process and outcomes through funding from NIDCR, industry and the American Association of Oral and Maxillofacial Surgery Foundation.

**Julie Aldridge** (MS, 2008) became the wife of Mr. Thomas Patrick Kelley on Saturday, July 3, 2010. Tom and Julie reside in Newton, Mass.

**Gail Tudor** (DrPH, 1991) is now director of institutional research at Husson University in Bangor, Maine, and is very much enjoying her new role. Gail says it’s “all about assessing how well we are doing using data so I get to play with numbers and write reports. I still work with Betsy Sleath in the School of Pharmacy at UNC and keep up with you all through the grapevine and website.”



## Alumnus Jean Orelie, founder of SciMetrika, rated top entrepreneur

Jean Orelie (DrPH, 2007), president and chief executive officer of SciMetrika LLC in Durham, N.C., has been selected as one of this year's "Top 10 Black Entrepreneurs" by *Inc.* magazine. The magazine delivers advice, tools and services to help business owners start, run and grow their businesses more successfully.

SciMetrika, founded by Orelie in 2001, is a consulting firm that helps federal, state and local health agencies and commercial clients with projects that directly lead to improving human health. The company conducts scientific studies to ascertain the prevalence of diseases and other health conditions, develops and implements health programs, and evaluates such programs.



*Dr. Jean Orelie*

Orelie has more than a decade of experience as a senior statistician and project manager on programs funded by agencies of the U.S. Department of Health and Human Services. In September 2010, his company won more than \$2 billion in contracts to provide support and consultation for the U.S. Centers for Disease Control and Prevention's Center for Global Health and Information and Management Systems.

A native of Haiti, Orelie returned to his homeland after the devastating earthquake in January 2010. He immediately organized a nonprofit team to gather data on victims, with the goal of helping aid organizations more accurately target relief efforts. *Inc.* magazine featured Orelie in its September 2010 issue for his philanthropic efforts in Haiti.

"My connection to Haiti is a big part of my desire to work globally," Orelie said in the *Inc.* interview. "Certainly, there's a greater need there than in the U.S. when it comes to public health. I also feel that I have not paid my dues. I'm living a normal life, in a suburban area with my wife and four kids. I think my work with SciMetrika thus far is a start, but it's just the tip of the iceberg, and I'm looking to give even more."

## Alumni Notes

**Christopher Coffey** (MS, 1996; PhD, 1999) became the director of the Clinical Trials Statistical and Data Management Center at the University of Iowa in August 2010. "We are serving as the statistics core for the newly launched Parkinson's Progression Marker's Initiative study," Coffey says. The PPMI is a landmark clinical study sponsored by the Michael J. Fox Foundation (MJFF). It is being carried out at 18 sites in the United States and Europe. This five-year observational study will seek to identify biomarkers of Parkinson's disease progression. More information about MJFF and the PPMI is available at <http://www.michaeljfox.org/PPMI>.

**George Williams** (PhD, 1972) was one of three recipients of the Founders Award, announced at the awards ceremony during the Joint Statistical Meetings in Vancouver, British Columbia, Canada. Williams was recognized for his active role in ASA chapters, sections, and committees for more than 30 years; for his leadership as a vice president of the ASA; for service on the executive director search committee on two occasions, including once as chair; for dedicated leadership of the Council of Sections Governing Board; and for tireless promotion of partnerships as chair of the SPAIG Committee.

**Sandra Stinnett** (DrPH, 1993) was profiled in a special career issue of *Amstat News* (September 2010). She was included in the section "Statisticians in History." During her time as a biostatistics student at UNC-Chapel Hill, Sandra was the coordinator of the Biometrics Consulting Laboratory (BCL). She also developed and taught a statistical consulting course. She is currently a biostatistician for the Duke Eye Center.

**Niki Arya** (MS, 2003) wrote a piece titled "Statisticians are Heroes?" for the "Master's Notebook" section of the October 2010 *Amstat News*. Arya is a principal statistician at GlaxoSmithKline.

## DEPARTMENT HAPPENINGS

### Save the Date: Upcoming Events in 2011

- \* March 31: 43rd Annual Fred T. Foard Jr. Memorial Lecture, featuring Richard A. Vinroot Jr., MD, MPH, Ochsner Clinic Foundation, New Orleans, Louisiana. Register at [www.sph.unc.edu/foard](http://www.sph.unc.edu/foard).
- \* April 6: Biostatistics Alumni Day, featuring Grizzle Award winner Jean Orelie, DrPH, president and chief executive officer of SciMetrika LLC.
- \* May 12-13: Bernard G. Greenberg Distinguished Lecture Series, featuring Professor Roderick J. A. Little, Richard D. Remington Collegiate Professor of Biostatistics, University of Michigan.
- \* July 31-Aug. 5: JSM - Miami, Florida; alumni reception date TBA.

For more information about upcoming events, please visit our website at [www.sph.unc.edu/bios](http://www.sph.unc.edu/bios).

### Zelen presents 2010 Bernard G. Greenberg Lecture Series



*Drs. Michael Kosorok and Marvin Zelen*

The 2010 Bernard G. Greenberg Distinguished Lecture Series was held May 12 and 13. The speaker was Dr. Marvin Zelen, Lemuel Shattuck Research Professor of Statistical Science, Department of Biostatistics, Harvard University. Zelen presented four lectures over the two-day period, all held in the Blue Cross and Blue Shield of North Carolina Foundation Auditorium in the Michael Hooker Research Center on the UNC campus.

His talks were titled:

*Lecture I: Models in Action: How Simple Models May Lead to a Better Understanding of Observed Phenomenon - Part I*

*Lecture II: Models in Action: How Simple Models May Lead to a Better Understanding of Observed Phenomenon - Part II*

*Lecture III: The Early Detection of Disease and Stochastic Models - Part I*

*Lecture IV: The Early Detection of Disease and Stochastic Models - Part II*

A slideshow of Zelen's lectures can be viewed at [www.sph.unc.edu/bios/greenberg\\_lectures\\_2010](http://www.sph.unc.edu/bios/greenberg_lectures_2010).

Named in honor of Bernard G. Greenberg, PhD, former dean of the School of Public Health and founding chair of the department, the Greenberg Lecture Series is held annually.

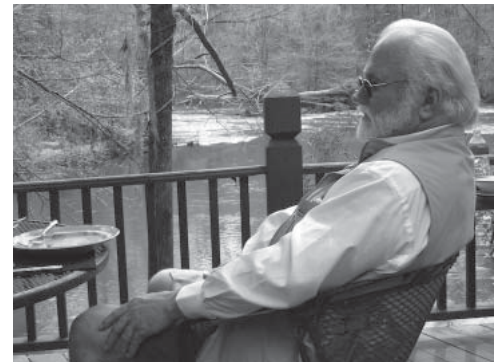
**The Biostatistics Community Fund/Gary G. Koch Scholars Program** funds were awarded to four students this year. **Maria Reynolds** is an outstanding student with a perfect GPA in mathematical sciences from Clemson University. Her lifelong ambition is to combine her math skills with her interest in medicine. **Brazil Allan Hatch** received his Bachelor of Science degree from the University of Arkansas at Little Rock. In his personal statement, Brazil notes, “ I hope one day to participate and lead efforts to gain better understanding of these problems (such as high blood pressure prevalence among African-Americans) and their treatment from a public health standpoint. "**Habtamu Benecha** is an Ethiopian citizen holding a U.S. permanent resident visa. He holds a bachelor’s degree in mathematics (in the “very great distinction” category) and an MS degree in applied statistics (with distinction) from Hasselt University in Belgium. His ultimate goals are to conduct research and to teach others. **Donna Wilson** is an outstanding student with a bachelor’s degree in biology and with additional training in mathematics from the University of Rhode Island. As an employee member of the Occupational Health and Safety Committee of Southwest Airlines for many years, Donna had opportunity to meet regularly with members of management to discuss plans of action around safety concerns and hazards in the workplace.



*Dr. Gary Koch*

## **Karl E. Peace – a friend to the biostatistics community**

Notable among the many donors to the Biostatistics Community Fund/Gary G. Koch Scholars Program is Karl E. Peace. Although not an alumnus of the department at UNC Chapel Hill, his 30-year association with Koch, as collaborator and friend, prompted him to make a gift in Koch’s honor. However, this generous gesture only hints at his commitment and support of the greater biostatistics community.



*Dr. Karl Peace*

Peace’s work includes more than 100 articles and eight books (not including his recent autobiography). He has professional affiliations with numerous organizations and societies over the course of a distinguished career. He has taught or conducted research at Clemson, Duke, University of Michigan, Randolph-Macon College, VCU, Temple, and his home institution, Georgia Southern University.

It is there that Peace chose to establish the Jiann-Ping Hsu College of Public Health in honor of his wife, his collaborator, partner and friend. Shortly after the College was established – the first school of public health in the University of Georgia system -- Hsu passed away, but she was able to see the couple’s dream come true. In addition to establishing the College of Public Health, a Center for Biostatistics and a Biostatistics Library at Georgia Southern, Peace has established 21 educational endowments at five institutions. He also contributes time and funding toward the fight against cancer.

To learn more about Peace and his life, read about his autobiography, *Paid In Full*, at [www.plowboy-press.com](http://www.plowboy-press.com). Proceeds from sales provide additional funding for the Jiann-Ping Hsu College of Public Health at Georgia Southern University.

## DEPARTMENT HAPPENINGS

### Biostatistics Summer Undergraduate Research and Education (BSURE) Program



Alex Vasilyev and Enrique Marino

The Biostatistics Summer Undergraduate Research and Education (BSURE) Program hosted two students in 2010 -- Enrique Marino, a junior at Santa Ana Community College, majoring in mathematics, and Alex Vasilyev, a junior at UNC-Chapel Hill, majoring in mathematics and computer science.

The BSURE program is a part of the UNC Summer Public Health Fellowship Program (SPHF). Together with 30 other SPHF fellows, Marino and Vasilyev spent several weeks participating in workshops and activities to learn about careers in public health. As a part of BSURE, they also learned R language through a series of lectures given by Dr. Bahjat Qaqish and Bios graduate student Joe Rigdon. Additionally, Marino and Vasilyev participated in research projects under the direction of Drs. John Priesser, Fei Zou and Fred Wright.

More information about the UNC Summer Public Health Fellowship Program and BSURE can be found at [www.sph.unc.edu/bios/bsure](http://www.sph.unc.edu/bios/bsure).

**Webcast interviews with Professors Sen and Koch** are available for viewing on our departmental home page ([www.sph.unc.edu/bios/](http://www.sph.unc.edu/bios/)). Professor P.K. Sen, PhD, Cary C. Boshamer Professor in Biostatistics and professor in statistics and operations research, was interviewed by Drs. Malay Ghosh and Michael Schell. Professor Gary Koch, PhD, was interviewed by Dr. Lisa LaVange.

Sen and Koch are both recent recipients of Festschrift volumes. "Beyond Parametrics in Interdisciplinary Research: Festschrift in Honor of Professor Pranab K. Sen," was published by the Institute of Mathematical Statistics. "Special Issue: A Festschrift for Gary G. Koch" is available from *Statistics in Biopharmaceutical Research*, an American Statistical Association journal.

**T**he Pranab K. Sen Distinguished Visiting Professorship in Biostatistics received matching funds from the North Carolina State General Assembly this year as part of the State of North Carolina Distinguished Professorships Matching Grant Program. Professorships help Carolina recruit and retain outstanding faculty members. Income from this endowed fund will help bring an aspiring international scholar in statistical science to UNC -- with preference for those from developing countries -- to teach, learn and interact with faculty, students and the community. The goal is to forge a statistically significant interaction between the strong methodology backgrounds most common abroad and applications to interdisciplinary research already underway at UNC. Ideally, the visiting scholar will return to his or her home country for at least one year upon completing the appointment to further expand the reach of interdisciplinary work begun here. In this way, knowledge integration and proliferation will give new meaning to the methods.



Dr. Pranab Sen



## Los Angeles Homeless Count 2011 Project funded

The Survey Research Unit (SRU) has again joined forces with the Los Angeles Homeless Services Authority (LAHSA) to produce the 2011 Homeless Count (HC11). The SRU was involved in the design and analysis of the 2009 Los Angeles Homeless Count (HC09), which estimated that roughly 43,000 people were homeless when the count took place in January 2009 and that two-thirds of the homeless population was unsheltered. As in HC09, the HC11 project involves developing the appropriate statistical models and methodologies to calculate the numerical estimates and demographic characteristics of homeless people in Los Angeles. In meeting the HC11 objectives, the SRU will face a number of important statistical and practical challenges. One key statistical challenge is the mobility of the study's

target population, which creates a multiplicity problem. A second statistical challenge comes about from the rarity of the event--homelessness is relatively rare (< 1%) in a population of roughly 10 million people. A third practical challenge stems from coordinating various organizational partners involved in HC11. To control field costs, various local organizations (e.g., law enforcement agencies, fire departments, civic/benevolent groups, university students) will provide volunteers to count and interview of homeless individuals in selected locations. The SRU will not only serve as sample design consultants for the unsheltered and sheltered homeless counts conducted by the LAHSA, but will also conduct a fairly large (n=3,000) telephone survey of the general population to measure the portion of homeless individuals living on private property in areas not fit for human habitation. These individuals are overlooked during the January street and shelter counts. The SRU will again be responsible for producing the overall estimates of homelessness in L.A. County, providing valuable information for managing various homeless programs and services within the city and county of Los Angeles. The contract period is Oct. 10, 2010 to Oct. 10, 2011, for the amount of \$394,418. Drs. Robert Agans and William Kalsbeek are the principal investigators.



*Dr. William Kalsbeek*



*Dr. Robert Agans*

## Poll confirms support for North Carolina smoking ban, tobacco tax increase

The Tarheel Health Poll, conducted March 9 to April 8, 2010 by the SRU, revealed that the N.C. ban on smoking in restaurants and bars is supported by 72.2 percent of adults in the state. In addition, a large majority -- 72.1 percent -- said they would support a law that requires all indoor workplaces and public places to be smoke-free, while 25.8 percent opposed such a measure and 2.1 percent were undecided. Proponents were more likely to be nonsmokers, women, and more highly educated. The highest support was among registered voters.

The poll also shows growing support in North Carolina to increase the state's tobacco tax. Statewide polls since 2004 have shown a majority of North Carolinians support increasing the sales tax on cigarettes as a means of generating state revenue, especially when the funds are used to support public health programs and to decrease teen smoking rates. The poll suggests that nearly half (47.3 percent) of the state's residents favor increasing the tax on a pack of cigarettes from the current 45 cents to the national average of \$1.34, with 49.3 percent opposed and 3.4 percent undecided.

"Other studies have shown that raising the price of tobacco products will reduce their use," said Robert Agans, PhD, the study director at the Survey Research Unit. "We conducted this poll to provide more information to decision makers about support of North Carolinians for these policy interventions - including tax increases."

More information about this study is available at <http://sru.sph.unc.edu/tarheelhealth.html>.

## Multiple awards for Catellier

### New ARIC neurocognitive study

Diane Catellier, DrPH, research associate professor of biostatistics at the CSCC, is the principal investigator (PI) from UNC for a national study that will examine whether middle-aged people's physical health influences their risk of dementia later in life. The new neurocognitive study is funded through a four-year, \$26 million grant from the National Institutes of Health (NIH) to five collaborating institutions -- University of North Carolina, University of Mississippi Medical Center, University of Minnesota, and Johns Hopkins and Wake Forest universities. UNC receives \$4.6 million from the grant.

The study aims to determine what role vascular risk factors experienced in middle age may play in the development of dementia (vascular or due to Alzheimer's disease) and cognitive decline in the elderly. The study builds on the CSCC's Atherosclerosis Risk in Communities (ARIC) study, a large epidemiologic investigation of risk factors for heart disease and stroke that has been collecting data for more than 20 years. "Using the new exam data and the wealth of information collected during ARIC's 20-plus years, we expect to find out more about the causes of dementia and less severe symptoms of mild cognitive impairment," Catellier said. "We hope to get a unique view into early physiological changes that eventually culminate in dementia. The findings may help identify at-risk individuals who may benefit from early interventions targeting modifiable risk factors."

Previous findings from the long-term study have indicated the importance of vascular risk factors in predicting decline in cognitive functions such as memory and processing speed. Using brain imaging, researchers also have shown brain changes, such as atrophy and silent strokes, are surprisingly common, even in middle-age adults. They also have found that these brain abnormalities begin to affect cognitive functions as early as middle age.

### Sleep pattern study

Catellier is a subcontract PI for "Sleep Patterns as a Risk Factor for Disease in the Hispanic Community Health Study," an R01 from the National Heart, Lung, and Blood Institute (NHLBI) based at Case Western University (Sanjay Patel, PI). In this proposed ancillary study to the Hispanic Community Health Study (HCHS), a large U.S. community-based cohort of four Hispanic-American groups, investigators aim to fill this gap by collecting objective measurements of sleep patterns in 2,000 study participants who are already undergoing rigorous assessment of a broad range of cardiovascular disease (CVD) risk factors and outcomes.

Capitalizing on the HCHS resource and expanding assessments to include objective sleep pattern measurements, they will provide unique and efficient opportunities to: (1) assess the prevalence of altered sleep patterns in Hispanic-Americans and assess variability among ethnic subgroups; (2) define the importance of psychosocial factors such as socioeconomic status, factors in the home and work environment and mood as well as cultural factors specific to Hispanic-Americans such as acculturation, familism, and beliefs about sleep, in predicting abnormal sleep patterns; and (3) assess the association between poor sleep and relevant cardiovascular health outcomes including obesity, hypertension, diabetes, and heart disease in Hispanic-Americans. The proposed new data and analyses will help clarify the role of sleep disorders in the development of CVD while also providing insight into the factors most responsible for poor sleep habits in the largest minority group in the U.S., thus establishing a framework for the development of strategies to improve sleep as a novel treatment for CVD prevention in this at risk population.

## **SOLNAS subcontract**

This study, titled “Study of Latinos: Nutrition and Physical Activity Assessment Study (SOLNAS),” will be conducted in the Hispanic Community Health Study-Study of Latinos (HCHS-SOL), an NIH/NHLBI-funded study of Hispanics/Latinos in the Bronx (N.Y.), Miami, Chicago and San Diego (Catellier is the subcontract PI). Disparate rates of disease in the Hispanic population will be addressed in the parent study and the biomarker data derived from the proposed study can improve the precision of dietary and physical activity assessments related to differences found in disease rates among Hispanic/Latino sub-groups. The biomarker data from the proposed study will have the potential to calibrate nutrient and physical activity self-report data to increase reliability of disease association analyses. This study is a contract to Dr. Yasmin Mossavar-Rahmani at Albert Einstein College of Medicine at Yeshiva University in Bronx, N.Y..

## **A Busy Year for the CSCC in 2010**

The Collaborative Studies Coordinating Center (CSCC) worked diligently in 2010 on its established studies, as well as on studies added in 2009, including the SubPopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS) and HCHS/SOL’s sociocultural ancillary study. Two of the Center’s Schizophrenia Trials Network ancillary studies, Comparison of Optimal Antipsychotic Treatments for Schizophrenia (COATS) and Metformin in Treatment of Antipsychotic-Induced Weight Gain in Schizophrenia (METS), were completed, as was the data collection phase of the United Arab Emirates-UNC Epidemiologic Health and Indoor Air Quality study. SPIROMICS kicked off study operations with central training in March and enrolled its first patient in November.

“A Comparison of Long-Acting Injectable Medications for Schizophrenia (ACLAIMS)” compares the therapeutic effectiveness, cost-effectiveness, tolerability, and enduring acceptability of two long-acting injectable antipsychotic preparations, paliperidone palmitate (PP) and haloperidol decanoate (HD), over a two-year period of treatment and follow-up. Started in July of 2010, it is the newest addition to the CSCC’s family of schizophrenia-related studies. Rosalie Dominik, DrPH, is the CSCC’s PI.

Also in July, the CSCC began the “Atherosclerosis Risk in Communities Study Neurocognitive Study (ARIC-NCS),” which aims to elucidate factors underlying ethnic disparities in dementia burden and provide the scientific basis for prevention strategies by identifying vascular therapeutic targets, optimal timing for interventions and useful intermediate outcomes. It will add neurocognitive testing and brain imaging to the 23 years of data collected through its parent ARIC study. Diane Catellier, PhD, is CSCC’s PI.

In September, the CSCC partnered with sanofi-aventis on the “Diabetes, Insulin, and Malignancy Study (DIMS),” a large, multi-site retrospective study of insulin users with type 2 diabetes. DIMS is designed to determine if diabetic patients exposed to insulin glargine (a synthetic insulin preparation marketed under the trade name Lantus) have a higher incidence of cancer compared with diabetic patients using human NPH insulin. Data from over 5 million people with diabetes will be collected from administrative and electronic-medical record databases in the United States. The study is administered and coordinated by investigators at UNC-Chapel Hill, Drs. Lisa LaVange from the CSCC, John Buse from the School of Medicine, and Til Sturmer from the Center for Pharmacoepidemiology.

Perhaps the hallmark achievement of the CSCC in 2010 was the development and launch of its fifth generation data management system (currently named TCR-DMS). Hope Bryan, the CSCC’s information technology manager, collaborated with Brent Lamm of the TraCS Institute on this system, which was jointly funded by the CSCC and the UNC School of Medicine CTSA grant, with goals for its use on both CSCC and TraCS multi-site studies. The web-based TCR-DMS is a state-of-the-art system that allows investigators anywhere real-time reporting, tracking, editing, and querying of data. It is suitable for a wide variety of clinical trials, patient registries, and observational studies and satisfies both NIH and FDA requirements for data confidentiality and security of data storage. SPIROMICS and ARIC are the first CSCC studies utilizing the system.

## DEPARTMENT GRANTS

### Zhu awarded \$1.3 million from National Institute of Mental Health



*Dr. Hongtu Zhu*

Hongtu Zhu, PhD, associate professor of biostatistics, has been awarded an R01 grant worth more than \$1.3 million from the National Institute of Mental Health to develop statistical methods for detecting morphological differences of cortical and subcortical structures across time between schizophrenia and autism patients and healthy subjects. The grant is titled “Statistical Analysis of Biomedical Imaging Data in Curved Space.”

The primary goal of this project is to develop, evaluate and implement new statistical tools to jointly model neuroimaging measures, behavioral data and clinical data from cross-sectional and longitudinal studies. Specifically, the following five aims will be examined: (1) multiscale adaptive regression models for imaging data; (2) regression models for manifold-valued imaging data from cross-sectional studies; (3) regression models for manifold-valued imaging data from longitudinal studies; (4) spatial and adaptive clustering methods for manifold-valued imaging data; and (5) software development for all of the statistical tools developed in this project, which, once validated, will be available online to the research community.

Co-investigators include Joseph G. Ibrahim, PhD, Alumni Distinguished Professor of biostatistics, as well as Drs. John Gilmore, Joseph Piven, Dinggang Shen and Martin Styner from the UNC School of Medicine.

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### Carpenter awarded \$2.8 million from NIDDK

Myra Carpenter, senior investigator at the Collaborative Studies Coordinating Center, was awarded over \$2.8 million for a competitive renewal from the National Institute of Diabetes and Digestive Kidney Diseases. The purpose of the study, titled “Clinical Study of Vesicoureteral Reflux in Children,” is to learn whether all children with vesicoureteral reflux (VUR) should be treated with antibiotics.

VUR is a condition in which the flow of urine is abnormally reversed and moves from the bladder into the ureters during urination. The condition, found in 30 percent to 50 percent of children who have had a urinary tract infection (UTI), is thought to increase the risk of kidney damage when children have recurrent UTIs. Currently, many children who are found to have VUR after a UTI are treated with a small daily dose of antibiotics (often for several years) in hope of preventing recurrent UTIs and kidney damage. However, there have been no well-designed research studies to show that this practice is necessary in all children with vesicoureteral reflux.

The Randomized Intervention for Children with VUR (RIVUR) Study is sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases. It will be conducted in 15 specialty clinics across the U.S. and Canada. The study is designed to determine whether daily preventative treatment with a common antimicrobial medication (trimethoprim/sulfamethoxazole, TMP/SMZ), in the setting of prompt evaluation and treatment of UTI, is superior to placebo in preventing recurrence UTI and/or the occurrence of, or worsening, of renal scarring in children with VUR.

The RIVUR Study has the potential to help us understand how to provide the best care for the tens of thousands of children who are diagnosed each year with VUR and UTI.



## Sun receives development award to continue DNA analysis

Wei Sun, PhD, assistant professor of biostatistics, was awarded a Junior Faculty Development Award by the UNC-Chapel Hill Foundation. Sun is using this award to continue the development of statistical methods and software for DNA copy number studies. This software (genoCN) is specifically designed to analyze data from Illumina DNA assays, and will enable Sun to analyze data from Affymetrix arrays as well. With this award, Sun plans to extend genoCN and continue the study of copy number alterations in the following directions: (1) extend to Affymetrix SNP array; (2) to handle ploidy issues in CNA data from tumor tissue; (3) to integrate copy number calls and association studies; and (4) to identify gene expression QTL by modeling the interactions between copy number changes and other factors, such as genotype variations, microRNA amounts, and epigenetic changes.



*Dr. Wei Sun*

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## Hudgens to study vaccine effectiveness



*Dr. Michael Hudgens*

Michael Hudgens, PhD, research associate professor, has been awarded an R01 grant worth more than \$1 million from the National Institute of Allergy and Infectious Diseases to develop statistical methods for quantifying the effects of interventions to prevent infectious diseases.

The main motivating examples for the research are studies of vaccine effectiveness. Two particularly challenging problems in vaccine studies entail assessing (i) indirect effects of vaccination and (ii) vaccine effects on post-infection endpoints. Evaluating (i) is a non-standard problem because indirect effects measure the effect of vaccinating one individual on another individual's health outcome. Assessing (ii) is challenging because infected vaccinees may not be comparable to infected controls. The proposed research will adapt and develop modern causal inference methodology for use in evaluating (i) and (ii). Similar research will be conducted motivated by studies to prevent transmission of HIV from mother to child where issues similar to (ii) arise.

The grant includes a subcontract to Dr. M. Elizabeth Halloran of the Fred Hutchinson Cancer Research Center.

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### Research links:

You can find more information about all of our department's research awards on our website at [www.sph.unc.edu/bios/2010\\_research\\_awards](http://www.sph.unc.edu/bios/2010_research_awards).

Information about the SRU is located at <http://sru.sph.unc.edu>.

Information about the CSCC is located at [www.csc.unc.edu](http://www.csc.unc.edu).

### Zeng awarded fellow status by Institute of Mathematical Statistics



*Dr. Donglin Zeng*

Donglin Zeng, PhD, associate professor of biostatistics, was selected as one of 2010's Institute of Mathematical Statistics (IMS) fellows. He and the other honorees were recognized at the IMS presidential address and awards session at the 73rd IMS annual meeting in Gothenburg, Sweden, in August 2010.

Zeng, who says he is "very honored and thrilled to be elected," was selected for his "fundamental contributions to survival analysis, semiparametric models and statistical genetics, and for excellence in interdisciplinary research, graduate education and professional service."

The IMS is an international professional and scholarly society devoted to the development, dissemination and application of statistics and probability. About five percent of the organization's 4,500 international members have earned the status of fellowship.

"IMS fellowship is a singular and rare honor, and only 13 IMS fellows were selected from around the world this year," said Michael Kosorok, PhD, professor and chair of the Department of Biostatistics. "The award is only given to a very small fraction of professional statisticians who have made a significant, sustained and internationally recognized contribution to statistical methodology and theory. We are thrilled that Dr. Zeng has been given this award."

Other IMS fellows from UNC's school of public health include professors Pranab Sen (1968), Danyu Lin (1999), Joe Ibrahim (2000), Michael Kosorok (2007), and Jianwen Cai (2009). Faculty members with primary appointments in statistics and joint appointments in biostatistics who are IMS fellows include Drs. Steve Marron (1989), Richard Smith (1991), and Andrew Nobel (2008). This total number of IMS fellows is unusually high for any statistics or biostatistics department.

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### Sen wins prestigious ASA Samuel S. Wilks award for 2010

Pranab K. Sen, PhD, Cary C. Boshamer Distinguished Professor of Biostatistics and professor of statistics and operations research, is the 2010 winner of the American Statistical Association's Samuel S. Wilks Award. Sen is the 46th recipient of this award, and the first recipient from UNC-Chapel Hill's Department of Biostatistics. Norman L. Johnson, PhD, UNC professor emeritus of statistics, was awarded the Samuel S. Wilks Award in 1993.



*Dr. Pranab Sen*

The Wilks award recognizes Sen's pioneering, deep, profound and legendary contributions to statistics in general and nonparametrics, and particularly for his selfless and dedicated service to the profession through numerous editorial activities, his novel contributions to the discipline through publishing and editing numerous volumes in statistical sciences and for his outstanding mentoring of several generations of statisticians. Interestingly, Samuel Wilks was the external examiner of Sen's doctoral dissertation, submitted to the Calcutta University in 1961. According to Sen, Wilks' comments were invaluable.

Dr. Sen accepted the award on August 3, 2010 at the 2010 Joint Statistical Meetings (JSM) in Vancouver, British Columbia, Canada.

The Samuel S. Wilks Award, one of the ASA's most prestigious, was established in 1964 to honor Dr. Wilks' memory and distinguished career.

## UNC study helps explain why black patients with lung cancer have surgery

Lloyd Edwards, PhD, associate professor of biostatistics, is co-author of a new UNC study that follows patients with lung cancer. This study is one of the first to suggest why some patients choose not to have life-preserving lung surgery and why such surgery is sought less often by blacks.



Dr. Lloyd Edwards

Studies looking back at patients through insurance claims and cancer registries have shown for years that black lung cancer patients get surgery much less often than whites, but these studies have been unable to explain why. Possible explanations suggested by this study include perceptions by black patients of poor doctor-patient communication. Black patients also were less likely than whites to have primary care providers or other sources of support that could help them either reconsider the decision when they do not fully understand a prognosis or challenge a clinical decision against surgery that was not based on absolute contraindications - complicating conditions that are considered to make surgery inadvisable.

In this prospective cohort study, data was analyzed from 386 lung cancer patients from five communities in North and South Carolina who met full eligibility criteria for lung resection surgery. Each participant, at the time of diagnosis, verbally completed a 106-item survey at the time of enrollment. In addition, researchers reviewed the medical charts of each patient four months after enrollment. The primary outcome they were looking for was whether or not the patient received lung cancer surgery within four months of study enrollment.

Samuel Cykert, MD, associate professor in the UNC School of Medicine, is lead author of the American Cancer Society-funded study, which appeared in the June 16 issue of the *Journal of the American Medical Association*. In addition to those previously noted, study authors include Peggye Dilworth-Anderson, PhD; Michael H. Monroe, MD; Paul Walker, MD; Franklin R. McGuire, MD; Giselle Corbie-Smith, MD, MSc; and Audrina Jones Bunton, MA.

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## Herring, Preisser, Zhou elected as ASA fellows



(left to right): Drs. John Preisser Jr, Amy Herring, Haibo Zhou

Three UNC biostatistics faculty members have been elected as fellows of the American Statistical Association. They are Amy Herring, ScD, professor; John Preisser Jr., PhD, research professor; and Haibo Zhou, PhD, professor.

Herring is recognized for signature leadership in research and public health impact in reproductive health and related areas; for development and implementation of statistical methods on hierarchical models, latent variables, and missing data; for dedication to educating the next generation of biostatisticians and public health professionals; and for outstanding professional service.

Preisser is recognized for biostatistical leadership in multi-disciplinary collaborative research addressing the needs of vulnerable populations, particularly for research leading to improvements in the quality of long term care of the institutionalized elderly; for the development of statistical methodology for correlated categorical data, and for service to the American Statistical Association.

Zhou is recognized for outstanding contributions to statistical methodology, especially in the area of methods dealing with environmental statistics, for collaborative research in reproductive epidemiology, respiratory diseases and environmental medicine, for outstanding teaching, and for service to the profession.

Nominated by their peers, ASA fellows are members of established reputation who have made outstanding contributions in some aspect of statistical work. Given annually, designation as a fellow is a great honor, as the number of recipients is limited to no more than one-third of 1 percent of the ASA membership.

### **LaVange reappointed to health commission**



Lisa M. LaVange, PhD, was reappointed to the N.C. Health and Wellness Trust Fund Commission. LaVange is Professor of the Practice of biostatistics and director of the Collaborative Studies Coordinating Center. The commission works to improve North Carolinians' health by establishing partnerships to address access, prevention, education and research issues.

*Dr. Lisa LaVange*

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### **Biostatistics students, staff and faculty complete the Outer Banks half-marathon**



Several Biostatistics students, staff, and faculty members completed the Outer Banks (OBX) Half-Marathon on Sunday, November 14, 2010. Team BIOS trained for twenty weeks in preparation for this 13.1 mile race. What started as a small group of three enthusiastic first-timers soon grew to more than forty team members, including participants from the public health school's departments of epidemiology and nutrition. In addition, participants from the schools of law, pharmacy and medicine also joined the group.

Several OBX participants ran the Tobacco Trail Half-Marathon this spring, and are looking forward to many fall races in 2011, including the Outer Banks and Savannah, GA half-marathons.

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### **Kosorok appointed to second term as department chair**

Michael Kosorok, PhD, was appointed to a second five-year term as chair of the Department of Biostatistics. Kosorok, professor of biostatistics, came to UNC in May 2006 when he was chosen to chair the department. He is known internationally as a multi-faceted biostatistician who blends both methodological and collaborative research. He also is a member of the UNC Lineberger Comprehensive Cancer Center.

Kosorok has built upon the school's success at collaborating with other departments, universities, government organizations and industry. The \$12.5 million NCI grant for which he is principal investigator includes researchers from UNC, Duke and N.C. State universities.



## Herring honored for teaching, mentoring

The UNC Gillings School of Global Public Health presented Amy Herring, ScD, associate professor of biostatistics, with the prestigious McGavran Award for Excellence in Teaching during the School's 70th commencement ceremony in May 2010.



*Dr. Amy Herring*

Faculty, current and former students have nothing but the highest praise for Herring.

“She is an amazing teacher,” says doctoral student Bethany Horton. “Part of it is her depth of knowledge in the areas being taught, but it’s also the way she communicates and presents new ideas to us and keeps us engaged. The notes she created for classes have become a well-worn resource in my collection of notebooks. ... I can honestly say I cannot imagine what my graduate school experience would be like without her.”

“My experience with teaching has been that as much as we may give to students, they give back even more,” Herring said. “I’m honored to receive the McGavran Award and look forward to continuing to work with the outstanding students at UNC.”

Other McGavran teaching award winners from the department include Drs. Roy Kuebler (1975), David Kleinbaum (1977), Lawrence Kupper (1985), Gary Koch (1992), Pranab Sen (1996) and Jianwen Cai (2004). The McGavran Award for Excellence in Teaching honors Edward G. McGavran, MD, MPH, dean of the UNC School of Public Health from 1947 to 1963 and proponent of “hands-on” field training for public health students. It recognizes career-long excellence in teaching by a faculty member in the UNC Gillings School of Global Public Health.

## Bangdiwala leads clinical trials course in India

Shrikant Bangdiwala, PhD, research professor of biostatistics, conducted a short course on clinical trials at Vellore, India’s Christian Medical College (CMC) this past summer. The week-long program, “Clinical Trials: Design, Analysis, Reporting and Interpretation,” was held at the College’s Biostatistics Resource and Training Center.

Bangdiwala has been instrumental in the development of CMC’s Department of Biostatistics, with collaborations begun in 1998 under the auspices of UNC’s International Clinical Epidemiology Network program. His early efforts included data management training and conducting the first study of intrafamily violence in India, called IndiaSAFE, and led to the establishment of the Biostatistics Resource and Training Center at CMC-Vellore, a unique statistical coordinating center in south Asia, managing several national epidemiological studies and clinical trials.

This is the third time Bangdiwala has been asked to offer the course, driven in great part by demand from pharmaceutical and contract research organizations in south Asia. Participants include medical officers and biostatisticians in charge of developing protocols and managing clinical trials.

### **Kupper co-authors book**

Dr. Lawrence L. Kupper, Emeritus Alumni Distinguished Professor of Biostatistics, has co-authored a new book entitled "Exercises and Solutions in Biostatistical Theory". This text was published in November 2010 by Chapman-Hall/CRC Press and is listed on the Amazon website. Co-authors are Dr. Brian Neelon and Dr. Sean O'Brien, both graduates of the UNC Biostatistics PhD program and both currently employed at Duke University.

Drawn from nearly four decades of Dr. Kupper's teaching experiences in the UNC Department of Biostatistics, this stand-alone textbook presents theoretical statistical concepts, numerous exercises, and detailed solutions that span topics from basic probability theory to statistical inference. The text links theoretical biostatistical principles to real-world situations, including some of the authors' own biostatistical work addressing complicated design and analysis issues in the health sciences.

This classroom-tested material is arranged sequentially starting with a chapter on basic probability theory, followed by chapters on univariate distribution theory and multivariate distribution theory. The last two chapters on statistical inference cover estimation theory and hypothesis testing theory. Each chapter begins with an in-depth introduction that summarizes the biostatistical principles needed to help solve the exercises in that particular chapter. Exercises range in level of difficulty from fairly basic to quite challenging (the latter identified with asterisks). An appendix summarizes needed mathematical results.

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### **Bangdiwala presents at international injury prevention conference**

Shrikant Bangdiwala, PhD, research professor at the CSCC, presented at the 10th World Conference on Injury Prevention and Safety Promotion, held Sept. 21-24 in London.

The conference theme, "Safe and Equitable Communities," was chosen to reflect the disproportionate burden from almost all types of injuries that falls on poorer communities within countries, between countries and even between global regions. The conference program addressed all aspects of injuries and safety.

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### **Dunson wins 2010 COPSS President's Award**

David Dunson, PhD, adjunct professor of biostatistics, is the recipient of the American Statistical Association's 2010 Committee of Presidents of Statistical Societies (COPSS) Award. The COPSS Presidents' Award is given annually by the Committee of Presidents of Statistical Societies to a person under the age of 40, in recognition of outstanding contributions to the profession of statistics. Dunson was recognized for: his wide-ranging and fundamental contributions to the development of parametric and nonparametric modeling within complex Bayesian frameworks; for making significant concurrent scientific progress in machine learning through this development; for use of this methodology in substantive applications, notably in reproductive epidemiology; and for outstanding service to the profession as well as mentoring of students and postdoctoral researchers.

## New faculty



**Daniela Sotres-Alvarez**, DrPH, joins us as a research assistant professor at the Collaborative Studies Coordinating Center. Sotres-Alvarez received both her MS and DrPH degrees in biostatistics from UNC. She received her Bachelor of Science degree in applied mathematics from the Autonomous Technological Institute of Mexico.



**Rosalie Dominik**, DrPH, recently changed her primary appointment at UNC from the medical school to the public health school. She is a research associate professor at the Collaborative Studies Coordinating Center.

## Retired faculty

Lawrence L. Kupper, PhD

## New Staff

*Maria de los Angelas Abreu*, research associate (CSCC)

*Bryce Glasspoole*, technology support analyst (CSCC)

*Rachel Golsby*, research assistant (CSCC)

*Margaret Pomerantz*, research associate (CSCC)

*Robert Tomsick*, applications analyst (CSCC)

## New postdoctoral students

*Carolina Heydrich-Perez*, under the direction of Dr. Amy Herring

*Linglong Kong*, under the direction of Dr. Hongtu Zhu

*Vered Madar*, under the direction of Dr. Fred Wright

*Andrey Shabalin*, under the direction of Dr. Fred Wright

## Service Appreciation

### 5 Years

Lisa LaVange  
Debbie Quach

### 10 Years

Amy Herring  
Danyu Lin

### 20 Years

Evie McKee  
Bahjat Qaqish

### 25 Years

Kinh Truong

### 30 Years

Shrikant Bangdiwala  
Vera Bennett  
Myra Carpenter

## FACULTY & STAFF NEWS

### BIOS Births!

Proud parents Sangwook Kang and Hee Young Seok: “Our new little baby boy, Anthony (no middle name yet) Kang, was born June 27, 2010 - 8 lbs, 4 oz. (3.75kg), 20 inches. Both mom and baby are doing well.”

Congratulations to our wonderful Margaret Polinkovsky, new mom to Mia Anna Rochman, born at UNC Hospitals on Oct. 23, 2010! Both are at home, working on their new roles. Best wishes to Dad, too. Hooray for the whole family!

Welcome to Margot Audrey Church, weighing in at 7 pounds, 7 ounces. Mom and baby are healthy and happy.

Michael Hudgens is very excited to announce the birth of Colin Graham Hudgens on Dec. 29th. Colin was 7lbs., 6oz at birth. Both mom and baby are doing very well.

BIOS doctoral students Dustin and Leann Long are the proud parents of Charles Russell Long, born Aug. 11, 2010. Charlie weighed in at 4 lbs., 11 oz., and is the couple’s first child.

Katherine Laura Farnan was born on Jan. 4, 2010. She weighed 8 lbs., 7 oz., and was 20.5” tall. Little Katie and her parents are doing great.

Tristan Carter Anderson joined Chris, Katie, and big sister Veronica on Jan. 5th, 2010.

Alwin Wufan Liu was born on May 4th to Pengda and Pingping Wu.

Cristina Baraian’s family grew by two little baby feet. Andrea was born Oct. 26, 2010. The family is doing well.

## The Department of Biostatistics Presents 2010 Staff Awards

Tania Osborn is the 2010 recipient of the department’s annual Staff Excellence Award. As an administrative assistant in McGavran-Greenberg Hall, the scope of Tania’s work includes preparing and submitting contract and grant proposals and coordinating speakers for the seminar series. Tania also spent more than a year planning the department’s 60th anniversary event, which included a Festschrift to honor Professor Gary Koch, as well as a breakfast to honor Alumni Distinguished Professor Larry Kupper. We feel very fortunate to have Tania on our staff and are pleased to honor her with this award.



(left to right): Monika Soria Caruso, Tania Osborn, Rick Christian, Dr. Michael Kosorok, Betsy Carretta

The Department of Biostatistics also recognized staff members for achievements during the year through the Star Heels awards program, sponsored by TIAA-CREF. The following employees are our 2010 Star Heels winners: Betsy Carretta, biostatistician (CSCC); Monika Soria Caruso, administrative support specialist (McGavran-Greenberg Hall); and Rick Christian, accounting technician (SRU).



## New students join Biostatistics in fall 2010



*Biostatistics fall 2010 incoming class*

The Department of Biostatistics welcomed the fall 2010 incoming class. Of the 57 new students, 12 are enrolled in the BSPH undergraduate program, 25 in the PhD program, 3 in the DrPH program, 12 in the MS program and 5 in the MPH program.

## Delta Omega Awards

Delta Omega, a National Honor Society which encourages research, provides scholarships, and recognizes achievements in the field of public health, presented awards to the following people in 2010:

**Faculty Award for Outstanding Scholarship, Teaching, and Research:** Lloyd Edwards, PhD

**Book Award for Outstanding Scholarship:** Margaret Polinkovsky

**Alumni Award :** Diane Catellier, DrPH

**Service Award:** Bethany Horton

**Outstanding Academic Achievement Award for Graduating Students 2009-2010:** Arpita Ghosh (PhD), Amy Richardson (MS)

**Undergraduate Award:** Patrick Healy

## 2010 graduates

### May 2010

Guanhua Chen	MS
Patrick Healy	BSPH
Lindsey Allen Ho	DrPH
Steven Irving Schell Hoberman	MS
Katy Frances Jaffee	MS
Molly Jones	BSPH
Karleen Meadows	BSPH
Ritendranath Mitra	PhD
Jessica Overbey	BSPH
Jolynn Pek	MS
Hongsuk Song	BSPH
Daniela Sotres-Alvarez	DrPH

### August 2010

Kai Ding	PhD
Brett Michael Jepson	MS
SeHee Kim	PhD
Hana Lee	MS
Seungeun Lee	PhD
Sam Lendle	MS
Lauren Paynter	MPH
Anne Price	BSPH
Joseph Rigdon	MS
John Carter Schwarz	PhD
Sarah Beth Smith	BSPH
Yiyun Tang	PhD
Vonn Andrew Walter	PhD
Xiaoyan Wang	PhD

### December 2010

Naomi Chana Brownstein	MS
Yijuan Hu	PhD
Larry Charles Michael	MPH
Bosny Pierre-Louis	DrPH
Sendhlnathan Ramalingam	BSPH
Amelia Wallace	BSPH

## Several BIOS students win schoolwide awards in 2010

**Pratyaydipta Rudra** was one of 10 graduate students from UNC Gillings School of Public Health to receive an inaugural Gillings Student Merit Scholarship.

**Angel de Jesus Davalos** and **Pourab Roy** were among 16 recipients of the 2010 UNC Gillings School of Global Public Health's Annual Fund Scholarships.

**Suprateek Kundu** received the UNC Gillings School of Global Public Health's Drs. Benedict and Philmeia Satia Scholarship for 2010, as well as a UNC Gillings School of Global Public Health's Student Travel Award for 2009-2010.

## STUDENT NEWS



This year, the Biostatistics Student Association (BSA) has focused on increasing student-faculty interaction outside of the classroom. In fall 2010, we had a number of socials around Chapel Hill and had good turnout from students and faculty. Dr. Eric Bair opened up his house to students and faculty members for a dessert and game night (see picture below). We are planning another such night for the spring 2011 semester.

In April 2010, our Relay for Life team raised \$1109.88 and received a plaque in recognition of being an “All Star” team. Many students, faculty, staff members, and their families showed their support at this event. This year’s Relay for Life

will be April 8-9th, 2011. If you would like to show your support (even just to cheer on our team’s walkers), please contact [bethjab@email.unc.edu](mailto:bethjab@email.unc.edu).

We have also set up a UNC-Chapel Hill Biostatistics Student Association Facebook page, with photos, information on events and fun websites. Anyone (Facebook user or not), can visit this page at <http://on.fb.me/eL9Bev>, or type UNC Chapel Hill Biostatistics Student Association into the search field.

In spring 2011, we hope to get alumni involved in department and student activities. We have *some* ideas, but feel free to email yours to [awise@bios.unc.edu](mailto:awise@bios.unc.edu). Also, let me know if you would like to get emails for the socials. Stay tuned!

Alison Wise ([awise@bios.unc.edu](mailto:awise@bios.unc.edu)),  
BSA President

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### BIOS students inducted into Phi Beta Kappa

Three of the 12 public health students inducted into Phi Beta Kappa in 2010 are from the department of biostatistics. **Katherine Hunold**, **Sendhilynathan Ramalingam**, and **Rebecca Rothwell** joined the nation’s oldest and most honored of college honorary societies. Fewer than one percent of all college students qualify for membership into Phi Beta Kappa.

## 2010 Student Awards

### Larry Kupper Dissertation Publication Award



*Drs. Sangwook Kang and Michael Kosorok*

**Sangwook Kang, PhD**, was selected as the 2010 recipient of the Larry Kupper Dissertation Publication Award. Kang's dissertation, titled "Statistical Methods for Case-Control and Case-Cohort Studies with Possibly Correlated Failure Time Data,"

dealt with correlated failure time data from retrospective studies.

Two of his dissertation-based papers were published in 2009, one in *Biometrics* and the other in *Biometrika*.

Kang's dissertation research considered two problems, the first of which was motivated by a retrospective dental study. The goal of this study was to evaluate the effect of pulpal involvement on tooth survival. Since survival times of multiple teeth within the same subject could be correlated, appropriate statistical inference should take the correlation into consideration. Kang developed and evaluated inference procedures for marginal hazard models for multivariate failure time data from case-control studies within cohort and applied the proposed methods to the retrospective dental study. The *Biometrics* paper contains this part of the dissertation.

The second problem concerns case-cohort studies with multiple disease outcomes. It is often of interest to compare the effect of certain risk factors on different, usually non-fatal, diseases. Since the survival times from the same subject are correlated, appropriate statistical methods need to be developed. In his dissertation, Kang developed statistical inferences for fitting multiplicative as well as additive models for such data based on an estimating equations approach. He justified the proposed method with asymptotic theories from various areas such as Martingale, modern empirical processes and finite population sampling. This part of his research for the multiplicative model was recently published in *Biometrika*. Kang's advisor was Jianwen Cai, PhD.

The Kupper Dissertation Publication Award is a yearly award established to honor the best doctoral dissertation-based paper appearing in a prestigious biostatistical journal in a given calendar year.

### Elandt-Johnson Award

**ZhengZheng Tang** and **Aaron Jones** were selected to receive the 2010 Regina C. Elandt-Johnson Award for Best Master's Paper in Biostatistics.

Tang's master's paper, titled "Integrated Study of Copy Number States and Genotype Calls using High Density SNP Arrays," focused on constructing a statistical framework (genoCNV) to simultaneously dissect copy number states and genotypes using high density SNP arrays. In her empirical studies, genoCNV and PennCNV have similar performance for identifying CNVs, but genoCNV has the following two advantages: 1) Reporting genotype information within CNV regions with PennCNV can only report CNV estimates; genoCNV can be used to estimate genotypes in the whole genome, not necessarily in the CNV regions; and 2) The parameters in genoCNV are estimated from EM iterations while parameters used in PennCNV are assumed known and fixed. This makes Tang's method more flexible and customizable to datasets from different SNP array platforms. An R package called genoCN was also developed for her paper. Tang's work was supervised by Joseph Ibrahim, PhD.

Jones' master's paper, titled "On the Bias-Altering Implications of Shifts in the Underlying Response Propensity Distribution in Sample Surveys," advances the utility of a recently developed propensity-based model for non-response bias in finite population samples. Jones developed a related result to measure the change in bias due to intentional shifts in the propensities of sample subgroups. The practical importance of this result is that it enables one to quantify the realized reduction in bias when recruitment strategies to increase response propensities are targeted at sample subgroups that tend to have lower propensities, instead of implementing these strategies throughout the sample. Jones' work was supervised by William Kalsbeek, PhD.

## 2010 Student Awards

### Margolin Award

**Li Chen, PhD**, was this year's recipient of the Barry H. Margolin Award for Excellent Doctoral Research. Chen's dissertation research is titled "Model Checking and Predicting with Censored Data" and was written under the direction of Danyu Lin, PhD, and Donglin Zeng, PhD.

A major focus of Chen's dissertation was on semiparametric transformation models for censored data. A question (naturally) arises as to which transformation model should be used for any particular data set and how to assess the adequacy of the model. Chen introduced appropriate residuals for transformation models and constructed graphical and numerical procedures for model assessment based on the cumulative sums of the residuals. Her methods can be used to assess specific model components as well as the overall fit of the model.

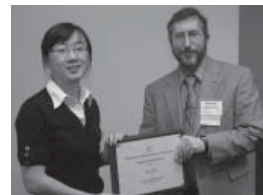
Chen has introduced measures of predictive accuracy based on the model-predicted survival curves associated with different sets of covariate values. These measures can be used to compare the predictive accuracy between different types of regression models or between different sets of predictors under the same type of regression model.

Chen also studied nonparametric and semiparametric estimation of attributable fraction functions for censored event time data. She established the consistency, asymptotic normality and asymptotic efficiency of her estimators using advanced mathematical arguments. Her methods are currently used by genetic epidemiologists in evaluating attributable fraction functions of genetic variants in several large cohort studies.

Chen's dissertation research has yielded several publishable papers that are under revision or in press for premier journals including *Biometrics* and *Biometrika*. Her doctoral dissertation research is very innovative and highly relevant to public health.

### Halperin Award

**Jing Zhou**, a first-year doctoral student in the department, was this year's recipient of the Max Halperin Scholarship Award.



*Jing Zhou and Dr. Michael Kosorok*

The Halperin Award is named in honor of Dr. Max Halperin, a graduate of the UNC-Chapel Hill Department of Statistics.

The award is designed to encourage the development of young biostatisticians.

**Sebastian Teran Hidalgo** received funds from this year's John and Diane Fryer Fellowship, given by the Department of Biostatistics and made possible by contributions from the late John Fryer and Diane E. Medcalf.

**James Xenakis** won the Greenberg Memorial Scholarship, an award offered to outstanding applicants by the Department of Biostatistics as a supplement to a traineeship or graduate research assistantship. This scholarship is named for Bernard G. Greenberg, founding chair of the Department of Biostatistics, and is made possible by generous contributions by the Greenberg family and friends.

**Lu Mao** has been awarded the Mohberg Scholarship, offered to an outstanding applicant to the department and made possible by gifts to the Public Health Foundation by the family of Noel Mohberg.

**Pratyaydipta Rudya** received the Hardison Scholarship in Bioinformatics, offered to an outstanding applicant to encourage studies in bioinformatics in the department. This award is made possible by the gifts of the Hardison family.

**Cristel Rushing** received the GlaxoSmithKline Scholarship, made possible by a GlaxoSmithKline donation to an applicant chosen by the department.



## Zhao wins ASA's Young Investigator Award

Doctoral student **Yingqi Zhao** received the Statistics in Epidemiology Young Investigator Award from the American Statistical Association's Statistics in Epidemiology Section. She presented her research and received the award at the August Joint Statistical Meetings in Vancouver.

## Lee wins IMS Laha Travel Award

**Seunggeun Lee, PhD**, received a Laha Travel Award from the Institute of Mathematical Statistics to attend the Institute's 2010 Annual Meeting in Sweden and present a paper.

## Choi receives JSM Travel Award

**Jaemun Choi** was one of three 2010 recipients of a JSM Biometrics Section travel award. She presented her paper at the JSM in Vancouver, B.C., Canada.

## Best paper awards at JSM and ENAR

**Kai Ding** was the recipient of a JSM Student Paper Award.

**Se Hee Kim, Yijuan Hu** and **Seonjoo Lee** were all student award winners for their presentations at ENAR.

## The following biostatistics students made presentations at the Joint Statistical Meetings of the American Statistical Association in August 2010:

- "Maximum Likelihood Estimation in Generalized Linear Models with Censored Covariate Data," Authors: **Ryan May**, Joseph G. Ibrahim and Haitao Chu
- "Mixture Regression Modeling of Next-Generation Sequencing Data," Author: **Naim Rashid**
- "Analysis of Recurrent Event Data in the Presence of Terminal Events and Missing Covariates," Authors: **Shankar Viswanathan** and Jianwen Cai
- "Joint Analysis of Survival Time and Longitudinal Categorical Outcomes," Authors: **Jaemun Choi**, Jianwen Cai and Donglin Zeng
- "Change Line Classification and Regression," Authors: **Chaeryon Kang**, Fei Zou, Hao Zhu and Michael Kosorok
- "Tests of Trend Between Disease Outcomes and Ordinal Covariates," Author: **Naomi Brownstein**
- "Comparison of the Effectiveness of Three Novel Statistical Methods for Biomarker Selection with Application to an HIV Infection Data Set," Author: **Bosny J. Pierre-Louis**
- "Bayesian Covariance Lasso," Authors: **Zakaria Khondker**, Hongtu Zhu, Joseph G. Ibrahim and Haitao Chu
- "A Quasi-Likelihood Analysis of Patient Satisfaction Following Orthognathic Surgery," Authors: **Dorothy Leann Long**, John S. Preisser, Ceib Phillips and **Dustin Long**
- "Model Selection for Nonnested Linear Mixed Models," Authors: **Che Smith** and Lloyd Edwards
- "A Multivariate Penalized Regression Method for eQTL Mapping," Authors: **Ting-Huei Chen**, Wei Sun and Fred Wright
- "Latent Process Segmentation for Point Process Data," Authors: **David Kessler**, David Dunson, Duke University and Brian Reich
- "Interactive Effects of Alcohol and Tobacco on Head and Neck Cancer: A Visualization Using Bivariate Splines," Authors: **Jennifer JinJin Clark**, Andrew Olshan and Amy H. Herring
- "Comparing Proportions of Extremely Rare Events of Uncertain Status with Applications to Vaccine Safety Studies," Authors: **Hongyuan Cao**, Lisa M. LaVange, Joseph Heyse and Michael Kosorok
- "Analysis of Untyped SNPs: Maximum Likelihood and Single Imputation Methods," Authors: **Yijuan Hu** and Danyu Lin
- "On the Local and Stratified Likelihood Approaches in Single-Index Hazards Model," Authors: **Kai Ding**, Michael Kosorok and Donglin Zeng
- "Disease Surveillance with Multiple Endpoints," Authors: **Yingqi Zhao**, Donglin Zeng, Amy H. Herring, David Richardson and Michael Kosorok

**The following biostatistics students made presentations at the Eastern North American Region of the International Biometric Society meeting in March 2010:**

- “Bayesian Influence Methods with Missing Covariates in Survival Analysis,” Authors: **Diana Lam**, Joseph Ibrahim and Hongtu Zhu
- “A New Variable Selection Method for Genome-wide Association Studies,” Authors: **Qianchuan He** and Danyu Lin
- “Robust Gene Pathway Testing,” Authors: **Hongyuan Cao**, Fred Wright and Michael Kosorok
- “Attributable Fraction Functions for Censored Event Times,” Authors: **Li Chen**, Danyu Lin and Donglin Zeng
- “Sample Size and Power Determination in Joint Modeling of Longitudinal and Survival Data,” Authors: Joseph G. Ibrahim, **Liddy Chen** and Haitao Chu
- “Convergence and Prediction of Principal Component Scores in High-Dimensional Settings,” Authors: **Seunggeun Lee**, Fei Zou and Fred A. Wright
- “Partly Proportional Single-Index Model For Censored Survival Data,” Authors: **Kai Ding**, Michael R. Kosorok, Donglin Zeng and David B. Richardson
- “Number Needed to Treat for Time to Event Data with Competing Risks,” Authors: **Suprateek Kundu** and Jason P. Fine
- “Using Spatiotemporal Regression Methods To Identify Causes of Disease Outbreaks,” Authors: Michael R. Kosorok, **Yingqi Zhao**, Donglin Zeng, Amy H. Herring and David Richardson
- “Joint Models of Longitudinal Data and Recurrent Events with Informative Terminal Event,” Authors: **Se Hee Kim**, Donglin Zeng and Lloyd Chambless
- “Developing Adaptive Personalized Therapy for Cystic Fibrosis by Reinforcement Learning,” Authors: **Yiyun Tang** and Michael R. Kosorok
- “Chemical Toxicity Analysis,” Authors: **Chaeryon Kang**, Fei Zou, Hao Zhu and Michael R. Kosorok
- “A General Framework for Studying Genetic Effects and Gene-Environment Interactions With Missing Data,” Authors: **Yijuan Hu**, Danyu Lin and Donglin Zeng
- “Detecting Disease Outbreaks Using Local Spatiotemporal Methods,” Authors: **Yingqi Zhao**, Donglin Zeng, Amy H. Herring, David Richardson and Michael R. Kosorok
- “Bias Sampling, Nuisance Parameters, and Estimating Equations,” Author: **Kunthel By**

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**Suprateek Kundu** was the inaugural recipient of the department’s Biostatistics International Travel Fund for Students.

**Jung In Kim, Kyung Su Kim** and **Hojin Yang** were all recipients of UNC-Chapel Hill’s University Cancer Research Funds scholarships.

**Natnaree Aimyong** was the recipient of a Royal Thai Government Fellowship.

**Naomi Brownstein** received a National Science Foundation Graduate Research Fellowship.

**William Funkhouser III**, a double major in biology and biostatistics, was awarded a Dunlevie Honors Undergraduate Research Award from the UNC College of Arts and Sciences. He was also selected as one of eight UNC undergraduates who will study in Asia this spring as Phillips Ambassadors.

**Sendhilmathan “Hari” Ramalingam** was awarded a Goldwater Scholarship. Ramalingam is an undergraduate student majoring in biostatistics and biology. He has studied the role of a protein as a marker for cancer stem cells, and plans a medical career involving research and patient care following graduation.

## OPPORTUNITIES FOR GIVING

Gifts to the Department of Biostatistics may be earmarked for one of our gift funds. If you make a gift with no designation, the gift will go into a general fund for the department.

**Biostatistics Alumni Fund** - to support the Barry H. Margolin Dissertation Award for the best doctoral dissertation in the department each year

**Biostatistics Community Fund: Gary G. Koch Scholars Fund** - funds will be disbursed according to varying needs for each student selected

**Biostatistics Global Scholars Fund** - to recruit and retain exceptionally bright students from around the world

**Bernard Greenberg Scholarship Fund** - to provide support for merit-based scholarships for students in the department

**Gary G. Koch Student Travel Funds** - travel funds will be used to allow biostatistics students the freedom to present at national and international conferences and share ideas with other emerging leaders in the field

**John and Diane Fryer Fellowship** - to support a fellowship in biostatistics and to recruit outstanding students

**The C. David and Lucy S. Hardison Endowed Scholarship Fund in Bioinformatics** - to support a scholarship fund in honor of David and Lucy Hardison

**James D. Hosking Memorial Fund for CSCC Professional Development** - to support training and travel expenses for staff to increase their growth and development in the field of clinical trials research

**Kalyani Sen International Student's Scholarship in Biostatistics Endowment Fund** - to enable an international student to receive educational support in their final year of seeking a doctoral degree in the Department of Biostatistics

**Kupper Dissertation Publication Award Fund** - to honor yearly both the doctoral student and the dissertation adviser of the best doctoral dissertation-based paper published in a prestigious biostatistical journal

**Regina C. Elandt-Johnson Master's Paper Award in Biostatistics** - to provide an award in the name of Regina C. Elandt-Johnson to a student in the Department of Biostatistics for the accomplishment of an outstanding master's paper

**Roy Kuebler Fund** - to support junior faculty sabbaticals

**Max Halperin Scholarship Fund** - to provide a fellowship to a deserving first- or second-year doctoral student currently enrolled in the department

**Mohberg Scholarship in Biostatistics** - to support a scholarship fund in honor of the Mohberg family

**Pranab K. Sen Visiting Professorship in Biostatistics** - to support visiting faculty from developing countries

**Smith Anderson Biostatistics Fellowship** - to provide support to a graduate student or teaching assistant in biostatistics

**The Biostatistics Student Travel Fund** - to support biostatistics student travel

**The Biostatistics Staff Development Fund** - to support an annual Staff Award for Excellence in the department

**The Nguyen V. Dat Endowed Scholarship in Biostatistics** - to provide scholarship support to a graduate student in biostatistics

Checks should be made payable to the UNC-Chapel Hill School of Public Health Foundation. So that your gift may be properly credited, please indicate "BIostatISTICS" in the memo line and please indicate further whether it should be applied to one of the gift funds named above.

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**WE** THANK the following individuals and corporations, whose donations provide much-needed funds to support biostatistics graduate education. We are very grateful for your help. This list reflects new gifts and commitments made between January 1, 2010 and February 28, 2011. If you know of a name we have omitted, please let us know and we will make a correction in the next issue of *BiosRhythms*.

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