

BiosRhythms

GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Department of Biostatistics

BSPH in Biostatistics: 35 years of outstanding students

The University of North Carolina's Bachelor of Science in Public Health degree is believed to be the first undergraduate degree in biostatistics in the country. With the first graduate from the program receiving her degree in 1978, the Department has enjoyed almost 35 years of educating outstanding undergraduates in the field of biostatistics.

In 1971, Dr. Bernard Greenberg chaired a self-study committee that made several radical recommendations for UNC's public health school. Among them was a call to "institute baccalaureate programs to serve as a prototype." At the time, undergraduate degrees within public health were uncommon so the recommendation was considered quite innovative.

Departmental minutes reveal that UNC's Department of Biostatistics took steps to develop the undergraduate degree as early as 1972, as they considered "developing a departmental program leading to an undergraduate degree in biostatistics or biometry, presumably including aspects of public health, epidemiology, data processing along with statistical and biostatistical training."

BSPH in Biostatistics continues on p. 6.



Dr. Jane Monaco, director of undergraduate studies, with May 2012 BSPH graduates Benjamin Buck and Katherine Hunold, both attending medical school (at UNC-CH and the University of Virginia, respectively)

"The BSPH degree program is a real gem in our department with a long and storied history. As far as we are aware, it is the oldest and finest such program in the U.S. The students are top notch and the graduates are outstanding and successful contributors to society." – *Michael Kosorok, biostatistics professor and chair*

Dr. Maura Stokes (BSPH 1978, MSPH 1979, DrPH 1986) was the first student to graduate from the BSPH program in Biostatistics in 1978. She is currently senior R&D director at SAS Institute and co-author (with Drs. Charles Davis and Gary Koch) of "Categorical Data Analysis Using the SAS System," the book often used for categorical data analysis courses. She recalls her experience being recruited to the program and the early years as a biostatistics undergraduate:

"After horrifying my chemistry lab partners with a certain carefree approach to our experiments, and being told that I personally would keep them out of medical school, I decided my latest idea of a major wasn't going to work out. So I went to Nash Hall, the guidance center at the time, only to have my jack-of-all trades, master-of-none sensibility be confirmed with various tests. The counselor there had just had lunch with Betty Coulter, who had told her about a new undergraduate program at the School of Public Health. The appeal of the biostatistics major was frankly that it allowed me to pursue areas in which I was interested (math, computer science, statistics) without committing to any specific one. So I signed up. I was the only biostatistics major in that first group, which also included some students in health administration, health education, and nutrition. I am thus part of permanent biostatistics department trivia!



The original biostatistics program was an almost math major with statistical requirements very close to the statistics option of the undergraduate math major at the time, as well as public health electives. Besides keeping me in school, the program exposed me to the School of Public Health and the possibility of graduate education, which I had never considered. Craig Turnbull secured a summer position for me with Gary Koch after my junior year, and well, Gary and I just finished the third edition of our book this summer.

So I'm really glad I spilled the white stuff at the lab and sought out other career options!"

Message from the Chair



Dr. Michael Kosorok,
Professor and Chair

This past year has been very eventful for our faculty, staff, students and alumni, and for the world at large. We, along with many others, continue to face budgetary challenges. Fortunately, as a department, we are doing generally well financially and are thriving in terms of research, teaching, mentoring and funding, and our future is bright. I am amazed by the talent and dedication of our faculty, staff, students and alumni. I will now review some of the highlights of this past year.

In April, Dr. William (Bill) Pan, who received his DrPH from the department in 2003, was the 2012 recipient of the James E. Grizzle Distinguished Alumni Award. He is currently an assistant professor at Duke University and is an expert on spatial distribution of malaria in Latin America. In June, the 2012 Greenberg Lecturer, professor Robert J. Tibshirani from Stanford University, gave a series of very interesting lectures on the lasso approach to model selection and high dimensional data analysis.

This past year was successful for our students and for student recruitment. We welcomed 38 new graduate students and 15 new undergraduate (BSPH) students in fall 2012, bringing our total number of students to 154 graduate students (90 PhD, 29 DrPH, 25 MS and 10 MPH) and 30 undergraduate students. We are thankful for the excellent work of the Admissions Committees, chaired by Chirayath Suchindran (graduate admissions) and Jane Monaco (undergraduate admissions), and also the students and staff who helped recruit this outstanding group of students.

Congratulations to our department's five winners of the 2012 Eastern North American Region (ENAR) of

the International Biometrics Society's Distinguished Student Paper awards. They were recognized alongside 15 other students at the 2012 ENAR spring meeting in Washington, D.C. Our department had more recipients of this award than any other department anywhere in the country. Soyoung Kim was selected as one of the five winners of the 2012 Health Policy Statistics Section Student Paper Award at the Joint Statistical Meetings (JSM) of the American Statistical Association. Yingqi Zhao was also first author on a paper in *Biometrics* that received the Best Paper in Biometrics award for a paper published in 2011.

Emily Butler was awarded a National Science Foundation (NSF) Graduate Fellowship in biostatistics. Undergraduates Courtney Sanford and Alexander Christian have been recognized by UNC as an Innovation Scholar and a Buckley Service Scholar, respectively.

We were very fortunate to have several faculty promotions and new faculty appointments, which you can read about in the faculty news section. We were also fortunate to recruit Dr. Sonia Davis from Quintiles as our new director of the Collaborative Studies Coordinating Center (CSCC). We thank Drs. David Couper and Jianwen Cai for their service as interim directors of the CSCC. Professor Jianwen Cai has been appointed to the newly created position of vice chair, while professor Amy Herring has been appointed as the new associate chair.

Our faculty members continue to be exceptionally productive in research and service. We congratulate professor Amy Herring for receiving the prestigious Spiegelman Award of the American Public Health Association. Professors Danyu Lin and Gary Koch are past recipients of this award. We also congratulate professor Pranab K. Sen for receiving an honorary doctor of science from the University of Calcutta.

Associate professor Michael Hudgens was named an honorary fellow of the American Statistical Association, bringing the total number of ASA fellows in our department to 14, and Professor Joseph Ibrahim was appointed as coordinating editor of the *Journal of the American Statistical Association (JASA)* and editor of *JASA's* section on Applications and Case Studies.

As with past years, the faculty and students have been successful at publishing top tier papers and obtaining grants. I will only mention a few of these here. Adjunct associate professor Mathew Nelson was first author on "An Abundance of Rare Functional Variants in 202 Drug Target Genes Sequenced in 14,002 People," published in *Science*. Assistant professor Yun Li and doctoral student Zhengzheng Tang were co-authors. The NIEHS research training grant, joint with biostatistics, epidemiology, and environmental sciences and engineering, led by professor Amy Herring, has been renewed for the eighth time. The grant was first awarded to Dr. Bernard Greenberg in 1971. The first major clinical publication from the Hispanic Community Health Study/Study of Latinos, coordinated by the CSCC, appeared in the November 7 *Journal of the American Medical Association*. The study showed significant differences in risk factors among different subgroups of Hispanics/Latinos.

More details on many of these accomplishments as well as many other departmental achievements can be found later on in this newsletter, which I invite you to enjoy.

With warmest regards,

Michael

Message from Student Services

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.

We welcomed 38 new students to the department this year, after the admissions committee worked tirelessly to review the more than 300 applications it received. To our alumni, affiliates and friends of the department - your willingness to share your experiences, pride and knowledge with these young people who inquired of you about our department is invaluable, and for that we extend a heartfelt "thank you." We are widespread and well known because of our alumni and friends.

As usual, we will host UNC Biostatistics alumni receptions at ENAR and ASA again this year.

ENAR will meet in Orlando, Florida, this spring, so save the date – Monday, March 11 – for a departmental reception. This is in the planning stages and more information will be made available when details are finalized. You won't see us listed in the online program for ENAR. We'll send a reminder email about the reception closer to the date.

Plans for the ASA reception will also be posted on the Web when finalized. Visit our website to keep up with all current events and plans (www.spb.unc.edu/bios). These get togethers are a great way to catch up with friends and colleagues.

Speaking of catching up, be sure to check out alumni news to see who's doing what in the career world, whose family is growing, who's getting hitched and



Veronica Stallings (left) and Melissa Hobgood

everything else in between. If you have news, we will look forward to printing those tidbits in the next issue. Email them to mbobgood@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.spb.unc.edu/alumni/alumni_directory.html) and update your address and professional 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). We appreciate all the support from our alumni and friends.

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

Warmest regards,

Melissa and Veronica

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Department of Biostatistics
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EDITOR

Monika Soria Caruso
919-966-7268
E-mail: mcaruso@bios.unc.edu

EDITORIAL BOARD

Jianwen Cai, Stephen Couch, Amy Herring, Evie
McKee and Chirayath Suchindran

GRAPHIC DESIGN

Monika Soria Caruso

CONTRIBUTING WRITERS

Monika Soria Caruso, Forrest Demarcus, Linda
Kastelman, Jane Monaco, and Chirayath
Suchindran

Alumni news



Dear fellow BIOS alumni and friends,

I hope this issue of *BiosRhythms* finds you well. It has certainly been a busy year for the School's Alumni Association! Four new regional chapters have emerged and made significant headway since last year. New York, Atlanta, Boston, and the greater Washington, D.C. area all have core committees making plans for the upcoming year. For those of you in those areas, keep an eye out for announcements regarding upcoming events, including social activities, community service, family fun and career networking.

We can't help but associate this recent surge in alumni activity with the installment of our own Priscilla Guild, MSPH '71 (BIOS) as the new president of the School's Alumni Association. She is returning to this group again after her original stint as alumni president in 1991. Guild began her second tenure as president on June 30, 2012 and we look forward to her leadership and guidance as we prepare to make the most of our extensive alumni network.

Similarly, Delton Atkinson, MPH '76 (HPAA) and MPH '79 (BIOS) recently began his tenure as chair of the Public Health Foundation Board, the group that provides fiduciary oversight to the assets of the Public Health Foundation, a 501(c)3 organization that manages the School's endowments and charitable gifts. Delton moved back to North Carolina this year to better serve the Board, but also to advance the discussion of diversity and inclusion School-wide.

Moreover, Paula Brown Stafford, BSPH '86 and MPH '92 (BIOS) was unanimously chosen as vice president of the Public Health Foundation Board to serve a two-year term. Following that she will succeed Delton Atkinson as president-elect. We welcome her leadership in this role and thank her for the many ways she assists the School and the department of biostatistics.

Congratulations to all three of these distinguished BIOS alums. We've got friends in high places!

As graduates of the department, you are automatically members of the School's Alumni Association, which was chartered in 1974 and does not charge dues. The Alumni Association benefits us all. This newsletter, along with our departmental receptions at the Joint Statistical Meetings and ENAR are underwritten, in part, by the Alumni Association; these semi-annual gatherings are a great way to reconnect with the department and your friends and colleagues.

We welcome you to stay in touch with us and to visit when you are able. We also encourage everyone to support the department at whatever level feels comfortable to each of you. You will find information on former classmates and colleagues using our searchable database – Alumni Online Community – at the Alumni Association's website: www.sph.unc.edu/alumni.

Very best wishes to all,

Todd Schwartz (MS 1998, DrPH 2004)
Research Assistant Professor
UNC Department of Biostatistics

'70s

Priscilla Guild (MSPH 1971) began a two-year term as president of the School's Alumni Association this past July. This is Priscilla's second time serving as president of the organization; she also served in the early '90s.

Chirayath "Suchi" Suchindran (MSPH 1968, PhD 1972) celebrated his 70th birthday in May. Here in the department, we had a wonderful time celebrating Suchi's day that lasted until the last balloon finally deflated.

Suchi and his wife Hamsa also welcomed their first granddaughter,

Lila Rao Suchindran to the world in August. These proud grandparents are expecting a grandson in January 2013.

Bill Lyon (MSPH 1974) celebrated retirement as of August 31, 2012 after 30 years of service at Richmond Virginia Medical Center. His plan is to spend more time with his wife and six grandchildren.

Not to be idle, he also plans to fit in volunteering in his community.

'80s

Lisa LaVange (PhD 1983), former professor of biostatistics and director of the Collaborative Studies Coordinating Center, was recognized by the Chronic Obstructive Pulmonary Disease (COPD) Foundation in New York on Dec. 8 for her outstanding contributions in COPD research. LaVange left UNC in September and now serves as director of the office of biostatistics in the U.S. Food and Drug Administration's Center for Drug Evaluation and Research.

'90s

Alula Hadgu (DrPH 1993) was lead author of an article that received the 2012 Charles C. Shepard Science Award in the Data Methods and Study Design category. "Evaluation of Screening Tests for Detecting Chlamydia Trachomatis Bias Associated with the Patient-Infected-Status Algorithm" was published in the January 2012 issue of *Epidemiology*; co-authors were Nandini Dendukuri and Liangliang Wang.

Established in 1986, the CDC/ATSDR Charles C. Shepard award was named in honor of Dr. Charles C. Shepard, MD, the internationally recognized microbiologist who was chief of the Leprosy and Rickettsia Branch at CDC for more than 30 years, until his death on February 18, 1985. The Charles C. Shepard Science Awards recognize excellence in science at CDC and ATSDR. An award is presented for scientific publications in the following areas: assessment and epidemiology, prevention and control, and laboratory and methods. An award is also presented for lifetime scientific achievement.

Sonia Davis (PhD 1994) has been appointed as the new director of the Collaborative Studies Coordinating Center and was also appointed as Professor of the Practice of biostatistics. You can read more about Sonia's new role in the department on page 8.

As of March 2012 and by unanimous endorsement, **Stuart Gansky** (BSPH 1988, MS 1992, DrPH 1996) was appointed as the next incumbent of the John C. Greene Endowed Chair in Primary Care Dentistry in the Department of Preventive and Restorative Dental Sciences (PRDS), University of California San Francisco (UCSF) School of Dentistry.

Gansky, a professor in the Division of Oral Epidemiology & Dental Public Health in the Department of PRDS, has been part of UCSF's faculty since 1996 where he has authored more than 90 publications, is course director of Scientific Methods and Critical Thinking for pre-doctoral dental students, and mentors several faculty members who teach primary care dentistry there. Dr. Gansky is also associate director of the NIDCR-funded UCSF Center to Address Disparities in Children's Oral Health (known as CAN DO), among other duties.

As head of the Parkinson's Progression Markers Initiative (PPMI) statistics core, **Christopher Coffey** (PhD 1999) is no stranger to the Michael J. Fox Foundation (MJFF), which funds the landmark PPMI biomarker study. Coffey has since taken on an additional role – as fundraiser – by joining the MJFF's Team Fox and running marathons to raise money for awareness of the efforts and necessity of the important research being done by the Michael J. Fox Foundation. Way to go Chris!

In July 2012, **Tonya S. King** (MS 1995, PhD 1999) was promoted to professor of biostatistics in the Department of Public Health Sciences at Penn State University College of Medicine. King

still has Florida ties and telecommutes part time. And of course, she is still a Tarheel at heart!

'00s

F. DuBois Bowman (PhD 2000) was elected as a Fellow of the American Statistical Association. He was recognized for "outstanding statistical research contributing to the advancement of biomedical imaging statistics, for excellence in promoting diversity in the field of statistics, and for extensive service to the profession." The designation of Fellow has been a superlative honor in ASA for nearly 100 years. Bowman is also ENAR president-elect.

Following 10 years of service in the pharmaceutical industry, **Michael Jiroutek** (DrPH 2002) has returned to academia as an assistant professor in the Department of Clinical Research in the College of Pharmacy and Health Sciences at Campbell University in Buies Creek, N.C. Jiroutek teaches biostatistics to students in the bachelor of science in pharmaceutical sciences (BSPS) program, as well as those in the master's degree programs for clinical research and pharmaceutical sciences. He also provides statistical support for master's degree students' research projects. Go Dr. Jiroutek and Go Camels!

Matthew Gurka (PhD 2004) has been appointed interim chair of the Department of Biostatistics in the new School of Public Health at West Virginia University (WVU). WVU's public health school became official in July of 2012. The new biostatistics department has hired four new faculty members in the past year, including 2012 UNC Biostatistics graduate **Dr. Dustin Long**. Gurka is also the director of the Clinical Research Design, Epidemiology, and Biostatistics Program of the West Virginia Clinical and Translational Science Institute (WVCTSI).

Alumni news

The WVCTSI was recently awarded a 5 year, \$19.6 million grant from the NIH, which includes an additional \$33.5 million from partners across the state of West Virginia.

'10s

Bingqing Zhou (PhD 2010) welcomed her second son, Daniel to the world on December 25, 2011.

Tyler Bardsley (MS 2011) and his wife Michelle welcomed their daughter Caroline to the world this year.

Congratulations to Bingqing and the Bardsleys on their newest editions!

In memoriam

James Abernathy



Dr. James R. Abernathy (PhD 1965), retired professor of biostatistics, died Sept. 3, at age 86. He was a well-known international demographer who, over his 30-year career, pioneered

statistical research in maternal and child health programs, epidemiological investigations, public health nursing and dental health services, and served as a statistical consultant to national agencies, including the National Center for Health Statistics and the World Health Organization. An alumnus, he joined the Department's faculty in 1965. He directed the International Program of Laboratories for Population Statistics (POPLAB), a USAID-funded project conducted through Carolina Population Center, from 1980 to 1983.

Pan wins Grizzle Award

Dr. William K. Pan (MS 1999, DrPH 2003) is the 2012 recipient of the James E. Grizzle Distinguished Alumni Award.



Pan (center), with Suchindran (left) and Bilsborrow

Pan is currently an assistant professor of global environmental health at Duke University's Nicholas School of the Environment and the Duke Global Health Initiative, and is an expert on spatial distribution of malaria in Latin America. He is also adjunct assistant professor of international health at Johns Hopkins Bloomberg School of Public Health.

An expert on population, health and environmental interactions in developing countries, Pan has conducted research in countries throughout Latin America and Africa on topics ranging from land use change, reproductive health, migration, tuberculosis, HIV, enteric infections, and childhood nutrition, with a special interest in translation research directed toward sustainable development activities and global environmental health.

While a student in the department, Pan was advised by Drs. Richard Bilsborrow and Chirayath Suchindran.

He presented a lecture following the UNC Biostatistics awards Day ceremony titled "Development of an Early Warning System for Malaria in the Amazon."

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.

BSPH in Biostatistics, continued from p. 1

Concern was voiced that recruitment would be difficult but that graduates of the program would fill an important need. Faculty recommended that the program be flexible enough so that students were prepared for continued studies in biostatistics as well as for the work force for those who were interested in a "terminal" degree.

Dr. Craig Turnbull served as director of undergraduate studies from its inception in 1976 until 2006, recruiting and advising more than 180 students during this period. The first BSPH degree was awarded to Maura Stokes, who proceeded to receive her MSPH and DrPH in the department.

BSPH in Biostatistics continues on p. 8.

Department happenings

Enriched by biostatistics: Graduate training with diversity

The Department of Biostatistics and the Gillings School of Global Public Health are committed to students, faculty and staff who learn and work in an environment that is rich in academic pursuits, research initiatives, philosophical perspectives and culture. By cultivating an atmosphere of diversity and inclusion, the department commits to prepare our students for the diverse world that awaits them – a world that seeks culturally competent people to serve as its leaders.

The diversity of our department's graduate student body can be seen in its fall 2012 enrollment. This student body includes a total of 154 graduate students. A breakdown of their demographics is at the right.

A brief profile of selected doctoral students follows.

PhD student **Habtamu Benecha** was born in Ethiopia, where he received his

undergraduate degree in mathematics. Benecha then traveled to Hasselt University in Belgium to complete a master's degree in statistics before settling as a permanent resident in the U.S. As a son of farmers from a remote part of Ethiopia, Benecha hopes to follow the vision of his parents "to do something that has a more direct and positive impact on the lives of the people." His ultimate goal in life is "to apply my skills and talents to serve my world as an impassioned and dedicated practitioner of biostatistics."

Ashley Buchanan joined the department's DrPH program after completing her master's degree in biostatistics at Harvard University, and also had three years of experience in HIV/AIDS research. She is the recipient of the Anna Vaughn Scholarship to pursue studies in biological sciences and Goldsmith Fellowship awarded for commitment to public health. Ashley sees the DrPH program as a "perfect balance of theory and methods, statistical applications and public health" and appreciates the impact this research training has on "informing better medicine and improving public health."

By the numbers . . .

Degree programs:

PhD 88 DrPH 29
MS 27 MPH 10

Gender:

79 males, 75 females

Ethnicity:

Asians 66
Caucasians 64
African Americans 9
Hispanics 3
Other: 5

Nationalities:

USA 91
China 32
Korea 13
Other 18

Other countries represented include Bangladesh, Canada, Ecuador, Ethiopia, India, Russia, Singapore, Taiwan, Thailand and the United Kingdom.

Graduate training with diversity continues on p. 17

Dr. Robert John Tibshirani presents 2012 Bernard G. Greenberg Lecture Series

The Bernard Greenberg Distinguished Lecture Series spotlights excellence in the field of biostatistics. This year's speaker and award recipient was Dr. Robert John Tibshirani, professor of public health sciences and statistics, Stanford University. The series took place June 6 and 7. Tibshirani presented three lectures over the two-day period at the UNC Gillings School of Global Public Health. The titles of his lectures were as follows:

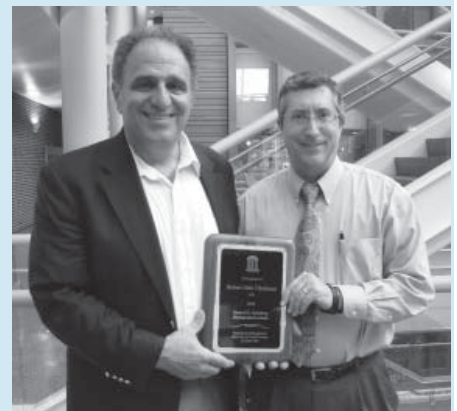
Finding consistent patterns: A nonparametric approach for identifying differential expression in RNA-Seq data

The lasso: some novel algorithms and applications

Sparse hierarchical interactions

A slideshow of each lecture can be viewed at http://www.sph.unc.edu/biostatistics_news/2012_bernard_g_greenberg_distinguished_lecture_series_22546_7835.html.

The biostatistics department's annual lecture series honors the first chair of the UNC - Chapel Hill Biostatistics Department, Dr. Bernard G. Greenberg, who later served with distinction as dean of the School of Public Health from 1972 to 1982.



Tibshirani (left), with Michael Kosorok, department chair

Department happenings

This year has seen significant changes in departmental leadership. Professor Jianwen Cai, formerly the associate chair, has been appointed to the newly created role of vice chair. Professor Amy Herring has stepped into Jianwen's former position as the associate chair. This new leadership structure reflects the growth and complexity of the biostatistics department.

Cai's responsibilities include the Collaborative Studies Coordinating Center, the Carolina Survey Research Laboratory, and certain aspects of the graduate program. Herring is responsible for departmental committees, mentoring, the undergraduate program and admissions.

Cai had been serving as interim co-director of the CSCC (with Dr. David Couper) while the search for a new director was underway. Sonia Davis, PhD, has been appointed to this role. Davis previously was a senior director at Quintiles Inc. An adjunct faculty member in the department since 1995, she is now Professor of the Practice.

Her vast experience in industry in coordinating clinical trials and medical studies will be a tremendous asset to the Collaborative Studies Coordinating Center, the Department, the School and the University.

BSPH in biostatistics, continued from p. 6

The second class of BSPH students graduated in 1981 and had eight students. Of these, two received their doctorates in biostatistics in the department. The program has long been known for recruiting a small number of talented students, many of whom proceed to graduate programs in biostatistics or medicine. While the curriculum has been periodically revised, it has always had a strong math component, an overlap with many of the master's level biostatistics courses, and an emphasis on public health.

Mark your calendars! Upcoming Events in 2013

March 10-13: Eastern North American Region (ENAR) Spring Meeting - Orlando World Center Marriott Resort, Orlando, FL; alumni reception TBA

April 11: 45th annual Fred T. Foard Jr. Memorial Lecture, speaker TBA

April: Biostatistics Awards Day and James E. Grizzle Distinguished Alumni Award, recipient and date TBA

May 8-9: Bernard G. Greenberg Distinguished Lecture Series, featuring Dr. Trevor Hastie, professor of statistics at Stanford University

August 3-8: Joint Statistical Meetings - Montreal, Canada; alumni reception TBA

For more information about upcoming events, please visit our website at www.sph.unc.edu/bios.

Dr. Ed Davis, former department chair (1997-2005) recalls, "For a number of years, I taught the statistical theory course (at that time it was BIOS 150) which the BSPH students take. The first time I taught it, I was amazed at how good the BSPH students were. There were four young women in the class who aced every test I gave. I kept up with their careers and it turned out that three of them earned PhDs in biostatistics and the fourth went to medical school. Over the years, I observed that practically every BSPH class had some students of this quality."

Since 2006, Dr. Jane Monaco has served as director of undergraduate studies. By the beginning of the academic year 2012-2013, approximately 270 students will have entered the BSPH in Biostatistics program. Currently the department has 30 students (primarily juniors and seniors) pursuing the BSPH degree as the program continues to grow moderately in size while maintaining the highest standards. According to

Monaco, "I have the privilege of working with some of the brightest students in the University. Because they have exceptional talent in math combined with an interest in medical and public health applications, I am fortunate to see many of these amazing young people develop into highly skilled biostatisticians, physicians, and programmers among other roles."

The latest external program review of the biostatistics department commended the program, stating that "... the BSPH is also a treasure in its own right. There are very few – if any other comparable – undergraduate programs that focus on biostatistics. We found the students to be talented, motivated, and very happy that they had found the program... their quality is high, particularly in the undergraduate degree, and both attract students to biostatistics that would likely be lost to the profession absent these opportunities."

BSPH in biostatistics continues on p. 10

Carolina Survey Research Laboratory

The Carolina Survey Research Laboratory (CSRL) provides expertise in the areas of survey and questionnaire design as well as data collection to the research community.

Publications this last year resulting from the CSRL's work touch on a broad spectrum of issues.

Survey results published in the March 2012 *Journal of Medical Screening* concluded that false-positive mammography results, coupled with reports that women's physicians did not advise regular screening, could lead to non-adherence to future screening. Abnormal mammograms that do not result in cancer diagnoses are opportunities for physicians to stress the importance of regular screening.

Also published in March, an article in the journal *Women's Health Issues* examines whether ambivalence toward mammography screening, as moderated by total amount of thought given to the reasons for and against getting mammograms at recommended intervals, predicts greater delay in obtaining subsequent screening mammograms.

Empirical research on informed consent has shown that study participants often do not fully understand consent information. A study published in *AIDS Behavior* assessed participant understanding of three mock consent approaches describing an HIV-prevention clinical trial in Lilongwe, Malawi prior to trial implementation. Study results demonstrate that going beyond the use of a generic consent form that is simply stated and structured, and using a context-specific approach instead can lead to improvements in participant understanding.

The *Journal of Sex Research* published an article in its Annual Review of Sex Research: Special Issue titled "Correlates of Male Condom Use Skills Among High Risk Women in South Africa." This exploratory study examined the performance of 295 South African women - who recently traded sex for goods or had



The CSRL researchers, from l-r: Founder and former director Dr. William Kalsbeek (in phased retirement), co-directors Drs. Robert Agans and Donglin Zeng, and assistant director Dr. Michael Bowling

unprotected sex - on a male condom use mastery index. Adjusted odds ratios indicated that age and sexually transmitted infection symptoms were negatively associated with condom skills; women who were older and had a higher number of recent sexually transmitted infection symptoms were more likely to have lower scores. Furthermore, participants executed, on average, approximately one third of condom use steps correctly. These findings suggest a need for increased behavioral skills training for women engaging in sexual risk behaviors because many lack the skills required to use a male condom properly.

Two studies published in *Clinical Genetics* examine pharmacogenetic (PGx) testing. The first, published in August, assessed the attitudes, preparedness, and perceived roles of geneticists in the delivery of PGx testing. Geneticists and genetic counselors were surveyed to assess their experience with and training about PGx testing and views on issues related to the delivery of PGx tests. This includes views on the appropriate roles for geneticists, genetic counselors and other health professionals, informed consent and reporting results. These data can help identify potential challenges of translating PGx testing into clinical practice as well as suggest professional roles and guidelines to support clinical use of PGx testing.

The second study, published in October, examined primary care physicians' (PCPs) knowledge of and experience with PGx testing. It is anticipated that as the range of drugs for which PGx testing becomes available expands, PCPs will become major users of these tests. To assess their training, familiarity, and attitudes toward pharmacogenetic testing in order to identify barriers to uptake that may be addressed at this early stage of test use, a national survey of a sample of PCPs

was conducted. Study results indicate that PCPs envision a major role for themselves in the delivery of PGx testing but recognize their lack of adequate knowledge and experience. As the most recent survey to date, this study's findings suggest that educational curricula, training and resources have not significantly advanced, have not reached or are being utilized by PCPs, or are not effective in promoting comfort about PGx testing. Therefore, development of effective tools for guiding PCPs in the use of PGx tests should be a high priority. In addition to traditional formal education in medical school and residency curricula, clinical decisional supports and professional partnerships may be the most effective and flexible tools to educate physicians about the use of PGx testing.

The CSRL's evaluation of the first five years (2004 to 2009) of a tobacco prevention media campaign, Tobacco. Reality. Unfiltered. (TRU), was recently published in the journal *Health Education Research*. In 2003, the state of North Carolina (NC) implemented a multi-component initiative focused on teenage tobacco use prevention and cessation. One component of this initiative is the prevention media campaign TRU, aimed at NC youth aged 11-17 years.

Overall, TRU campaign awareness was moderate among youth in its first year, with awareness significantly increasing over time. The majority of youth who saw the advertisements reported that they were convincing, attention grabbing and gave good reasons not to smoke. Results from this research may help other states to define, evaluate and modify their own media campaigns, especially within financially or politically constraining environments.

Collaborative Studies Coordinating Center

2012 at the CSCC

In August of 2012, the CSCC began work on the ARIC PET ancillary study. The goals of the ancillary study are to study the associations of indices of vascular disease measured using positron emission tomography (PET) imaging with clinically diagnosed Alzheimer's disease. This study complements the aims of the ARIC Neurocognitive Study (ARIC-NCS) to determine what role vascular risk factors – including hypertension, diabetes and lifestyle – experienced in middle age may play in development of dementia (vascular or due to Alzheimer's disease) and cognitive decline later in life.

The coordinating center will assist with form preparation and data management, including the production of data management reports. We will also assist in the preparation of quality assurance reports, and create analysis files to distribute to study investigators. Lisa Wruck serves as the principal investigator.

The CSCC was renewed as the clinical coordinating center, in September of 2012, for the Women's Health Initiative (WHI) 2010-2015 Extension Study.

This is a five-year project, funded by the National Institutes of Health (NIH). It proposes a system to enhance the scientific richness of the outcome database for heart failure in WHI, while retaining the adjudication driven event classification process currently in place in WHI. Over the course of the five-year project they plan to complete this investigation on 6,000 suspected heart failure events. Wayne Rosamond serves as the principal investigator.

In May of 2012, the CSCC was awarded the role of data coordinating center for the Predicting Response to Standardized Pediatric Colitis Therapy (PROTECT) study. The CSCC's principal investigator is David Couper.

PROTECT is a multi-center open-label trial of standardized medical therapy (mesalamine or corticosteroids) in newly diagnosed ulcerative colitis in children and adolescents. It is funded by the NIH through the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The study is conducted in collaboration with the Crohn's and Colitis Foundation of America (CCFA) using its Pediatric Research Organization for Kids with Intestinal Inflammatory Diseases (PRO-KIIDS) Network. By July, it was already up and running and enrolling participants.

The mission of the PROTECT Study is to provide a better understanding of how children newly diagnosed with ulcerative colitis (UC) respond to mesalamine and prednisone (corticosteroid), the standard initial therapies used to treat this disorder. PROTECT brings together the experience and resources of 25 highly specialized sites in North America that treat children with UC. Over a period of five years, PROTECT will prospectively study the course of 430 children newly diagnosed with UC who are treated with standardized care. Biospecimens will be obtained and used to better understand the effects of genetics, mechanisms of inflammation, Vitamin D, and the bacteria contained in the stool (microbiome) on clinical outcomes.

The CSCC began its collaboration with the Clinical Coordinating Center at Connecticut Children's Medical Center, led by Dr Jeffrey Hyams, and NIDDK in late 2010 as part of a U34 planning grant. Consequently, when the award was made, the study protocol, manual of procedures, data collection forms, clinical center selection, and other operational planning had already been completed.

Heart disease risk factors are widespread among Hispanic/Latino adults in the United States according to a study appearing in the Nov. 7 issue of the *Journal of the American Medical Association*. The study,



Dr. Jianwen Cai



Dr. David Couper



Dr. Lisa Wruck

titled "Prevalence of Major Cardiovascular Risk Factors and Cardiovascular Diseases Among Hispanic/Latino Individuals of Diverse Background in the United States," is the culmination of several years of work by researchers from a variety of areas, and is the largest ever to examine heart disease risk factors among such a diverse Hispanic/Latino population. The CSCC served as the study's coordinating center, of which professor Jianwen Cai is the principal investigator.

In addition to Cai, co-authors from UNC include Natalia Gouskova, MS, senior biostatistician, from the biostatistics department; and Krista Perreira, PhD, associate professor in public policy. More information about the HCHS/SOL project is available online.

BSPH in biostatistics, continued from p. 8

Within three years of graduation, more than 70% of recent BSPH students have entered graduate, professional or medical programs. In the last six years, BSPH graduates have gone directly on to biostatistics graduate programs (32%), medical school (28%), and employment in biostatistical/programming roles (30%). Examples of some of these first destinations include: biostatistics graduate programs at the University of Washington, UNC-CH, University of Michigan, Columbia and Emory; medical schools at UNC-CH, University of Virginia, Duke, Wake Forest University, Vanderbilt, Medical University of South Carolina and East Carolina University; and employment at Duke Clinical Research Institute, PPD, RTI and Rho.



Edwards



Ivanova



Kosorok

In the journals

A study published in the journal *Environmental Health Perspectives* suggests that early-life exposure to soy products may subtly reduce female-typical play behaviors in girls at 42 months of age. Gender-role play behavior was assessed using the Pre-School Activities Inventory (PSAI). An association between breast-feeding and play behavior in boys was also observed but may be heavily confounded by unmeasured lifestyle factors, given the broad differences that generally persist between breast-feeding and formula-feeding mothers. The associations observed here were modest, and the mean PSAI score for all exposure groups was still within the range of normal behavior for each sex. Replication of these findings in other populations is needed, particularly in ones with more prevalent soy-based formula use. Associate professor **Lloyd Edwards, PhD**, was a co-author of this study.

A recent clinical trial testing a combination therapy for basal-like, or triple-negative, breast cancer demonstrates that a combination of two drugs with promising preclinical results is not as effective as researchers had hoped. **Anastasia Ivanova, PhD**, associate professor of biostatistics, was co-author of the study, published online June 4 in the *Journal of Clinical Oncology*.

Research that compares the effectiveness of different cancer treatments should be accelerated – and the findings promoted and accepted – according to a recent study by William Carpenter, PhD, assistant professor of health policy and management, **Michael Kosorok, PhD**, professor and chair of biostatistics, and Til Stürmer, MD, PhD, professor of epidemiology. Published online April 20 in *Cancer*, the study includes a literature review and interviews with 41 cancer comparative effectiveness research (CER) scientists.

NIEHS training grant renewed for the eighth time

The National Institute of Environmental Health Sciences (NIEHS) has renewed one of UNC's Gillings School of Global Public Health research and training grants. UNC's program, Biostatistics for Research in Environmental Health, supports 23 doctoral and five postdoctoral scholars in biostatistics, epidemiology and environmental sciences and engineering. Professor of biostatistics and associate chair Amy Herring, ScD, is the principal investigator of the grant.

"Every five years, these training programs must be renewed; it is highly competitive," explained Herring. "Ours is one of the largest such training programs ever funded, and it's the longest continuing training grant at the School."

This NIEHS-funded grant originally was awarded to the esteemed Bernard G. Greenberg, PhD, back in 1971. Since then, other faculty members have led the grant's efforts - including now-emeritus Alumni Distinguished Professor of biostatistics Lawrence L. Kupper, PhD, who directed the program for more than 30 years starting in 1972. The current grant is led by Herring, Rebecca Fry, PhD, co-principal investigator, assistant professor of environmental sciences and engineering, and leader of the environmental science research area, and Marilie

Gammon, PhD, professor of epidemiology and leader of the environmental epidemiology research area. The program has created both opportunities and a rich legacy for the School by funding hundreds of graduates who have made significant research contributions and helped shape current public health policy in the U.S. and internationally. Former trainees hold influential leadership and policy positions at the National Institutes of Health (NIH), including at the National Institute of Occupational Safety and Health; the U.S. Environmental Protection Agency; and the Centers for Disease Control and Prevention, as well as at the nation's top medical and academic centers and in industry.

For the most recent renewal, co-principal investigators Herring and Fry, along with other faculty members, submitted an application more than 800 pages long to showcase the training environment and prior success of the program at UNC. It was reviewed by the Environmental Health Sciences NIH Review group and received a perfect score on the NIH scale.

The NIH traineeships in environmental health, as well as in other areas including reproductive epidemiology, nutrition, toxicology, cardiovascular disease, infectious disease and cancer, also help attract and recruit some of the most highly qualified applicants. The program provides a monthly stipend and tuition support for UNC public health students.



This year's NIEHS Biostatistics for Research in Environmental Health trainees pose with faculty members in the courtyard outside the School. Photo by Jessica Laine.

Faculty & staff news



Bangdiwala



Herring



Ibrahim



Koch



Sen

Shrikant Bangdiwala, PhD, research professor of biostatistics, received the International Distinguished Career Award from the American Public Health Association's Injury Control and Emergency Health Services Section during the association's annual meeting on Nov. 1, 2011 in Washington, D.C.

The award recognizes outstanding dedication and leadership in international injury control and emergency health services efforts, as well as achievements that have significant and long-term impact on the field.

For more than two decades, Bangdiwala has served as co-principal investigator on the longitudinal studies coordination for Child Abuse and Neglect, with the coordinating center based at the UNC Injury Prevention Research Center (IPRC). He also has collaborated on international studies of child maltreatment (WorldSAFE) as part of the International Clinical Epidemiology Network.

Carol Runyan, PhD, former director of the UNC IPRC, said Bangdiwala's work greatly contributed to addressing and understanding the problem of injuries globally, prevented injuries in many countries, and contributed to a sustainable enhancement of injury research through collaborations and capacity building. "This is an ideal time," she said, "to recognize his long and productive career."

Amy Herring, ScD, professor and associate chair of biostatistics, has received the prestigious Mortimer Spiegelman Award from the American Public Health Association's (APHA) statistics section. Herring was recognized Oct. 30 at APHA's 140th annual meeting and exposition in San Francisco.

The award is named for Mortimer Spiegelman (1901-1969), a demographer, actuary and statistician who made landmark contributions to the field when he used 1960 census data to develop statistics about the prevalence of health issues and diseases. Among the topics he examined were accidents and homicides, infectious diseases, cardiovascular disease, mental disorders and suicide, cancer, oral health and others.

Presented annually since 1970 to an outstanding public health statistician under age 40, the award is meant to honor the recipient's and Spiegelman's achievements, encourage young statisticians to have greater involvement in public health issues, and increase awareness in the academic statistical community about the APHA and, specifically, its statistics section.

Previous winners of the award from the UNC biostatistics department include Professor Gary Koch, PhD, and Danyu Lin, PhD, Gillings Distinguished Professor.

Herring was also the 2012 recipient of the Gertrude M. Cox Award, which she accepted at the Washington Statistical Society annual dinner, held at RTI International in Washington, D.C. The Statistical Society and RTI jointly sponsor the award.

The Gertrude M. Cox Award was established to honor Dr. Cox (1900-1978), considered one of the founders of modern statistics. She was the first woman elected into the International Statistical Institute and served as a president of the International Biometric Society and the American Statistical Association. The award is given in recognition of early- to

mid-career statisticians who have made significant contributions to survey methodology, experimental design, biostatistics or statistical computing, areas of statistics in which Cox worked.

P. K. Sen, PhD, Cary C. Boshamer Distinguished Professor of biostatistics, was the featured speaker at the 23rd Pfizer Colloquium Series at the University of Connecticut-Storrs on Nov. 1.

The Pfizer Colloquia by Distinguished Statisticians in Honor of Dr. David S. Salsburg was established in the late 1970s at the University of Connecticut-Storrs under the leadership of the late Professor Harry O. Posten (University of Connecticut-Storrs) and Dr. David S. Salsburg (Pfizer Global Research and Development- Groton, Conn.). Each year, an organizing committee invites the "most distinguished statistical scientist" to deliver a special lecture as a featured guest of honor.

Sen's abstract was titled "A Pedestrian's Lost Horizon in the Wiener Wald of Statistical Science." It encompassed his life in statistics and the many changes he has witnessed over the years.

Joseph G. Ibrahim, PhD, Alumni Distinguished Professor of biostatistics, was appointed recently as coordinating editor of the *Journal of the American Statistical Association (JASA)* and editor of *JASA's* section on Applications and Case Studies. As coordinating editor, Ibrahim will work with the editors of the journal's other two sections - Theory and Methods, and Reviews.

Professor **Herring** was one of eight faculty members - one from each academic

unit at the School - selected by their students to receive the School's inaugural Teaching Innovation Awards at a reception on Feb. 7. The award presentation was part of the public health school's "Celebrate Teaching!" Month.

Sen was presented with an honorary Doctor of Science degree on March 22, 2012, at the University of Calcutta. The University of Calcutta is also Sen's alma mater, where he received his bachelor's, master's, and doctorate degrees, all in statistics.

Sen was also presented with the John E. Larsh Jr. Award for Mentorship, during the School's commencement ceremony on Saturday, May 12.

Established in 1997, the highly competitive John E. Larsh Award for Mentorship honors Dr. Larsh, a faculty member in the School's Department of Health Behavior and Health Education from 1942 to 1981. The award is presented to a current member of the School's faculty who best exemplifies the mentorship and commitment to students for which Larsh was well known.

Professor **Gary Koch** was selected for the Bernard G. Greenberg Alumni Endowment Award, considered one of the most prestigious awards for alumni and faculty. He was presented with the award at a ceremony preceding the annual Fred T. Foard Jr. Memorial Lecture on April 17.

Koch has taught courses in categorical data analysis at UNC for more than 40 years. He is a sought-after mentor- serving as adviser to more than 100 graduate students and many junior faculty members. Koch also is director of the Biometric Consulting Laboratory (BCL), which he founded with Dennis Gillings in 1980. The BCL provides biostatistical consulting for health and pharmaceutical researchers in industry and academia. The unique model combines teaching, research and service, generating funds to support five to 10 graduate students each year.

Several faculty members were promoted within the department this year. Drs. **Donglin Zeng** and **Fei Zou** were promoted to full professor, and Dr. **Paul Stewart** was promoted to research professor. Dr. **Michael Hudgens** was appointed as associate professor.

Dr. **Yufeng Liu** joined the department as an adjunct associate professor. Liu is also an associate professor in the Department of Statistics and Operations Research.

Department graduate Dr. **Annie Green Howard** was appointed as clinical assistant professor.

Three postdoctoral research associates joined the department this year. **Jing Chang** is working under the direction of Joseph Ibrahim; **Jeffrey Laux**, under the direction of Jason Fine and Michael Kosorok; and **Dan Shen**, under the direction of Hongtu Zhu.



Future biostatisticians Janelle Schwartz, Joy Schwartz, and Kendra Schwartz with doctoral student Siying Li (MS 2012)

Spring 2012 biostatistics picnic



Delta Omega awards

Delta Omega is a National Honor Society that encourages research, provides scholarships, and recognizes achievements in the field of public health. In 2012, the following people received honors from the Delta Omega Society:

Faculty Award: Michael Hudgens, PhD

Book Award: Mr. Lu Mao

Alumni Award: Douglas Taylor, PhD

Service Award: Mr. Joe Rigdon

Outstanding Academic Achievement Award: Drs. Laura Farnan, Christopher Hornik, Zhaowei Hua, and Yingqi Zhao

Undergraduate Award: Mr. Douglas Wilson

Faculty & staff news

Service appreciation

5 years

Carter Church
Wei Sun

10 years

Lisa Gravens-Muller
David Hill
Joseph Ibrahim
Fred Wright
Scott Zentz

15 years

Haibo Zhou

20 years

Jianwen Cai
Aluoch Ooro

25 years

James Locklear

She's outta here!

After 27 years of service, Dawn Stewart retired on Dec. 1 from the University. She spent her time at the CSCC in various roles, including research manager and project director.

As a retiree, Dawn will be spending much of her newfound free time out on the water. An avid sea kayaker with paddling expeditions all over the world to her credit, Dawn has been gearing up for future adventures by taking courses such as "Wreckage in the Wave Train" and "Life on the Edge."

Pictured with her husband, research professor Paul Stewart, at right.



2012 staff awards

Congratulations to the 2012 recipients of the department's staff awards! Business services coordinator Monika Caruso was awarded the Staff Excellence Award, for her leadership, mentoring skills and expertise in several areas including grant proposal preparation, website management and print editing.

The department also recognized staff members for achievements during the year through the Star Heels awards program, sponsored by TIAA-CREF. The 2012 Star Heels are Danielle Bass, personnel manager at the CSRL; James Bartow, applications specialist at the CSCC; and Neepea Ray, social clinical research manager at the CSCC.

New faculty and staff

Christine Kantner moved from the CSRL to McGavran-Greenberg this past year, where she is a business services coordinator.

The CSRL welcomed two new staff members: Danielle Bass, a personnel manager, and Anna Hoffmeyer, an operations manager.

Several people joined the CSCC: Jeff Evarts, Lei Liu and Christopher Stolte, applications analysts; Christina Renee Godfrey-Kaye, social research associate; Nathan Gotman, social/clinical research specialist; Pedro Quiblera and Eunsil Yim, social/clinical research managers; and Hengrui Sun and Tania Wilkins, senior biostatisticians.

Departures

Christopher Baggett, Elaine Dempsey, Meg Pomerantz and Gary Wolgast all left the CSCC this past year.

Students, faculty work together to gauge decade-long view of the health of N.C. women

Professor Amy Herring and biostatistics master's students Katie Garcia and Tyler Bardsley (now an alumnus) helped organize and collate data from sources such as the Bureau of Labor Statistics and North Carolina Vitals, for the North Carolina Women's Health Report Card (CWHR).

Though normally released biennially, 2012's report collected health data from 2001-2009, giving researchers and policy makers an almost decade-long view of women's health trends in the state. The Center used information on important benchmarks such as preventative care, obesity and birth weight to gauge the health of the state's 4.9 million women.

Garcia, who spent 10 hours per week last year "crunching the numbers" and placing the statistics into age and ethnicity categories said the experience echoed what she has learned in the classroom.

"Getting to walk through this project was really helpful," said Garcia, who would like to continue working with women and reproductive health statistics. "I constantly used things I was learning in class, and coming up with overall health trends was very rewarding."



If you'd like to take up sea kayaking vicariously through her, you can follow along at sandybottomkayaker.blogspot.com.

May 2012 BSPH graduates

Prashant Angara
 Kori Leigh Brady, graduated Phi Beta Kappa
 Benjamin Harding Buck, graduated with honors
 Eric Emilio-Gerrit Butter, graduated with honors
 Alexander Joseph Christian
 Michael Paul Hieronymus
 Katherine Meredith Hunold, graduated Phi Beta Kappa and with highest honors
 Ataharul Hoque Mannan
 Courtney Baker Page
 Andrei R Stefanescu, graduated with highest honors
 Laura Elizabeth Wiener, graduated with highest honors
 Douglas Roy Wilson, graduated Phi Beta Kappa

Biostatistics graduates

May 2012

Christopher Paul Hornik, MPH
 Polina Kukhareva, MPH
 Carolina Perez-Heydrich, MPH
 Kaitlyn Elizabeth Fernandez, MS
 Malcolm T Jefferson, MS
 Siying Li, MS
 Rebecca Anne Zabel, MS
 Ni Zhao, MS
 Tracy Lynn Nolen, DrPH
 Annie Green Howard, PhD
 Siddhartha Mandal, PhD
 Ryan C May, PhD
 Yingqi Zhao, PhD

August 2012

Jillian Ellen Brown, MPH
 Kristen Leigh Much, MS
 Hongsuk Song, MS
 Donna Jean Wilson, MS
 Suprateek Kundu, PhD

December 2012 (anticipated)

Patrick Smith, MPH
 Ellen Mir, MS
 Emily Colby Bozenhardt, DrPH
 Yue Zhao, DrPH
 Dustin Long, PhD

Student awards and recognition

Congratulations to our department's five winners of the 2012 Eastern North American Region of the International Biometrics Society's Distinguished Student Paper awards. **Qianchuan He, Suprateek Kundu, Siddhartha Mandal, Yingqi Zhao, and Yihui Zhou** were recognized alongside 15 other students at the 2012 ENAR spring meeting in Washington, D.C. UNC had more recipients of this award than any other school this year.

Doctoral student **Yingqi Zhao** has received the Jiann-Ping Hsu Pharmaceutical and Regulatory Sciences Student Paper Award. Zhao presented her research and received the award at the 21st Applied Statistics Symposium of the International Chinese Statistical Association (ICSA) held in Boston, MA on June 26, 2012. This award is given once each year and is one of five ICSA student paper awards.

Christian Douglas, a DrPH student in the department, has been awarded a two-year predoctoral fellowship from UNC's Institute on Aging (IOA) in the Carolina Program on Health and Aging Research (CPHAR). The program is supported by a National Research Service Award Institutional Training Grant from the National Institute on Aging. Douglas is doing her

Fall 2012 incoming class

In August 2012, the Department of Biostatistics welcomed 38 graduate students - 15 PhD, two DrPH, 18 MS and three MPH - and 15 BSPH undergrads. There are 28 U.S. citizens, and international students hail from China, India, and the United Kingdom. The majority of graduate students are math and statistics majors. Other majors include biochemical science, biochemistry, biophysics, zoology, computer science, electronics, physics, mechanical engineering and English.

dissertation with associate professor Lloyd Edwards, who is also her primary mentor at the IOA.

Congratulations to the winners of the Biostatistics Teaching Innovations Competition! Judging was a very hard task, as illustrated by the three-way tie for the Audience Favorite Award, and with only four judges there were no statistically significant differences in the scores. Our overall winner was **Chih-Da Wu**, with second and third place going to **Alison Wise/Diana Lam** and **Ché Smith**. A total of \$500 in cash prizes was distributed among the winners.

BSPH student **Courtney Sanford** is UNC's first Innovation Scholar. The Innovation Scholar program is part of the Innovate@Carolina initiative. It is closely linked to the minor in entrepreneurship in the College of Arts and Sciences, and draws on the University's resources to provide support and promote scholars' entrepreneurial efforts. One of five Innovation Scholars to date, Sanford has access through the program to financial, academic and social resources. On campus, Sanford has been part of the Chancellor's Student Innovation Team, TEDxUNC Development Committee, Honors Student Executive Board and APPLES Service-Learning. She spent spring 2012 studying abroad at the Lorenzo de'Medici Institute in Florence, Italy.

The following biostatistics students made presentations at the Eastern North American Region (ENAR) of the International Biometric Society meeting in April 2012:

- Naomi C. Brownstein, “Parameter Estimation in Cox Proportional Hazard Models with Missing Censoring Indicators,” with Eric Bair, Jianwen Cai and Gary Slade
- Jennifer Clark, “Additive Kernel Machine Regression Based Analysis of Genomic Data,” with Michael Wu
- Sheila Gaynor, “Identification of Clinically Relevant Disease Subtypes using Supervised Sparse Clustering,” with Eric Bair
- Qianchuan He, “Sparse Meta-Analysis With Applications to High-Dimensional Data,” with Danyu Lin
- SoYoung Kim, “More Efficient Estimators for Case-Cohort Studies,” with Jianwen Cai
- Zakaria S. Khondker, “Generalized Reduced Rank Regression for Multivariate Response,” with Hongtu Zhu and Joseph G. Ibrahim
- Suprateek Kundu, “Bayes Variable Selection in Semiparametric Linear Models,” with David Dunson
- Siddhartha Mandal, “Statistical Inference for Dynamic Systems Governed by Differential Equations with Applications to Toxicology,” with Pranab K. Sen
- Yi Zhang, “Evaluating Incomplete Multiple Imperfect Diagnostic Tests with a Probit Latent Class Model,” with Donglin Zeng
- Yingqi Zhao, “Estimating Individualized Treatment Rules Using Outcome Weighted Learning,” with Donglin Zeng, A. John Rush and Michael R. Kosorok
- Yi-Hui Zhou, “Permutation-based Expression Pathway Analysis, Without Permutation,” with Fred A. Wright

The following biostatistics students made presentations at the Joint Statistical Meetings (JSM) of the American Statistical Association in August 2012:

- Andrea Byrnes, “Variable Selection-Based Weighting Schemes for Rare Variants in Sequence Data,” with Mingyao Li, Michael Wu, Fred Wright and Yun Li
- Bethany Horton, “Estimating AUC Using Test-Dependent Sampling,” with Haibo Zhou
- SoYoung Kim, “More Efficient Estimators for Case-Cohort Studies,” with Jianwen Cai and Wenbin Lu
- Linglong Kong, “Varying Coefficient Models for Neuroimaging Data,” with Hongtu Zhu
- Diana Lam, “An Innovative Application of Sampling Weights to Evaluate Screening vs. Standard Assessments in COPD,” with Gary Koch
- Zhaohua Lu, “Fitting Nonlinear Latent Diffusion Process to Irregularly Spaced Longitudinal Data with Efficient MCMC Algorithm,” with Sy-Miin Chow, Andrew Sherwood and Hongtu Zhu
- Dan Shen, “A General Asymptotic Framework for Consistency of PCA and Sparse PCA,” with Haipeng Shen and J. Steve Marron
- Eugene Urrutia, “Smoothed Stability Selection for Analysis of Sequencing Data,” with Yun Li and Michael Wu
- Jiaping Wang, “Clustering the Spatio-Temporal Functional Data with Multiscale-Adaptive Smoothing Method and EM-Based Algorithm,” with Hongtu Zhu
- Joshua Warren, “A Comparison of Median Testing Methods for Complex Survey Data Using Various Statistical Packages,” with Christine Davies and Lauren K. Warren
- Joshua Warren, “Spatial-Temporal Modeling of the Critical Windows of Air Pollution Exposure for Preterm Birth,” with Montserrat Fuentes, Amy Herring and Peter Langlois
- Zhaoyu Yin, “Fast eQTL Analysis for Twin Studies,” with Fei Zou
- Jichang Yu, “A Simulation Study Comparing Methods for Adjusting Confounding in EMR Data with Real World Complex Heterogeneity in the Treatment Assignment,” with Haibo Zhou, Fei Zou, Xianchen Liu and Richard Willke
- Yi Zhang, “Analysis of CBCT Shift Data from Head-and-Neck Cancer Patients,” with Yijiang Pan, Yi Zhang and Xiaoli Tang
- Yi Zhang, “Evaluating Incomplete Multiple Imperfect Diagnostic Tests with a Probit Latent Class Model,” with Donglin Zeng and Haitao Chu
- Yingqi Zhao, “Outcome-Weighted Learning for Dynamic Treatment Regime Selection,” with Eric Laber, Donglin Zeng and Michael Kosorok
- Yihui Zhou, “Pathway Analysis Using a Score-Based Approach for RNA-Seq Data,” with Fred Wright

Graduate training with diversity, continued from p. 7

Emily Butler is the recipient of a prestigious 2012 National Science Foundation Graduate Research fellowship for a three-year period. She was selected for her outstanding abilities and accomplishments, as well as her potential to contribute to strengthening the vitality of the U.S. science and engineering enterprise. She joined the department's PhD program in fall 2011 with a Merit award from the UNC Graduate School. Prior to joining UNC, Butler completed a strong program in statistics from Carnegie Mellon University (CMU). Commenting on her leadership roles and activities in organizing campuswide student and community level service activities at CMU, a former professor writes that "she is one of the most energetic majors we had in recent memory." Butler credits her family for providing her with a great appreciation of global health issues; her parents met in Africa when her father was serving in the Peace Corps, and she has visited Africa with her family many times.

Guanhua Chen is a PhD student from China with a bachelor's degree in bioinformatics from Huazhong University of Science and Technology. Chen was attracted to the biostatistics program for the multidisciplinary public health research environment fostered within the department and at UNC. Chen was the 2011 winner of UNC Gillings School of Public Health's Spirit of Giving Award, an award given in recognition of a student's commitment to and potential for impacting public health. Before joining UNC, Chen studied in an interdisciplinary program in biomedical sciences and joined research projects studying localization and identification of genes involved in autism at the Center for Human Genetics Research at Vanderbilt University. He is currently collaborating with a UNC biologist for statistical learning with application on genomic data.

PhD student **Sayan Dasgupta** received both his bachelor's and master's degree in statistics from the Indian Statistical Institute, which is considered by many as the

top theoretical statistics training ground worldwide. From early childhood Dasgupta had an affinity towards mathematics and problem solving. These talents helped him to win many national awards, including the National Council of Educational Research Training scholarship through a National Talent Search Examination and a certificate award from the Centre of Pedagogic Studies in Mathematics. Before entering the PhD program at UNC, Dasgupta already had accumulated an impressive record of research project experience in real life problems. He states this passion in the following words, "Real life problems have always magnetized me from childhood...I found statistics to be the perfect support for appreciating and dissecting such state of affairs."

Angél de Jesus Davalos completed his bachelor's degree in mathematics and master's degree from the University of Texas at El Paso before joining the PhD program in biostatistics. He was a summer research trainee at the National Institute of Child Health and Human Development Biostatistics and Bioinformatics Branch developing methods to identify influential experimental units/observations for estimation of intra-class correlation coefficients. He was the recipient of Bridge to Doctoral Fellowship funded by the NSF awarded through University of Texas System: Louis Stokes Association of Minority Population. Davalos states, "My Mexican American Heritage instinctively draws me to involvement in studies that positively affect our society's ethnic and social issues." He expresses a desire to build a life-long career as a biostatistical scientist in the area of cancer research.

Natalia Gouskova entered the PhD program after having received a master's degree in mathematics from Novosibirsk University, a top program in Russia. Later she worked with the Russian branch of Sprint (long distance and data communication services) for six years. Upon moving to the U.S. she decided to pursue a research career in the application of mathematics to health sciences and decided to study biostatistics at UNC.

In making this choice she wrote "The choice of a school was really easy, since the research concentrations of your department cover every imaginable area I ever considered being of interest to me." While she's working on her dissertation, she finds a good application for her newly acquired statistical knowledge and skills in her work as a senior biostatistician at the CSCC.

Jonathan Hibbard is a highly talented mathematician from the United Kingdom, having received both an undergraduate degree (first class) and also a certificate of advanced study (distinction) from Cambridge University. After the completion of his training in Cambridge University, Jon pursued further studies in mathematics at Yale University, obtaining an MPhil degree. Although he is a classically trained mathematician, his ambition is to seek a career, as stated in his own words, "Where I can use my quantitative skills to positively influence humanitarian issues in our world today." Commenting on his choice of a career in biostatistics, Jon writes, "I appreciate the fusion of theoretical with the application in given (biostatistical) studies and my desire to see a positive real world effect of academic research is more than sated by the humanitarian subject matter."

Sebastian Hidalgo was born in Quito, Ecuador. He joined the PhD program after completing his double undergraduate degree in mathematics and economics from Eastern Kentucky University. He found biostatistics while looking for an area where he could combine his statistics training with an area that would be fulfilling to him. He states, "The field of biostatistics represents to me a path to attain my purpose of helping others through my intellectual abilities and through the study of statistical genetics at the same time." Sebastian was a singer in the Eastern Kentucky University concert choir and a dancer at the university's dance theater.

Graduate training with diversity
continued on p. 19.

Impact of giving

The Department of Biostatistics is fortunate to have an array of awards and fellowship funds that help to recruit the best students, invest in those with the greatest potential, and award those with the greatest achievements. Endowed and expendable scholarship funds and special travel awards have helped launch some of our most accomplished graduates. Please join us in congratulating the following who have earned these awards and thanking those who have made these awards possible.

The Regina C. Elandt-Johnson Award for Best Master's Paper in Biostatistics this year was given to **Xiaoxi Liu**. Liu's paper is titled "Variable Selection in Semiparametric Transformation Models for Censored Data." Liu's work was supervised by Dr. Donglin Zeng. The Elandt-Johnson award was established in 1999. This is awarded by the department to current biostatistics students.

Drs. **Tracy Nolen** and **Yimei Li** were both selected as 2012 recipients of the Larry Kupper Dissertation Publication Award.

Nolen's dissertation is titled "Randomization-based Inference within Principal Strata." Nolen's work was supervised by Dr. Michael Hudgens and has been

published in the *Journal of the American Statistical Association*. Tracy is the first DrPH student to win this award.

Li's dissertation is titled "Multiscale Adaptive Regression Models for Neuroimaging Data." Li's work was supervised by Dr. Hongtu Zhu and has been published in the *Journal of the Royal Statistical Society: Series B*.

The Kupper Dissertation Publication Award is a yearly award established by friends and colleagues of professor emeritus Larry Kupper. The award honors the best doctoral dissertation-based paper appearing in a prestigious biostatistical journal in a given calendar year.

The Barry H. Margolin Dissertation Award for Excellence in Doctoral Research this year was given to Dr. **Yijuan Hu**. Hu's paper is titled "Statistical Analysis of Haplotypes, Untyped SNPs, and CNVs in Genome-Wide Association Studies." Hu's work was supervised by Dr. Danyu Lin. Hu has published 10 papers, including three method papers out of her dissertation and seven papers from her collaborative work with the CSCC and geneticists. All three methods papers were published in top biostatistical and genetic journals.

This award honors the quality of the recipient's dissertation, the potential for leadership in research, teaching and service by the recipient, and for the recipient's overall performance in the department.

You can support the department of biostatistics, students and our School in many ways:

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Ruth Huh was awarded the Mohberg Family Scholarship. She was also the recipient of the UNC Cancer Research Fund Fellowship award. Huh is a first-year doctoral student who comes to us from South Pasadena, CA. The Mohberg Scholarship was established by Dr. Noel Mohberg in 2002. Dr. Mohberg earned his doctoral degree from the Department in 1972. He and his family reside in Plainwell, Michigan.

The Bernard G. Greenberg Scholarship in Biostatistics was awarded to **Cara Ostrom**, a first-year master's student who comes to us from Denver, CO. This scholarship is named after Dr. Bernard G. Greenberg, founder and former chair (1949-72) of the Department of Biostatistics, and is made possible by generous contributions by the Greenberg family and friends. Ostrom was also awarded the UNC Graduate School Merit Scholarship for a master's students.

Erika Helgeson was this year's recipient of the Smith Anderson Biostatistics Fellowship, and comes to us from Spokane, WA. This scholarship is designated for a graduate student or teaching assistant and is made possible by the firm of Smith, Anderson, Dorsett, Mitchell & Jernigan, LLP. Helgeson is also the recipient of the Gillings Merit Scholarship.

Rachel Nethery received the John and Diane Fryer Fellowship in Biostatistics. Rachel is a first-year doctoral student who comes to us from Mt. Eden, KY. This fund is made possible by contributions from Diane Fryer Medcalf and the late John Fryer.

Sujatro Chakladar was awarded a Merit Assistantship from the University's Graduate School program. Chakladar comes to us from Kolkata (Calcutta), India.

Chakladar also received an Annual Fund Scholarship, as did **Adane Wogu**. This program is administered by the dean's office and provides two awards for biostatistics students.

Hojin Yang was the recipient of the Max Halperin Scholarship Award. This award is a fellowship offered to a first- or second-year doctoral student and is made available by donations from friends and family of Max Halperin.

Douglas Wilson was awarded the Hardison Scholarship in Bioinformatics. Wilson is a first-year doctoral student who comes to us from Charlotte, NC. Douglas is a 2012 graduate of the BSPH program in Biostatistics. The Hardison Scholarship is awarded to an outstanding applicant and is made possible by gifts from the Hardison Family and was established in 2001.

Graduate training with diversity, continued from p. 17

Dustin and Leann Long entered the PhD program as a couple. They both received master's degrees in mathematics from Tennessee Technological University in 2006. Leann states, "In my search for further education, the area of Biostatistics has truly piqued my interest because of the usefulness to society through various areas of research." Dustin wrote, "From my research, biostatistics seemed to be a very good field for my skills." They both have demonstrated outstanding teaching skills and have assumed leadership roles in the Biostatistics Students Association. The couple has a very global perspective with Leann spending time in Australia and visiting Oxford University England as a representative of Tennessee Wesleyan College to St. Edmund's Hall.

Briana Stephenson joined the DrPH program after receiving her bachelor's degree in applied mathematics from Massachusetts Institute of Technology and a MPH degree in biostatistics from the George Washington University. After a short stint in medical school, she decided to follow her passion for mathematics and public health by enrolling in a master's program in biostatistics. As a mathematical statistician at the FDA she performed evaluation analysis on FDA programs, activities and assignments. As a biostatistician in the Department of Defense she provided statistical support to the Psychological Health Strategic Operations. Her professional goals are set to have a significant role in researching and improving public health. She spent one summer in Brazil as a Fogarty MIRT Research Fellow in a neurobiology lab. She held a two year membership in the Interdisciplinary Student Community Oriented Prevention Enhancement Services Team promoting healthy lifestyles and health literacy.

Rebecca Wilson is a DrPH student with unique academic training and experience. She received a bachelor's degree majoring in Spanish from Bowdoin College and later attended Smith College in a post-baccalaureate program in mathematics and statistics. She spent one semester in the Dominican Republic in an intensive program of language and culture. Later she worked as a clinical database manager in the Department of Biostatistics at the Massachusetts General Hospital. Her professional goal is to pursue a career in public health research.

The Department of Biostatistics is blessed to have a diverse alumni group in leadership positions in the field. They in turn help the department to recruit bright students with diverse backgrounds to our student body.

Department of Biostatistics
Gillings School of Global Public Health
CB# 7420, 3103-E McGavran-Greenberg Hall
The University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-7420

WE THANK the following individuals, whose donations provide much-needed funds to support biostatistics graduate education. We are very grateful for your help. The names listed represent gifts received from July 1 2011 - September 1 2012. 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*.

We also thank the SPH Alumni Association, who contributed funds for the publication of this issue of *BiosRhythms*.

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