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**UI College of
Public Health**

UNIVERSITY OF IOWA

**Department of Biostatistics
Newsletter**

LETTER FROM THE HEAD

Last year was a very productive time for our Department and 4 new faculty members were hired. This was a very successful search! A note from each of the new faculty is featured in this newsletter. They are all talented and energetic faculty and we are all very excited to have them in the Department. We are now a faculty of 13 primary faculty, with only 6 being in place prior to 2002. So this is a wonderful opportunity to build on the tradition of excellence in the Department and also move into new areas for the curriculum and for research. It is an exciting time for the Department of Biostatistics.



Our students are also increasing in numbers and we had a record number of highly qualified applicants this year and had to make some tough decisions. Our student body continues to be diverse and multinational: with students from China, Korea, India, Taiwan, Turkey, Argentina and the Philippines. We also have a larger number of students from the U.S. than in the past: out of 1 MPH student, 18 MS students and 15 PhD students currently enrolled, 11 are from the U.S.

Those of you who attended ENAR last year may have noticed some of our students. With some help from contributions from Alumni and Friends, we rented a University of Iowa van so that a group of graduate students could drive to Pittsburgh to attend the annual ENAR meeting last Spring. Some presented papers, some looked for a job, and some just went to talks and events. The students all appreciated the support and the opportunity to attend the meeting. Thank you to everyone who contributed to our Biostatistics Research and Development Fund. Please see the photos and write up further in this newsletter.

Faculty members continue to be productive in teaching and research, and we have reported some highlights in this newsletter. A long list of publications from 2003 is included, along with a list of publications of the students. We continue to branch out in new directions: Mike Jones reports on a new collaboration with the VA Center of Excellence in Health Services Research and a University Press release describes Bill Clarke's new grant for clinical research in Islet Cell Transplants. Particularly notable this year was Jane Pendergast's election to be President of ENAR in 2006 and Jeff Dawson winning the College Service Award.

It's a privilege to serve as Head of this Department and I look forward to next year. As always, please email your news, professional and personal, to me, kathryn-chaloner@uiowa.edu, or Terry Kirk, terry-kirk@uiowa.edu, or send regular mail to our address listed. We really like to hear from you.

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Students News

Spring and Summer 2004 Graduates

MS Program

Cristina Laura Acion	Continue in the PhD program
Emine Ozgur Bayman	Continue in the PhD program
Xiao Dong Huang	Employed in Dept of Biostatistics, Clinimetrics, Inc., San Jose, CA
Adela Koentjoro	Employed at Streck Laboratory in Omaha, NE
Wei Qiao	Employed at Johns Hopkins University
Qian Shi	Continue in the PhD program
Huaming Tan	Enrolled in the Program in Public Health Genetics PhD Program at the University of Iowa
Xiangyan Xu	Living in Iowa City
Suhong Zhang	Continue in the PhD program
Haiqing Tang	Employed at the University of Wisconsin
Lixian Sun	Employed in the Birth Defects Registry at the Univ. of Iowa.
Laura Stierman	Employed at Northwestern University Chicago Campus, Department of Medicine
Qun Guo	Employed at Harvard's Channing Laboratory
Boikanyo Makubate	University of Glasgow PhD program

PhD Program

Deli Wang, MMed, PhD Thesis: "*Robust estimation of a two-way semilinear model with applications to microarray data normalization and analysis*", under the direction of Dr. Jian Huang. Deli's thesis concerns the analysis of microarray data and, specifically, the normalization, using smoothing and nonparametric methods. This is a very important topic in bioinformatics and public health genetics. Deli is now a Research Assistant Professor at the Wallace Tumor Institute at The University of Alabama at Birmingham.



You may read the abstract of Deli's thesis at: <http://www.public-health.uiowa.edu/biostat/pdf/DeliPhDthesisAbstract.pdf>.



Graduation May 2004. Pictured above (left to right) Suhong Zhang, Qian (Cicci) Shi, Kathryn Chaloner, Wei Qiao, Lixian Sun, and Emine Bayman.

Student Awards

Deli Wang is the recipient of the 2004 Milford E. Barnes Award for Biostatistics.

Qian Shi was elected to the Delta Omega Honorary Public Health Society. She is the first University of Iowa Biostatistics student to receive this honor in its inaugural year at the University of Iowa.

Annual Report of the Biostatistics Student Organization (BSO), 2003-04

Fall 2003

On September 13th, the BSO organized a picnic at City Park in Iowa City to welcome new students. Roughly 20 students attended despite a nasty downpour of rain.

On October 24th, the BSO held a meeting for the students in the Student Commons. The meeting was mainly to introduce the five new officers for the 2003-04 school years. The officers were President Wei Zhang, Vice President Eric Schaefer, Academic coordinator Qian Shi, Recreation coordinator Yoon-sang Kim, and Secretary Wei Qiao. Also discussed was the scheduling time for the Comprehensive Exam. The meeting also served as a way to foster mutual communication between students and the department.

On November 8th, the BSO organized an event in hopes of watching the Iowa vs. Purdue football game among students. About 25 students gathered for the fun.

Spring 2004

On January 29th, the BSO had a student meeting. The gathering was formed to welcome new students enrolling for the spring semester. It was also a time for students to discuss the seminar activity sponsored by BSO, a series of short seminars given by faculty. The goal was to familiarize students with research being conducted in the department. About 15 students and three faculty members attended the meeting.

On March 6, the BSO organized a bowling night. About 15 faculty and students gathered together at a local bowling alley.

On April 24th, the BSO organized a Spring Picnic and impromptu volleyball game. Despite the bad weather, 14 faculty and staff (including their family), and 11 students and their families showed up.

From February 6th to April 9th, the academic coordinator Qian Shi organized a study group for M.S.'s final/PhD qualifying exam.

Biostatistics Student Organization Officers for 2004-05

President:	Minggen Lu
Vice President	Yingwei-Qi
Academic Coordinator:	Yu-Hui Huang
Recreation Coordinator:	Yajun Zhu
Secretary/Treasurer:	JonDavid Sparks

Biostatistics Students 2004-05

New PhD Students (all completed MS in our Biostatistics Program in 2004)

C. Laura Acion
Emine Bayman
Qian (Cicci) Shi
Suhong Zhang

New MS Students

Patrick Breheny BS, Iowa State University
Knute Carter BS, University of Adelaide, Australia
Nathan Gotman BA, Grinnell College
Yu-Hui Huang BS, National Taiwan University; MPH, Boston University
Jihey Lee BS, Yonsei University, South Korea
Yingwei Qi BMed, M.Med, Peking University, Beijing
Min Shi BMed, China Medical University; MS, Biology, University of Iowa; MS, Computer Science, University of Iowa
JonDavid Sparks BS, Utah State University
Yajun Zhu BE, ME, East China University of Science and Technology

New MPH Student

Anna Hassebroek BA, Creighton University

Continuing Students

PhD Students	MS Students	MPH Students
Jaysi Bulter	YiYi Chen	Vibhu Dhawan
Kwang Youn Kim	Ilkyung Cho	
Minggin Lu	John Ely	
Maria Mendosa	Mei Huang	
Peter Shaw	Taikyoung Kim	
Xianjin Xie	Yoonsang Kim	
Xinqun Yang	Dennis Lucas	
Bongin Yoo	Sanjukta Modak	
Wei Zhang	William Morris	
Zugui Zhang	Eric Schaefer	
	Adam Summers	
	Shea Watrin	
	Eun-mee YoonAnn	
	Jie Zhang	

ENAR 2004

This Spring several students attended the ENAR Meeting in Pittsburgh. Thanks to donations from Alumni, the department requisitioned a vehicle and off they went on the 10-hour drive to Pittsburgh accompanied by two of our faculty, Brian Smith and Jeff Dawson. A good time and an educationally enriching experience was had by all. Deli Wang presented a paper "Robust Estimation of a Two-way Semilinear Model with Applications to cDNA Microarray Data Normalization and Analysis".

If funds permit, we plan to sponsor transportation to the 2005 Joint Statistical Meetings in Minneapolis next year. It's a great experience for our students.



Our group met up with Wenquan Wang (PhD '03) at ENAR. From left to right is Wenquan Wang, Qun (Carolyn) Guo, Brian Smith, Qian (Cicci) Shi, Jeff Dawson, Wei Zhang, and Haiqing Tang.

To the right is a group photo of them ready to return from Pittsburgh (From the left: Haiqing Tang, Laura Stierman, Deli Wang, Qun (Carolyn) Guo, Brian Smith, Jeff Dawson, Cicci Shi, and Wei Zhang).



Student Presentations at 2004 Joint Statistical Meetings

Xianjin Xie: A Goodness-of-fit Test for Logistic Regression Models with Continuous Predictors (Oral Presentation)

Laura Acion: Intuitive Nonparametric Effect Size Index for Treatment Trials (Poster Presentation)

Chris Irwin (MS '03) writes that in June 2004 he will begin working at Medtronics, in the Neurological Division, at their World Headquarters complex in Columbia Heights, Minnesota. Medtronics is a leading medical instrument company who started in pacemakers, but have branched into other implantable instruments. Congratulations Chris on your new job and good luck.

Chandon Saha (PhD '01) “I graduated in 2001 and completed my PhD dissertation under Professor Jones. I was fortunate having Prof. Jones as my dissertation advisor. Under his prudent guidance and suggestions, I was able to finish my PhD sooner than what I expected. Professor Jones is definitely a great strength for the department.

I joined the Division of Biostatistics at the Indiana University School of Medicine in 2001 as an Assistant Professor. I spend 10% of my time teaching and the rest for research. My primary responsibilities are: 1) teaching Biostatistics courses to the graduate students, 2) conducting collaborative research work as a co-investigator on NIH funded grants, 3) providing mentoring to the young investigators with statistical help on their funded grants, 4) providing statistical help and reviewing the protocols submitted to the General Clinical Research Center, 5) writing the statistical results and methods section for manuscripts, 6) writing the stat sections and advising on the study designs for future grants, and 7) conducting my own research. My research interests are quantifying bias in the methods used for longitudinal studies with informative missing data and developing methods for unbiased estimators for longitudinal studies with informative missing data.”

Lirong Zhao (MS '03) “Graduated in May 16, 2003 from pretty, quiet and tiny Iowa City, I started my career in Department of Biostatistics and Applied Mathematics in University of Texas MD Anderson Cancer Center in Houston at its warmest season. As one of the Statistical Analysts, I have been working like a small minnow in a big pond full of knowledgeable catfish. It's been a pleasure to work here, as a start point, and I believe I have improved a lot within this year.

As recalling my graduate period in Iowa, I cannot stop missing those excellent courses as well as the nice and knowledgeable professors. Dr. Dawson's introduction to this excited field on biostatistics; Dr. Pendergast's attractive introduction to fundamental knowledge on Linear Models; Dr. Clarke's clear and still-in-use handouts; Dr. Burmeister's sampling skills, which currently is one of my major dishes everyday; Dr. Jones' sophisticated mixed models. Dr. Zimmerman's entry-level training on SAS, Dr. Pendergast's entry-level training on HSR research. It is a good memory of those tough (on homeworks and exams) and happy days (only homeworks and exams).

One of the good news for me is a research paper based on my preceptorship project that I finished in my last semester, 'Comparison of Fixed and Random-Effects Methods for Predicting Cancer Incidence in Iowa Counties Using SEER Data', was chosen as one of the student research paper award winners by Health Policy Statistics Section (HPSS) of Joint Statistical Meeting (JSM). Dr. Jeff Allen, my preceptorship adviser, will present it in JSM in Toronto, Canada in August 11, 2004.

I also had a chance to participate in several local conferences. In November 2003, 'Statistical Study of Disability Days for Patients with Cancer in 1997 MEPS' won the 2nd place award for poster presentation in Disease Management category at 4th Annual Health Services and Outcomes Research Conference held in Houston, Texas; Another poster, 'Comparison of Disability Days between Families with and without Childhood Asthma', presented at the Texas Public Health Association Annual (TPHA) Conference on April 2004, won the only Outstanding Research Project Poster Award. Other than sincere appreciations to the advisements and supports of my current supervisors, also deep thanks to my teachers in Iowa who gave me a solid training at school.

As a long way to go in my professional career, I am confident I will improve more in the future. Best wishes to my teachers in Iowa, and good luck to other alumni and current students.

Alumni News—continued

Wenquan Wang (PhD '03) writes for he and his wife, **Jianfang Hu** (MS '03) *It's so nice to hear from Iowa again! We are doing fine. I'm involved in three SPOREs (Specialized Program of Research Excellence, NCI grant) and some other projects. I enjoy working here in UAB cancer center because there are so many projects going on and I can meet many investigators and new challenges. The 5-year training and experience in Iowa provided me with many skills, which I find more and more helpful to my collaborative research and my own methodology research as well. Jianfang is doing great in the department of Biostatistics too. She works on a huge grant on stroke. And the department is encouraging her to pursue her PhD here.*

We moved into our first own house (brand new) ever in February. It's totally an excitement even though we need to work a lot on the house such as shopping for furniture and yard work. It's very warm in Birmingham, so we need to water and mow our lawn a lot. The funny thing is that we've only been one year in Birmingham, but we already miss Iowa City a lot. Maybe we will visit Iowa City in a winter to go sledding again.

Faculty Awards

Jeffrey D. Dawson, Director of Biostatistics Graduate Studies, received the 2004 College of Public Health Service Award

Kathryn Chaloner was elected in 2003 as Fellow in the American Association for the Advancement of Science.

New Faculty in the Department of Biostatistics

Hyonggin An, Assistant Professor

My research interests are missing data analysis, causal inference, Bayesian statistics, and statistical modeling in psychology and neurology. I received a BS in Statistics and Economics from Korea University. Then, I came to the United States to broaden and improve my statistical thinking in depth and received an MS from the University of Chicago in 1998 and a PhD from the University of Michigan in 2004. My thesis was on robust model based analysis of missing data and I plan to continue on this subject. While I was in Michigan, I worked for the Michigan Alzheimer's Disease Research Center as a biostatistician and learned not only how to apply statistical methods to real scientific problems, but how to collaborate with scientists in many different disciplines than mine. These invaluable experiences have provided a background for a creative and productive career at Iowa. Other than study and research, I enjoy playing and watching all kinds of sports, especially tennis and golf. My family loves Iowa City which has a family-friendly and culturally diverse environment. I am very happy to start and build my career at the Department of Biostatistics in the University of Iowa and will look forward to the future.



Jacob J. Oleson, Assistant Professor

My research interests are in Bayesian methods for estimation from surveys, particularly when there is missing data such as nonresponse. I also do work in spatial statistics and small area estimation. I received a bachelors degree in mathematics from Central College in Pella, Iowa. I then continued with my graduate work in statistics and received my masters and PhD from the University of Missouri – Columbia. My thesis was on Bayesian spatial methods for small area estimation. I worked closely with the Missouri Department of Conservation throughout my tenure at Missouri. I joined the faculty at Arizona State University in the Department of Mathematics and Statistics in 2002. There I began discussions with the Center for Environmental Studies doing collaborative work involving spatial statistics and survey sampling. After two years at ASU, I am thrilled to be back in the state of Iowa having joined the Biostatistics faculty here. My research areas and interests have meshed well in working with Jane Pendergast in the Center for Public Health Statistics. This is an exciting opportunity for me and Go Hawks!



New Faculty in the Department of Biostatistics - continued

Gideon-Jay D. Zamba, Assistant Professor

My research interests are in change point detections, their application to syndromic surveillance and disease control. My interests in change point theory started as a graduate student in statistics at the University of Minnesota when I took a reading with Dr. Douglas Hawkins on the topic of change point and their sequential application to dynamic control. I then continued to do research on the topic as this has led to my dissertation in 2003. I joined the faculty of Biostatistics in the College of Public Health in August 2003, and have enjoyed teaching biostatistics and working with Dr. Bridget Zimmerman at the Biostatistical Consulting Center. I also enjoy doing collaborative work with Dr. Anne Wallis on finding the cause to the epidemiological paradox in birth weight among the Latina group in the United States, and with Dr. Anne Helene Skinstad on substance abuse among women in Iowa. The greatest privilege that I have had is to work with Dr. William Clarke and Dr. Kathryn Chaloner at the Clinical Trials Statistical Data Management Center. I am at the beginning of my career with a lot to learn from my seniors, and I am looking forward to more joy in the future here at the University of Iowa.



Ying Zhang, Associate Professor

My research interest covers panel count data, survival and longitudinal data analysis, multiple comparisons in regression setting, and statistical computing and data mining. I started off my career as an applied mathematician with concentration on computational mathematics and I taught three years in the Department of Mathematics at Fudan University in China before coming to US for pursuing my Ph.D. degree. While studying in an applied mathematics Ph.D. program in Florida State University, I accidentally found that statistics is something that I truly enjoy. So I decided to transfer to a statistical Ph.D. program and I got my Ph.D. in Statistics from University of Washington in 1998. I conducted a fundamental research in the analysis of panel count data for my thesis under the supervision of Professor Jon A. Wellner and some of the results have been published in premier statistical journals. I will continue this research program in UI.



From August 1998 to June 2004, I worked in the Department of Statistics and Actuarial Science at University of Central Florida. I joined my colleagues developing a MS program in statistical data mining and I found it was a very enjoyable and rewarding effort, as this program was greatly recognized by the local business community in Orlando area and has become one of the favorite graduate programs in UCF. In addition to statistical methodological research, I was also actively engaged in collaborative research with faculty in nursing and microbiology at UCF. I have accumulated valuable biological and medical knowledge beyond statistics theory through these activities, and in the meantime, I discovered what I can do as a statistician to help scientists improve their studies. Moreover, my statistical methodological research was also greatly motivated through those collaborative works. I think I have naturally transferred from a traditional mathematical statistician to a biostatistician. Joining the Department of Biostatistics at University of Iowa offers me a greater opportunity to expand my biostatistician career and I'm looking forward to having a fruitful future and making significant contribution to the Department.

The IHAST2 Trial

Report by William R. Clarke

The Hypothermia during Intracranial Aneurysm Surgery (IHAST2) study is a large multi-center, prospective, randomized, partially blinded clinical trial, designed to determine whether mild intraoperative hypothermia results in improved neurologic outcome in patients with an acute subarachnoid hemorrhage (SAH), undergoing an open craniotomy to clip their aneurysms. The study was conceived by Dr. Michael Todd in the Department of Anesthesiology and Dr. James Torner from the Department of Epidemiology. The Clinical Trials Statistical and Data Management Center (CTSDMC) in the Department of Biostatistics worked with Drs. Todd and Torner to design and implement this study. The center was responsible for all statistical and data management aspects of the trial. We are currently preparing the first of many manuscripts to come from this important study.

To the best of our knowledge, this is the only NIH funded trial to examine the impact of an intraoperative intervention on neurologic outcome following any neurosurgical procedure. It is certainly the largest trial of its kind yet undertaken. The hypothesis of the study is that mild intraoperative hypothermia (a body temperature ~ 33° C) would improve long term neurologic outcome (as measured by Glasgow Outcome Score) in patients with recent subarachnoid hemorrhage (SAH) undergoing open craniotomies for the clipping of intracranial aneurysms, when compared with otherwise identically managed patients who are kept normothermic (~ 36.5° C) during surgery.

Investigators from 30 clinical centers randomized 499 patients to hypothermia and 501 patients to normothermia. Randomization was completed in April of 2003 and the last follow-up was obtained in August of 2003. At final follow-up, 65.9% of hypothermic patients and 62.7% of normothermia patients had a good outcome (no neurological deficit). This difference was not statistically significant (OR=1.14 with 95% confidence interval (0.88 to 1.48)). This negative result is important because a large proportion of surgeons doing this procedure routinely use hypothermia during surgery. The study showed that patients receiving hypothermia are at increased risk for certain types of serious adverse experiences without the expectation that they will benefit from this added risk.

Center for Research in the Implementation of Innovative Strategies in Practice (CRIISP)

Reported by Michael P. Jones



This year the Iowa City Veterans Affairs (VA) Medical Center received a 5-year \$3.6 million grant to establish the Center for Research in the Implementation of Innovative Strategies in Practice, or CRIISP for short. In the U.S. health care system, there is often a gap between recognized best strategies of care and what occurs in practice. The overall mission of CRIISP is to understand current methods and to research new methods for incorporating knowledge into practice, often referred to as evidence-based practice, for improved care of America's veterans. Specific aims include the development and testing of new interventions. The directors of CRIISP are Dr. Gary Rosenthal, Director of the UI Division of General Medicine, and Dr. Fred Wolinsky, the College of Public Health's Colloton Chair in Health Management and Policy.

Where does a statistician, like myself, fit into a center for health services research? The type of studies generated by CRIISP will involve large data sets with multiple levels reflecting the complicated nested structure of the health care system; more precisely, patients are nested within physician, who is nested within hospital, which is nested within geographic region. Although the outcome of interest is a patient's health, characteristics (covariates) are measured at the patient, physician, hospital and regional levels with, of course, random effects at each level. Hypotheses regarding incorporating evidence-based practice may be formed at any one of these levels. I still maintain my longstanding interest in survival data analysis, nonparametrics and missing data methods, but over the last several years I have become increasingly interested in analytical methods for correlated data. Hierarchical modeling links these interests with the VA health care data. Currently, we are at the early stages of developing project proposals and mentoring young investigators.

Research —continued

University of Iowa News Release - Oct. 12, 2004

UI Center Receives \$21 million to Coordinate Data in Diabetes Study

University of Iowa researchers in the College of Public Health and Roy J. and Lucille A. Carver College of Medicine have received a \$21 million, five-year grant from the National Institutes of Health to operate the data coordinating center for an international research consortium studying islet transplantation in patients with type 1 diabetes. The network of five clinical centers will focus on improving the safety and long-term success of methods for transplanting islets, the insulin-producing cells of the pancreas. The Clinical Trials Statistical and Data Management Center (CTSDMC) in the UI Department of Biostatistics was awarded the grant to establish the data coordinating center and facilitate multiple aspects of the research activities.



"The data coordinating center will work with the investigators to develop and implement important clinical and laboratory studies," said William Clarke, Ph.D., principal investigator of the Iowa portion of the study, UI professor of biostatistics and director of the CTSDMC. "Multi-center trials generate massive amounts of data that must be gathered, managed and analyzed statistically. The data coordinating center will consolidate data from the five clinical centers as well as assist in study design and provide organizational support." Islet transplantation is a promising experimental approach to treating type 1 diabetes, which accounts for up to 10 percent of diagnosed cases of diabetes in the United States (up to 1 million people). This form of diabetes usually strikes children and young adults, who need several insulin injections a day or an insulin pump to survive. Insulin shots, though critical now for controlling blood glucose, do not restore normal physiological control of blood sugar. Therefore, many people with type 1 diabetes eventually develop one or more complications, including damage to the heart and blood vessels, eyes, nerves and kidneys.

"Replacement of islet function through transplantation, with restoration of normal glucose control, is the best hope to avoid the complications of diabetes in these patients," said Lawrence Hunsicker, M.D., UI professor of internal medicine and co-principal investigator of the study. In islet transplantation, islets are first extracted from the pancreas of a deceased donor and infused into a person with type 1 diabetes through the portal vein of the liver. In successful transplants, the cells lodge in the liver's small blood vessels and begin producing insulin. Only a very small number of such transplants have been done at this time in people with difficult-to-control type I diabetes.

There are several impediments to the wider testing of islet transplantation. One is the scarcity of islets - pancreases from only about 6,000 donors become available each year in the United States, and many are used for whole organ transplantation. One of the objectives of this consortium is to study ways in which islets can be expanded in vitro to make human islets available to many more patients. Another obstacle to islet transplantation is the side effects of the medications that are needed to prevent the immune system from rejecting donor islets. The consortium will be studying immunosuppressive strategies that are both more effective and safer for the recipients of islet transplants.

Other UI researchers involved in the study are co-principal investigator Kathryn Chaloner, Ph.D., professor and head of biostatistics; Joseph Dillon, M.D., and Robert Spanheimer, M.D., associate professors of internal medicine; Julie Lang, study coordinator; Richard Peters, database administrator; and Michelle Wichman, CTSDMC coordinator.

In addition to the UI data coordinating center, the research consortium consists of clinical centers in Miami; Minneapolis; Philadelphia; Edmonton, Canada; and Uppsala, Sweden.

Research —continued

American Academy of Neurology – News Release (September 13, 2004)

Mild Alzheimer's Leads to Errors on Driving Test

St. Paul, Minn. – People with mild Alzheimer's disease make more mistakes on a driving test than older people with no cognitive problems, according to a study published in the September issue of *Neurology*, the scientific journal of the American Academy of Neurology.

The study involved an on-road driving test with 32 people with mild Alzheimer's disease and 136 people with no neurological disorders. The people with Alzheimer's disease were still driving, although some had reduced their driving due to restrictions imposed by themselves or their families. The 45-minute test included "on-task" time when the drivers were given verbal instructions to follow a route, as well as time when the drivers were not "on task", or were not asked to remember and follow instructions.

The people with Alzheimer's were more likely to make driving errors during the route-following task than those without Alzheimer's. For example, more than 70% of the people with Alzheimer's made at least one wrong turn while following the route, while about 20% of those without Alzheimer's made at least one wrong turn. Nearly 70% of those with Alzheimer's made two or more safety errors, such as er-shoulder, while following the route, compared to about 20% of those without Alzheimer's. Performing the task accentuated the safety gap between the two groups when drivers were not asked to follow specific instructions.

Congratulations to Jeff Dawson, Associate Professor; Laura Stierman (MS '04), and Qian Shi (MS '04) for their contributions to this investigation.

"There was no difference in the basic control of the vehicle for people with Alzheimer's" said study author and neurologist Mathew Rizzo, MD, of the University of Iowa in Iowa City. "This leads us to believe that the mental demands of following verbal instruction and navigating a new route can compete with drivers' cognitive resources and potentially impair their driving abilities." People with Alzheimer's who were familiar with the area of town where the test was conducted did not get lost during the test, although those with Alzheimer's who were unfamiliar with the area were likely to get lost during the test.

"Drivers with early Alzheimer's may have trouble learning new routes but continue to navigate accurately on familiar routes," Rizzo said. "This suggests that drivers' license policies could be considered that would allow driving only in familiar neighborhoods for people with mild dementia." Rizzo also noted that some of the people with Alzheimer's did not make any errors or get lost, and drove safely. "This suggests that some people with mild Alzheimer's remain fit drivers and should be allowed to continue to drive", he said. The study concluded that the driving ability of people with mild cognitive impairment should be assessed with driving tests that include tasks that check their memory and attention skills.

2003 Biostatistics Publications

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Missing data analysis, Bayesian statistics, causal inference

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Theory of design of sample surveys, biostatistical methods in clinical trials, epidemiology of cancer deaths in Iowa farmers

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Clinical trials, Bayesian statistics, experimental design, HIV/AIDS research, infectious diseases

Joseph E. Cavanaugh, PhD, Associate Professor

Model selection, time series analysis, modeling diagnostics (assessing predictive influence)

William R. Clarke, PhD, Professor and Deputy Head

Clinical trials, discriminant analysis, Coronary risk factors in children, cardiovascular disease epidemiology, longitudinal data analysis

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Clinical trials methodology, analysis of repeated measures, driving simulator studies, family medicine, statistical methods in epidemiology

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Survival analysis, semiparametric regression, nonparametrics, robust methods of regression, likelihood theory, informative dropout

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Spatial statistics, Bayesian methods, analysis of survey data

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Longitudinal data methods, analysis of repeated measures, public health statistics and policy

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Bayesian statistics, computational statistics, spatial statistics and environmental exposure assessment

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Panel count data, data mining, multiple comparisons in regression modeling, longitudinal analysis, survival analysis

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Sample size and power, longitudinal data analysis, logistic regression models

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