

DEPARTMENT OF BIOSTATISTICS AND COMPUTATIONAL BIOLOGY

2008

TAKING A LOOK BACK AT 2008 -- LOOKING FORWARD INTO 2009

Dear Colleagues,

This is the first issue of what will hopefully be an annual newsletter that will be sent to current and former faculty and post docs in the Department of Biostatistics and Computational Biology at the University of Rochester, and graduates of the M.A. and Ph.D. programs in Statistics and M.S. Program in Medical Statistics. The newsletter will also be available on our website www.urmc.edu/smd/biostat. In return we ask that you acknowledge receipt, keep us up-to-date on your contact information, and let us know of any personal or professional developments in your own life and career that may be of interest to colleagues. We want to keep in touch.



As many of you will know, our Chair, Andrei Yakovlev, M.D. Ph.D., passed away suddenly in February 2008. In his six short years at the University, Andrei had led a major expansion of the Department, tripling its size and greatly increasing its scope, while at the same time vigorously pursuing research programs in a variety of areas. I have been appointed Interim Chair while the University conducts the search for his permanent successor. We enter this new phase of our history deeply appreciative of his contribution and inspired by his leadership. Plans are underway to hold a scientific conference in Rochester on June 8 and 9 to celebrate Andrei's work – more details can be found elsewhere in this newsletter.

David Oakes, Ph.D.
Interim Chair



Hulin Wu was elected a Fellow of the American Statistical Association. This is an honorary designation, given to members in recognition of high achievement. Hulin was honored at the Joint Statistical Meetings this summer in Denver. The number of Fellows is limited to roughly 3 per 1000 members of the Association, 1/3 of 1%. Other ASA Fellows here are **Jack Hall, Sam Rao, David Oakes,** — and **Andrei Yakovlev.** In addition, **Jack Hall, Govind Mudholkar, David Oakes,** and **Andrei Yakovlev** are Fellows of the sister organization, **Institute of Mathematical Statistics (IMS).** Alumni who have been so honored, by **ASA, IMS** or both include **Sid Dalal, Diane Lambert, Moshe Shaked, Mark Espeland, Amita Manatunga,** and **Deb Sinha.**

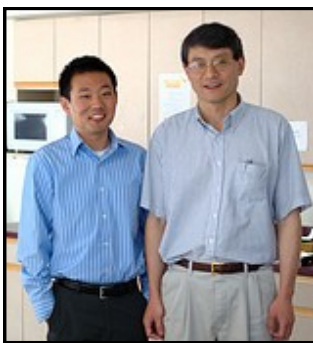
Yan Ma

June 23, 2008

(awarded October 2008)
Advisor: Xin M. Tu

Thesis Title:
Inference for Instrument Reliability and Rater Agreement within a Multi-rater and Longitudinal Data Setting

Current position: Instructor of Biostatistics in the Division of Biostatistics and Epidemiology in the Department of Public Health at Weill Medical College of Cornell University and Instructor of Biostatistics in the Research Division at the Hospital for Special Surgery.



Yan (l) with advisor Xin Tu

Doctorate Degrees Awarded in 2008

Linlin Chen

August 13, 2008

(awarded October 2008)
Advisor: Andrei Yakovlev/Anthony Almudevar

Thesis Title:
The Correlation Structure of Microarray Data and its Statistical Implications

Current position: Post-doctoral fellow at the University of Rochester working in cancer research under the supervision of Drs. Peterson and Hyrien.



Alexander Pearson

October 1, 2008

(to be awarded March 2009)
Advisor: Derick R. Peterson

Thesis Title:
Subset Selection for High-dimensional Data, with Applications to Gene Array Data

Current position: MD/PhD student, returned to full-time medical studies upon completion of his PhD.



Alex (l) with advisor D. Peterson

Since 1974, Doctorate Degrees have been awarded to 74 individuals. The first was to **Hubert Jan-Peing Chen,** who is now a Contract-Appointed Full-time Professor with the Department of Accountancy and Financial Management, Zhejiang University, Hangzhou, Zhejiang, China.



Grant Awards

Dongwen Wang, Ph.D.

Dr. Wang is PI of the Online Clinical Education and Technology Center sponsored by the New York State Department of Health AIDS Institute through its HIV Clinical Education Initiative (CEI). More details for the CEI tech center can be found here:

<http://www.urmc.rochester.edu/strategic-plan-in-action/strategic-plan-news/hiv-center.cfm>

Ollivier Hyrien, Ph.D.

Dr. Hyrien was awarded an NIH/NCI R01 grant to develop novel statistical methods and stochastic models to analyze the effects of chemotherapy using high-dimensional flow cytometry data.

Li-Shan Huang, Ph.D.

Dr. Huang was awarded an R21 grant to study a new class of mechanistic risk prediction models for cancer treatment outcomes.

Anthony Almudevar, Ph.D.

An R21 grant was awarded to Dr. Almudevar, which will fund work in applications of graphical modeling to gene pathway analysis. Dr. Glazko is collaborating in this research.

Peter Salzman, Ph.D.

Dr. Salzman has completed the training portion of his K99

grant and has been approved for transfer to the R00 portion. This grant is funding his research into models of regulatory pathways and networks.

Xing Qiu, Ph.D.

Dr. Qiu is serving as PI on an R21 grant originally awarded to Dr. Yakovlev, funding research on novel methods for using the correlation structure of gene expression data in gene discovery applications.

Hua Liang, Ph.D.

Dr. Liang was awarded an NSF grant, "Development of Model Selection for Semiparametric Models in Analysis of High Dimensional Data". The goal of this project is to significantly enhance the availability of tools and software for analyzing complicated high-dimensional data.

Hongyu Miao, Ph.D.

Dr. Miao received a Provost Multidisciplinary Award for \$70K (the highest amount possible!) to study developing novel mathematical models and computing techniques for HIV viral fitness research.

Moves

Dr. Hongwei Zhao, an Associate Professor who joined the department in 1997, left for a position at Texas A&M University. We thank Hongwei for her service here and wish her well in her future career.

Dr. Gregory Warnes has taken a new position in the University as Program Director - Center for Computational Arts, Science & Engineering. He retains a secondary appointment in the department and is continuing to work with Dr. Hulin Wu in the Center for Biodefense Immune Modeling (CBIM).

Obituary

Alexander V. Zorin

March 21, 1947 - July 19, 2008

We are saddened to report the passing of Dr. Alexander Zorin. Dr. Zorin was a long-time collaborator of Dr. Yakovlev.

Born in Leningrad, Russia and known as "Sasha" to his close friends, Alex was laid to rest after his brief battle with cancer. He is survived by his wife, Tamara and son, Maxim. Most of his research was concerned with stochastic modeling and its application to cell biology and cancer screening. He came to the US in 2001, working with Andrei Yakovlev at the Huntsman Cancer Institute, University of Utah. He moved to Rochester in 2002 to join the Department of Biostatistics and Computational Biology.



Statistical Modeling for Biological Systems

A Conference in Memory of Andrei Yakovlev

In honor of our late chairman, **Dr. Andrei Yakovlev**, the Department of Biostatistics and Computational Biology will host a scientific conference in Rochester on June 8 and 9, 2009. **Dr. Yakovlev** led a major expansion of the department, tripling its size and greatly increasing its scope, while at the same time vigorously pursuing research programs in a number of areas at the intersection of mathematics, statistics and biology. Many of Andrei's collaborators have accepted invitations to participate, as have other distinguished researchers who have worked in related areas. We will provide a forum, probably in the form of poster sessions, for presentation of contributed papers related to Andrei's work. It is intended to publish the papers presented in a commemorative volume of Proceedings. Information about conference registration, submission of contrib-

uted papers, accommodation and social activities will be available shortly at the website www.urmc.rochester.edu/biostat/ayconference.

Collaborations

James P. Wilmot Cancer Center

The Biostatistics Shared Resource (BSR) for the **James P. Wilmot Cancer Center (JPWCC)** was formed in the spring of 2005, with **Dr. Peterson** serving as Director. This move strengthened and formalized the special relationship between JPWCC and the Department of Biostatistics and Computational Biology. Presently, **Drs. Peterson** and **Hyrien** serve on the JPWCC Peer Review Committee, reviewing the study designs and statistical analysis plans of all new investigator initiated cancer study protocols.

Dr. Peterson also serves on the JPWCC Data and Safety Monitoring Committee, which is charged with monitoring enrollment and adverse event reports for all ongoing cancer studies at the university. BSR faculty also assist JPWCC faculty and fellows in the preparation of cancer study protocols and grant applications, participate in the conduct of these studies, perform statistical analyses, develop novel methodology as needed, collaborate in the preparation of abstracts and manuscripts to present the results to the scientific community, and provide basic training in statistical methods and software.

Recent collaborations of the BSR with the JPWCC have resulted in several new grants being funded in 2008. As Core Leader of the Biostatistics Core for the newly funded \$11.5M Lymphoma Specialized Programs of Research Excellence (SPORE) grant (\$2.3M per year for 5 years), **Dr. Peterson** and his biostatistical team (**Drs. Hyrien, Feng, and Chen**) are providing the statistical support for all four primary projects led by investigators at Rochester, The University of Arizona, and Virginia Commonwealth University. There are only four other Lymphoma SPORE grants in the country. **Dr. Peterson** is also serving as the chief statistician for the largest investigator initiated clinical trial conducted by the JPWCC in years, funded via an R01 for the prevention of venous thrombosis in cancer outpatients, with enrollment to be conducted at both Duke University and the University of Rochester.

Collaborations (continued)

Seychelles Child Development Study

Drs. Huang and **Thurston** continue collaboration with **Drs. P. Davidson** and **G. Myers** on the Seychelles Child Development Study (SCDS), along with three Biostatistics graduate students **A. Stokes-Riner**, **M. Lynch**, and **D. Gunzler**, and a post-doctoral fellow, **T. Love**. The SCDS was funded about 20 years ago to study the effects of prenatal methylmercury (MeHg) exposure, through maternal fish consumption, on child development. The SCDS continues in several directions: to explore the effects of MeHg on developmental outcomes with and without adjustment for maternal nutritional status during pregnancy, to examine late developmental effects at adolescent age, to evaluate children's school performance in relationship with mercury, and to quantify the risk of mercury co-exposure from maternal fish consumption and from dental amalgams.

Programming support for the SCDS is provided by **Ms. Joanne Janciuras**. Biostatistics faculty and staff collaborate with faculty from the Department of Environmental Medicine on a number of other projects, including animal and human studies to assess the effects of exposure to micro fine particles on respiratory and cardiac function. Much of this support is provided through the Biostatistics core facility of the Environmental Health Sciences Center, directed by **Dr. Oakes**.

Center for Biodefense Immune Modeling

The NIAID-funded Center for Biodefense Immune Modeling (CBIM) is led by **Dr. Hulin Wu**, PI/ Director, and comprised of Department members with training and experience in statistics, mathematical modeling, bioinformatics, and software development, as well as investigators from 5 immunology labs. The mission of this multidisciplinary center is to develop and validate mathematical models of the immune response to influenza A infection to predict outcomes of various intervention strategies and of various influenza strains (including pandemic flu). The CBIM investigators are developing parameter estimation methods and parameter identifiability techniques for ordinary differential equation (ODE) and delay differential equation (DDE) models. CBIM laboratories have collected extensive data on the dynamics of cellular responses to infection in mice. **Dr. Jingming Ma** leads the bioinformatics team in the development of a web-based data management and sharing system (DataTrans) and **Dr. Gregory Warnes** leads the software team in creating user-friendly simulation and parameter estimation software tools. The CBIM has an education component to provide multidisciplinary training in immunology, statistics and mathematical modeling. The CBIM has recently begun Year 4 of the 5-year project. More information can be found on the CBIM website <https://cbim.urmc.rochester.edu/>.



Promotion...

We are pleased to report that **Dr. Sally Thurston** was promoted to **Associate Professor** effective July 1, 2008.

Clinical and Translational Sciences Institute**Collaborations (continued)**

Members of the Department of Biostatistics and Computational Biology belong to two key functions of University of Rochester's Clinical and Translational Sciences Institute (CTSI): the Design, Biostatistics and Clinical Research Ethics key function, and the Biomedical Informatics key function. Faculty members provide statistical support for the CTSI's Clinical Research Center, a center that provides an optimal setting for medical investigators to conduct safe, controlled, inpatient, and outpatient studies. This support includes the areas of protocol development, study design, sample size determination, and statistical analysis, as well as interpretation and reporting of study results. Our major CTSI efforts in 2008 included consulting, developing methodologies, and contributing to national CTSI efforts, each of which is briefly described below.

The Biostatistics consulting service has recently been incorporated into a CTSI-wide consulting service. Our two key functions, in collaboration with other CTSI key functions, have developed a web-based integrated system to handle eight types of consulting requests: Biomedical Informatics, Biostatistics, Cost-Effectiveness, Epidemiology, Ethics, Laboratory Support, Recruitment and Retention, and Regulatory Support. Users who wish to request a consultation in one of these areas can do so through a single CTSI web site, which also describes the consulting services in each area. Consultation requests from this web site go directly to **Ms. Susan Messing** in Biostatistics, who refers the request to the appropriate key function. This system also facilitates tracking the requests, and is now integrated with the billing system for consultations that incur a charge. Biostatistics consultations are handled by Ms. Messing, together with faculty and postdoctoral fellows or graduate students on a rotating basis. In the most recent 12-month period for which data are available (ending in March 2008), Biostatistics personnel assisted 59 URMC investigators with research design and planning, and 63 URMC investigators in 29 departments (and 6 non-URMC investigators) with other analysis.

Biostatistics faculty have developed several novel statistical methodologies and software, motivated by collaborations with URMC investigators. The methodologies are advertised annually in the UR CTSI newsletter. They are available to UR investigators, who work directly with the relevant Biostatistics faculty member. Available methodologies include cure-rate analysis of failure time data; analysis of microarray gene expression data; correlation analyses for longitudinal or clustered data; power and sample size estimation for longitudinal or clustered data; inference for the effect of exposure on multiple outcomes, and for multiple outcomes nested in domains; construction of multivariate prognostic signatures for high-dimensional data; sensitivity and specificity for longitudinal data in the presence of missing data; and mixture modeling of microarray data. Several of these methodologies have led to publication.

Biostatistics faculty participate in national Biostatistics, Epidemiology, and Research Design (BERD) steering committee meetings and working groups. Members of the BERD Online Resources and Education Task Force, led by University of California, San Francisco, were awarded a CTSI administrative supplement to expand CTSpedia, an online resource for biostatistics consultants and clients. The University of Rochester has a subcontract on the administrative supplement, and is primarily developing and contributing SAS macros to CTSpedia. We have contributed several SAS macros thus far, including a macro for linear regression which automatically checks model assumptions and prints key results.

Drs. Sally Thurston (director of the Biostatistics Key Function) and **David Oakes** (co-director) attended a recent meeting in Bethesda, MD involving many well-known biostatisticians from around the U.S. with the hope of increasing the visibility of the biostatistical role in translational research.

Biomedical Informatics Program**Collaborations (continued)**

Dr. Dongwen Wang serves as Co-Director of the Biomedical Informatics Program (BIP). As a key function of the UR Clinical Translational Science Institute (CTSI), the BIP has provided informatics consulting services to 57 faculty members, 5 trainees, and 7 staff from 26 departments and academic units in the university. Through informatics support to research data management, clinical trials, online education, and delivery of behavioral interventions, the BIP has participated in and successfully secured a variety of grants for URMC, including some important multi-institution and large center grants such as the UR Center for Public Health and Population Intervention for Preventing Suicide (PHP-Center) grant, the UR Developmental Center for AIDS Research (DCfAR) grant, the New York State HIV Online Clinical Education and Technology Center grant, the Preemie Influenza Vaccine Consortium (PIVC) grant, and the UR Deaf Research Center grant.

Computational Biology Group

The Computational Biology Group (CBG) consists of **Drs. Derick Peterson, Anthony Almudevar, Ollivier Hyrien, Galina Glazko, Xing Qiu, Peter Salzman, and Rui Chen**. Because **Andrei Yakovlev** was the leader of the CBG in addition to serving as Department Chair, this year has seen great challenges for the CBG in its efforts to build a thriving research program. Fortunately, a good foundation was left for the group.

This year has seen much progress in the area of gene regulatory network modeling related to our ongoing collaboration with **Dr. Hartmut Land**. A grant proposal to fund further research submitted earlier this year with **Drs. Almudevar** and **Salzman** as co-investigators was funded. Currently, this collaboration is being funded by an R01 grant originally awarded to **Dr. Yakovlev**. A renewal was recently submitted by **Dr. Almudevar**.

Dr. Peterson is continuing his work on novel methods for the construction of prognostic signatures based on microarray data under the auspices of the CTSI. These methods will be used in a significant new collaboration with **Dr. William Hall**. This project centers around the development of biomarkers of neurodegenerative diseases based on peripheral tissue (blood samples), an area of significant clinical interest.

Motivated by collaborations developed across the Medical Center, CBG is also engaged in developing novel statistical methods and computational tools to study the dynamics of complex biological systems. Currently the primary focus of this investigation is on studying the proliferation of multi-type cell populations using techniques of flow cytometry (such as CFSE-labeling experiments). Work in this area will provide experimentalists with novel approaches to analyze flow cytometry data and to gain a quantitative insight into how cell populations develop over time, and how treatment may affect their normal development. This work finds multiple applications in immunology, cell biology, and cancer, for instance. Investigators working in this area include **Drs. Ollivier Hyrien, Rui Chen, and Rui Hu**, and graduate student **Zhen Chen**. These activities are supported by several R01 grants recently awarded by the National Institutes of Health.

Dr. Lancelot James, a postdoctoral fellow in the Department in 1993-9 and now Professor, Hong Kong University of Science and Technology, was elected as a Fellow of the IMS "for contributions to Bayesian nonparametric statistics, the development of Poisson partition calculus for Levy processes and for dedicated service to the IMS".

Division of Psychiatric Statistics

Launched officially in January 2007, the Division of Psychiatric Statistics (DPS) has been playing a significant role in promoting and strengthening collaborative intervention, prevention and translational research in mental health, suicide and related research. Co-directed by **Dr. Xin Tu** and **Dr. Wan Tang**, DPS provides integrated service and support for nearly all clinical trials and research studies being conducted by investigators in the Department of Psychiatry. The goal of the DPS is to provide leadership in statistical design and analysis as well as methodological research in the behavioral and social sciences, furthering innovative biostatistical collaboration with data coordinating and informatics services in support of all research programs within the Department of Psychiatry. These activities occur in close collaboration with investigators and facilitate their familiarity with and training in design and data analytic issues.

Over the past year, the DPS continued to play a significant role in developing an initiative to improve an existing model that was in place prior to 2006 for collaborations between Psychiatry and Biostatistics in order to deliver efficient and integrated services from study design to database setup, study monitoring, data quality assurance, data analysis, and assistance with preparation of manuscripts for publication of study findings. Under the old model, different studies set up their own database systems for data collection and management and as a result, a considerable amount of redundant work was

performed. Further, there was minimal interaction between study coordinators/data managers and statisticians until the time of statistical analysis, resulting in a large amount of work on the statistical analysis side to perform data integration and formatting. Most importantly, opportunities were missed to address many data quality issues such as missing data that would have been addressed had there been a better collaboration between the two departments. The new initiative first called for integration of various parties in a study to create a common service infrastructure to efficiently and effectively support data management and other informatics services as well as statistical analyses. This infrastructure would provide a shared architecture to support various implementation steps and service aspects of a large study.

By leveraging this departmental resource with a wide range of expertise from the Department of Biostatistics and Computational Biology, the DPS continues to be very successful in fostering collaborations with various investigators from the Department of Psychiatry as well as School of Nursing by helping address challenging statistical methodologic issues arising from these collaborative studies and making important contributions to the fields of mental health, HIV/AIDS, Veterans' mental health, and other related health services research. As of November 25, 2008, the DPS has completed 30 major collaborative projects, 18 collaborative grant submissions, 9 publications (published or in press), and 12 manuscripts (in revision or first submission). In addition to meeting with investigators on an as-

needed basis, the DPS has formed five working groups to meet with specific groups of investigators on a weekly or bi-weekly basis to help address data management, design and statistical issues common to their studies.

As we enter the era of community-integrated research, we face multiple methodological challenges. The "objects" for study no longer are individuals or diseases, but communities, schools, or social networks. How do we quantitatively measure and characterize links and interactions, or strengths of such associations, to assess their impact on the detection of risk or protective factors for suicide, or prevention "treatment effects" across broad populations? Measures of social networks are inherently multi-faceted and multi-dimensional; available statistical methods tend to be descriptive in nature. Indeed, the statistical community has only begun to struggle with the types of methodological challenges that arise from these new and emerging research paradigms. The DPS will continue to work closely with investigators in the Department of Psychiatry and School of Nursing to develop new methods and models for studying social networks, their structures, and their interplay with the interventions that form the basis for public health approaches to mental health and related health services.



HRFUP - Heart Research Follow up Program**Collaborations (continued)**

This group, developed by **Dr. Arthur Moss** in the 1970's and now headed by **Dr. Wojciech Zareba**, has involved many faculty and graduate students in Biostatistics since its inception. Department collaborations with them have been resulting in a study flow of 10 to 20 joint publications per year. Current projects include a large on-going implanted defibrillator clinical trial, MADIT-CRT (**Dr. Moss**, PI), with major participation by **Dr. Hall** and also including **Drs. Oakes, Zhao, Wang and Beck**, graduate students **Jason Lacombe** and **Hui Zhang**, and programmer **Carrie Irvine**; the long-term LQTS follow-up study (**Dr. Moss**, PI) with collaboration by **Dr. Peterson**; risk stratification in MADIT-II type patients (**Dr. Zareba**, PI) involving **Dr. Hall**; and a study of genetic-related abnormalities of ECGs (**Dr. Couderc**, PI) with **Drs. Peterson** and **Zhao**. Two new clinical trials will get underway in 2009 (**Drs. Hall, Beck** and **Peterson**, with graduate student assistance), and other studies are in planning stages (**Drs. Oakes** and **Hall**).

Department of Neurology

Members of the Department of Biostatistics and Computational Biology have continued long-standing collaborations with The Department of Neurology, one of the most active departments in the Medical Center in terms of clinical research. Most of this activity takes place through national and international multicenter research groups that are led by members of the Department of Neurology, including the Parkinson Study Group (PSG; **K. Kieburtz, M.D.**), Huntington Study Group (HSG; **I. Shoulson, M.D.**), Muscle Study Group (MSG; **R. Griggs, M.D.**), and Tourette's Syndrome Study Group (TSSG; **R. Kurlan, M.D.**). **Dr. Oakes** serves on the Executive Committees of the PSG and HSG, and **Dr. McDermott** serves on the Executive Committee of the MSG. The Department of Biostatistics and Computational Biology houses the Biostatistics Centers for these research groups and works closely with the Clinical Trials Coordination Center (CTCC) and the Muscle Study Group Coordination Center (MSG-CC) in the Department of Neurology in the implementation and reporting of more than 2 dozen clinical research studies at any given time. **Drs. Oakes** and **McDermott** serve as Principal Investigators on U01/R01 grants funded by the National Institute of Neurological Diseases and Stroke (NINDS) to lead the Statistics and Coordination Centers for trials of coenzyme Q₁₀ in Parkinson's disease (**Oakes**) and Huntington's disease (**McDermott**). Major projects completed or reported during the past year include a randomized trial of surgical vs. medical treatment for intractable temporal lobe epilepsy, an epidemiologic study of the link between streptococcal infections and symptom exacerbations in children with Tourette's syndrome, a randomized placebo-controlled trial of ethyl-EPA in Huntington's disease and, in collaboration with colleagues from Harvard Medical School, a retrospective data analysis that found a striking association between moderately elevated uric acid levels and slower rates of progression of symptoms in individuals with Parkinson's disease. If confirmed in future studies, this association may provide a new approach to developing treatments for this devastating disease. **Dr. McDermott** participated as a member of the Program Committee and faculty for the week-long NINDS-funded Clinical Trials Methods Course in Neurology held in Vail, Colorado in August, 2008 (PI: **B. Ravina, M.D.**). **Drs. Oakes** and **McDermott** serve as preceptors on the NINDS-funded training grant "Experimental Therapeutics in Neurologic Diseases" (PI: **R. Griggs, M.D.**) and assist in recruiting trainees and in the educational activities for the fellows. Other department members who participate in joint research activities with the Department of Neurology include **Dr. Christopher Beck**, **Ms. Shirley Eberly**, and programmers **Arthur Watts**, **Jan Bausch** and **Keith Bourgeois**.

Dr. Ping Gao, postdoctoral fellow in 1995-9 and currently with The Medicines Company, Parsippany, New Jersey, published a paper in the Journal of Biopharmaceutical Statistics titled "Sample Size Re-estimation for Adaptive Sequential Design in Clinical Trials" with Prof. James H. Ware from Harvard University and Dr. Cyrus Mehta from Cytel Corporation. A key reference in this paper is a 1999 Biometrics paper co-authored by Lu Cui, a 1994 graduate of the Statistics doctoral program.



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The **2008 Charles L. Odoroff Memorial Lecture** was held on Tuesday, April 29, 2008 with guest speaker **Marvin Zelen, Ph.D.** who is a Lemuel Shattuck Research Professor of Statistical Science with the Department of Biostatistics at Harvard School of Public Health. **Dr. Zelen** spoke on the "Early Detection of Disease and Stochastic Models". The **2009 Memorial Lecture** will be given by **Dr. Terry Therneau**, a former colleague, and presently at the Mayo Clinic in the "other" Rochester (MN).

The **2008 Spring Colloquia Series** hosted speakers **Nikolay Yanev** from Bulgaria Academy of Sciences, **Karen Bannan-Roche** from John Hopkins University, **Moonseong Heo** from Weill Medical College, **Grace Yang** from the National Science Foundation, and **Tanzy Mae Love** from Carnegie Mellon University.

The **2008 Fall Colloquia Series** started with the **Yakovlev Colloquium**, which will be the first Fall colloquium each year to honor the late **Dr. Andrei Yakovlev**. The speaker for the **Yakovlev Colloquium** was **Yi Li** from Harvard School of Public Health. Other speakers for the **Fall 2008 Series** were **Jane-Ling Wang** from the University of California, Davis, **Kung-Sik Chan** from the University of Iowa, **Douglas E. Schaubel** from the University of Michigan, **Jeffrey Morris** from the University of Texas MD Anderson Cancer Center, and **Jean Opsomer** from Colorado State University.

Welcome...

We welcome **Sue DiVincenzo** to the front office. Sue has taken the major role in the preparation of this newsletter and in creating the "Wall of Fame" shown on the first page.

Wilson Students Benefit from UR Medical Center Apprenticeship Program

On May 29th, for the 3rd year, the Biostatistics Apprenticeship Outreach Program invited 15 select math and science students from the Joseph C. Wilson Magnet High School to work closely with researchers at the URMC through a program that exposes them to the practice of biostatistics in a professional setting and introduces them to the possibilities of pursuing a career in the field. The program is coordinated by the Department of Biostatistics and Computational Biology (**Mike McDermott, Ph.D.**) and the Heart Research Follow-up Program (**Scott McNitt, M.S.**).

During the two days at the URMC, students engage in interactive sessions with the faculty. Biostatisticians and medical researchers describe their collaboration to the students and relate it directly to the students' own previous coursework at Wilson. The students also break into small groups to talk with faculty about career opportunities in biostatistics and medicine.

Prior to the completion of the first day-long session, students are presented with their own research projects. Students then spend part of every school day for the next 3 weeks learning statistical techniques and working on research with their math teacher, **Shawn Haarer, Ph.D.** (co-coordinator of the outreach program). They return to URMC for a half-day session to present their analyses of the project data and receive feedback from URMC faculty.

Other URMC faculty who participated in the program this year include **Sally Thurston, Ph.D.** and **Ollivier Hyrien, Ph.D.** from the Department of Biostatistics and Computational Biology, **Arthur J. Moss, M.D.**, and **Jean-Philippe Couderc, Ph.D., M.B.A.** from the Heart Research Follow Up Program, and medical students **Judy Liu** and **Jon Black**.