Message from our Chair

Dr. Charles Sing is remembered for saying “Our ability to gather data grows by log amounts, but our ability to analyze it grows only arithmetically.” Therefore, he warned us to collect only the data needed to answer a specific question. What Sing said remains unheeded because our computational ability has caught up with our data-gathering ability. We are now in the era of Big Data, both in terms of data gathering and data analysis. The words Big Data are on everyone’s lips. It’s a phrase that may be difficult to define, but we feel we would know it when we see it.

For example, nearly all hospital entry and discharge records along with billing information are collected, digitized and stored every day in 5,000 hospitals across the United States. Some of these electronic health records (EHR) date back nearly four decades, and the VCU Health System has been a pioneer in accessing and making use of EHR data over much of this period of time.

In an important development, over the past decade experts in bioinformatics and computational science have begun to design computer software to harmonize this Big Data so that it becomes medically informative. Surprising trends and patterns of illness and medical care can be coaxed from this staggeringly large accumulation of hospital data. Other software has been developed to scrub these vast hospital records of personal identifiers and medically sensitive information. Such deidentified data can be widely distributed and shared over time and space. We can only begin to imagine the medical and public health secrets that powerful search engines can pry loose from this trove of Big Data. An immediate benefit would be to track the spread of disease through a population in real time.

It is in the interest of the Department to be on the cutting edge of learning how to manipulate the EHR collections of Big Data by augmenting our faculty with experts in the collection, storage, curation and analysis of Big Data and by teaching new courses in this exciting field to develop a cadre of experts to continue to lead the field.

Another source of Big Data emanates from the comprehensive analysis of biological systems, as represented by the fields of genomics, metagenomics, and all of the omics and sonic revolutions spawned by genomics, including mRNA transcriptomics, protein proteomics, metabolite metabolomics, and the environmental exposures exposome. We now have available for curation and analysis these omics data, not only for humans but for many viruses, species of bacteria, invertebrates, and vertebrates.

I am pleased to announce that we have recently recruited Dr. Hongmei Jiang to our Department from Northwestern University. She is an expert in genomic data curation and analysis, and we are please to welcome her to the Department as a leader in the field of Big Data analysis.

Analyzing Big Data can be approached agnostically without any hypotheses, preconceived conditions or postulated mechanisms of action. This approach is known as discovery science and is eminently suited for analyzing Big Data. Discovery of science has short-circuited the much slower painstaking testing of hypotheses about candidate genes and their downstream products one at a time based on hunches and intuition.

Discovery science offers a much more powerful pathway to revealing new facts uninfluenced by prior knowledge or preconditions. This approach has already yielded useful information about gene function and expression. For example, discovery science pointed the way to viewing type 1 diabetes as the product of a deceptive immune system. Other diseases and conditions appear to be influenced less by gene transcription per se and more by interaction of genes with other genes or with non-transcribing DNA found in introns millions of base-pairs away from the gene of interest.

Discovery science truly represents a revolution in approach, understanding and analysis. We are now poised to utilize and exploit the omics data that have been generated by thousands of scientists working all over the globe over the past decade.
Congratulations to the members of the Biostatistics Data Coordinating Center (DCC) who serve as the data coordinating site for an NIH-funded study of childhood epilepsy entitled “Consequences of Febrile Seizures in Childhood” or FEBSTAT. Their competitive renewal received a priority score of 1.1 and funding is expected to continue for another seven year period. The VCU site works under the direction of Shumei Sun, Ph.D., while the overall study PI is Shlomo Shinnar, M.D., Ph.D. of Montefiore Medical Center. The FEBSTAT study examines the consequences of febrile status epilepticus (FSE) and is clarifying the relationship between FSE, hippocampal atrophy, hippocampal sclerosis (HS), and the development of subsequent temporal lobe epilepsy (TLE) and cognitive impairment. The goals of this proposal are: 1. Study the epileptogenic process leading to the development of clinical TLE utilizing serial MR imaging, EEG, and evaluation of cognitive function including memory and executive function, as well as evaluation of behavioral and psychiatric comorbidity. The second goal is to ascertain and characterize the emergence of TLE and other forms of epilepsy in the FEBSTAT cohort and thereby determine the validity of putative clinical and laboratory biomarkers of HS and TLE following FSE.

Data collection is being performed at five sites in the U.S. Data from the five sites are sent to the DCC and we are responsible for entry, cleaning, and storage. The role of the DCC is to: (1) provide the five sites and the PI with a central core for transmission of all research data forms, MRIs, EEGs, serum and CSF samples; (2) design and maintain relational databases for storing the information; (3) design and maintain a tracking system to ensure the timely collection and processing of data; and (4) periodically transmit the data to Dr. Shinnar after all quality control measures are implemented. Other responsibilities include: development and refinement of new forms for the proposed assessments, development of core databases, management and tracking of data transfer from sites to the DCC and the cores, data entry, data queries, and preparation of reports and data files as requested by Dr. Shinnar.

**Featured Presentations from our Graduate Students**

**Bhanu Evani**

**Hanan Hammouri**

**Kabita Joshi**
Presented her research poster entitled “Preliminary Steps in Whole Mixture Strategy for Risk Evaluation” at The Society of Toxicology 52nd Annual Meeting in San Antonio, TX, March 11, 2013.

**Amber Wilk**

*Click a link below to visit that section of the Biostatistics Department website:*
Alumni Corner

We planned and held our first “exclusive” Department of Biostatistics Graduation Ceremony on May 10. Yes, we have participated in graduation ceremonies and commencements in the past, but this was our very first “own” event. We celebrated with 6 Ph.D. graduates and 1 M.S. graduate, proudly listed on page 4.

Our new graduates are entering the employment market in search of their first professional position. This is where our alumni can provide some assistance. If you know of opportunities within your organization, we have an “External Vacancies” section on our website. Just go to http://www.biostatistics.vcu.edu/job-opportunities/ and click Submit an external vacancy or send your information to Russ Boyle at boyle@vcu.edu.

Alumni Seminars

Thanks to Karl Peace for inviting past students, alumni continue to return and present insightful and timely seminars in our Friday seminar series. During this academic year, we enjoyed seminars by

- Frank Rockhold, Ph.D.
- Don Stablein, Ph.D.
- Wendy London, Ph.D.
- Tony Segreti, Ph.D.
- Barry Schwab, Ph.D.

If you would like to participate in our seminar series, re-connect with some of your former faculty members and enjoy a return trip to Richmond, please contact Chris Gennings, Ph.D. (gennings@vcu.edu) or Guimin Gao Ph.D. (ggao3@vcu.edu).

By the numbers….

**Ph.D. Track**
We are excited to report that 4 Ph.D. students have been accepted into our graduate program for the Fall 2013 year.

**M.S. Track**
Three M.S. students have been accepted into the graduate program for the Fall 2013 year. One M.S. student is Clinical Research & Biostatistics track.

Featured student

Amber Wilk  Ph.D. Candidate

Amber is originally from Simpsonville, SC. She received her B.S. in Composite Mathematics and Statistics Secondary Education at Utah State University in Logan, UT. She is currently finishing her dissertation, “The Estimation and Evaluation of Optimal Thresholds for Two Sequential Testing Strategies,” with Dr. Donna McClish and plans to defend in July 2013. Amber is currently looking for employment in the pharmaceutical industry or hospital setting, and would ideally like to work on pediatric clinical trials.

Besides her coursework and dissertation, Amber has a diverse history of research experiences. She has worked as a teaching assistant, two years as a statistical consultant with VCU Technology Services, and completed a one year internship with Merck & Co., Inc. She is currently a research assistant for the Department of Healthcare Policy and Research at VCU and just submitted a manuscript summarizing that work. In her spare time, she’s an active member of the Graduate Student Association and volunteers once a week tutoring math at a local middle school.

When Amber is not working on her dissertation, she is often found running, playing competitive dodgeball or hanging with friends around town. She completed the Richmond Marathon in November 2011. Recently, she has gained interest in travelling. Last summer she spent two weeks in Australia and after graduation, she plans to spend a week in Romania.
Honors

Ghalib Bello, Graduate Student, was awarded **Best Presenter** at Summer Student Research Program (SSRP) 2012.

Mary Haynes, Graduate Student, was runner up for **Best Presenter** at SSRP 2012.

Paul Manser, Graduate Student, was awarded **Best First Time Presenter** at SSRP 2012.

Ghalib Bello, Graduate Student, received the **Biopharmaceutical Applied Statistics Symposium Scholar**.

Chunfeng Ren, Graduate Student, was awarded the **Karl E. Peace Biostatistics Award for Excellence and Scholarship**.

Qing Zhou, Graduate Student, received the **C.C. Clayton Award**.

Shuxian (Suzie) Sinks, Graduate Student, was inducted into the honor society **Phi Kappa Phi**.

Chunfeng Ren, Graduate Student, was inducted into the honor society **Phi Kappa Phi**.

Amber Wilk, Graduate Student, was inducted into the **Alpha Epsilon Lambda**, Graduate Student Honor Society.

Amber Wilk, Graduate Student, received the **John C. Forbes Graduate Student Honors Colloquium Presentation Award**.

Yongyun Shin, Assistant Professor, was awarded **Teacher of the Year**.

Recent Graduates

**Ph.D. in Biostatistics, May 2013**

- **Dr. Caroline Carrico** is a Senior Population Health Analyst at Health Diagnostics Laboratory, Inc in Richmond, VA.
- **Dr. Emily Sheldon** is a Senior Statistician at Synta Pharmaceuticals in Lexington, MA.
- **Dr. Adam Sima** is a post doctoral fellow in the Department of Biostatistics at VCU.
- **Dr. Sarah Reese** is gearing up for the interview process and exploring her work options. Her wedding planning has been in overdrive!!

**M.S. in Biostatistics, August 2013**

- Teri Cabana

**Ph.D. in Biostatistics, August 2013**

- Jaiyi Hou is exploring her job options.
- **Amber Wilk** is looking for employment in the pharmaceutical industry or hospital setting.

Newly awarded grants & contracts, **January 2013– May 2013**

**Shumei Sun Ph.D.**

Subcontract PI on NIH’s award entitled **“Consequences of Prolonged Febrile Seizures in Childhood.”**

**Wen Wan, Ph.D.**

Co-I on NIH’s award entitled **“Targeting AML with P13K/AKT Inhibitors and BH3-mimetics”** with Dr. Grant in Internal Medicine as PI.

**David Wheeler, Ph.D.**

PI on American Cancer Society’s award from Massey Cancer Center entitled **“Development and Assessment of Statistical Models of Spatial-temporal Cancer Risk.””**
Announcements

Congrats are in order…

Shudong Wang, Post-doctoral Fellow
Congratulations to Dr. Wang who had her second daughter May 2013. The department enjoyed hosting a baby shower in her honor.

Donna McClish, Full Professor
Congratulations to Dr. Donna McClish who was promoted to Full Professor.

Nitai, Mukhopadhyay, Associate Professor
Congratulations to Dr. Nitai Mukhopadhyay who was promoted to Associate Professor with tenure.

New Hires

Adam Sima, Ph.D.
A former graduate student who was hired as a post-doctoral fellow to assist Dr. Sun on her obesity grants.

Yunyun Wu, M.S.
A M.S. Biostatistician who joined the department in January to assist faculty members.

Miao-Shan Yen, M.S.
A M.S. Biostatistician who joined the department in January to assist faculty members.

Job Opportunity

Assistant Professor Position #F35500
The Department of Biostatistics at the Virginia Commonwealth University (VCU), School of Medicine is seeking to fill a non-tenure track faculty position at the assistant professor level. We are seeking applicants with graduate training and research interest in biostatistics or other closely related methodologies. Primary responsibilities will be to consult and collaborate with multi-disciplinary teams of researchers, and grant submission, data analysis, and manuscript preparation. Additional responsibilities include teaching theoretical or applied courses in the Department of Biostatistics, advising and mentoring graduate students, and providing departmental or university service. The successful candidate will be expected to supplement these activities with extramural grant support, which can be obtained through independent initiative or through collaborations with researchers in the department and the university.

Please click on the position hyperlink for more information.

Department of Biostatistics
One Capitol Square, 7th Floor
830 East Main Street
Richmond, VA 23219
P.O. Box 980032
Phone: 804-828-9824
Fax: 804-828-8900