

**Biostatistics Departmental Retreat
The Conference Center at Sheppard Pratt
Saturday, December 13, 1997
9:00 AM - 5:00 PM**

MINUTES

Present: Faculty: Scott Zeger, Helen Abbey, Karen Bandeen-Roche, Ron Brookmeyer, Marie Diener-West, Francesca Dominici, Steve Goodman, Brent Johnson, Joanne Katz, Subhash Lele, Kung-Yee Liang, Charles Rohde, Richard Royall, Daniel Scharfstein, Matthew Tayback, Jim Tonascia, Mei-Cheng Wang.

Students: Liz Garrett, Sarah Gray, Chiung-Yu Huang

Staff: Mary Joy Argo, Mark Chiveral, Chris McCullough, Debra Moffitt

1) State of the Department

Dr. Zeger began the retreat with an overview of the past year. Some highlights of what has been, overall, a time of exceptional growth and strengthening, include:

- the hiring of new faculty members Daniel Scharfstein, Francesca Dominici, and Brent Johnson and new staff members Chris McCullough and Debra Moffitt;
- the recruitment of an exceptionally strong cohort of first-year students under our new admissions policy;
- the publication of books by Steve Piantadosi (*Clinical Trials: A Methodologic Perspective* from John Wiley), Richard Royall (*Statistical Evidence: A Likelihood Primer* from Chapman and Hall), and Subhash Lele (*Morphometric Analysis of Landmark Data: A Coordinate Free Approach*, in press from Chapman and Hall);
- the awarding of new grants to Mei-Cheng Wang (on longitudinal data analysis), Kung-Yee Liang (genetic epidemiology), Karen Bandeen-Roche (aging), Subhash Lele (geographic information systems), and Scott Zeger (mental health).
- a revitalization of our professional educational programs (the Brookmeyer Report) and our doctoral curriculum;

- the granting of honors and awards to Ron Brookmeyer (elected Fellow of the American Association for the Advancement of Science), Marie Diener-West (Golden Apple for Excellence in Teaching and election to the Clinical Committee for the Board of Advisors for Cystic Fibrosis Foundation), and Kung-Yee Liang (Advising, Mentoring, and Teaching Recognition Award from the Student Assembly);
- continued growth in our endowment through generous gifts from Zenas Sykes, Merck, and Janssen Pharmaceutica.

Dr. Zeger, Chris McCullough, and Mary Joy Argo then presented a series of tables highlighting the following major trends:

- short-term shortage of offices which may be alleviated by the construction of the new building later this year;
- decrease in numbers of doctoral students due to attrition and more stringent admissions criteria;
- increasing teaching demands on current faculty;
- slight decrease in MPH enrollments in 601-604 due to school-wide decrease in MPH enrollment;
- departmental master's students continue to outnumber doctoral students in 601-604 (by an average ratio of 5:1).

2) Progress from Last Retreat/SWOT Review

Using the list of departmental strengths, weaknesses, opportunities, and strengths (SWOT) identified at last year's retreat, the entire group discussed certain items and any progress to date (as follows)

STRENGTHS

- **Faculty quality:** Improved, with the addition of our three new faculty.
- **Collegial environment/no factions:** At same high level.
- **School's commitment to "one Department of Biostatistics":** Improved, but we need to continue to be in touch with other departments to make sure we're meeting their statistical skills.

- **Johns Hopkins Health Institutions/breadth of expertise:** At same high level.
- **Physical space:** Improved since last year (we're now "settled in")
- **Computing hardware/software:** Improved with acquisition of ATHENA server but still needs to be improved (ie, Web page, distance learning course materials)
- **Relations with faculty in other departments of the Health Institutions (eg, Mental Hygiene):** Improved in some areas (joint courses with Mental Hygiene and Health Policy and Management) but there is still work to be done.
- **Quality of students, graduates, applicants:** Improved (new admissions criteria).
- **7-8 NIH-funded training slots:** At same level.
- **Interest in biostatistics by students in other departments:** Improved (although the need for more biostatistics courses puts an even greater demand on faculty time)
- **Faculty involved in national professional organizations:** Improved (Ron Brookmeyer's election as Fellow of AAAS; Marie Diener-West's being named to the Clinical Committee for the Board of Advisors for Cystic Fibrosis Foundation).

WEAKNESSES

- **Small size:** Although this can be weakness in the context of increasing demand for more courses from a small group of faculty, it was acknowledged that our size is, more often than not, a strength in terms of having a collegial, supportive environment.
- **Lack of breadth/rigor in PhD courses:** Strengthened by addition of the advanced probability sequence, Francesca's Bayesian analysis course, and Dan's advanced survival analysis course.
- **Computing skills of faculty:** More technical support needed.
- **Shorter-term consulting for the Health Institutions - not meeting current needs:** Improved with the addition of the Consulting Center.
- **Perception that department inclines toward theory, not application:** Mainly a matter of perception.
- **Discontinuity in 601-604 series and more advanced service courses:** May be alleviated/addressed by hiring of lead TA, addition of advanced methods course taught by Karen Bandeen-Roche and Bill Eaton.

- **Relationship to PhD statisticians in other departments at SPH and at Homewood:** Room for improvement.
- **Poor infrastructure to support sponsored projects, budgeting:** Problem solved with the hiring of Chris McCullough as financial administrator.
- **Organization of the graduate program:** Improved; more hands-on supervision of the PhD curriculum by having Kung-Yee Liang named director of graduate program.
- **Variability in student funding:** Improved; we now have uniform, written guidelines as to funding policies and procedures.

OPPORTUNITIES

- **Redesign statistical education for public health professionals and scientists:** Already undertaken via the Brookmeyer Report.
- **Innovative distance education courses; short courses for industry; physician education:** Improvement – ie, Marie's quantitative methods course, four-course sequence in the science of clinical investigations.
- **Engage PhD statisticians outside our department to participate in our academic programs:** Steve Piantadosi is currently advising several of our students; Don Hoover has taught a course for us in statistical consulting.
- **Promoting statistics as an integrated way of thinking, not a collection of methods:** The restructuring of the 601 sequence and Karen's new course will both address this issue.
- **Strengthening information sciences/master's-level computer scientist on staff:** Addition of Ying He has helped; still trying to find a full-time person.
- **Strengthening financial management:** Substantially improved by hiring of financial administrator.
- **Mini-Sabbaticals:** This has become a fairly regular process.

Threats:

- **75% funding from master's/professional students which are shifting from full-time to part-time (distance education):** An ongoing concern.
- **Extreme reliance on single source of general funds revenues:** Still a concern but slightly

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improved.

- **Large size and generality of Biostatistics courses offered to Public Health professionals and scientists:** Still a concern.
- **Proliferation of PhD biostatisticians in other departments, combined with our Department's small size:** Still a concern.
- The retreat started with a brief presentation on "The State of the Department," including a review of the attached tables. Dr. Zeger reported that 1997 was a superb year for the Department in nearly all dimensions. The highlights included the following:
 - Departmental faculty continue their outstanding productivity in research and are widely-recognized as international leaders. Ron Brookmeyer was elected a Fellow of the American Association for the Advancement of Science and was the 1997 Lefkopoulou Lecturer at Harvard University. Karen Bandeen-Roche was the first statistician ever chosen to receive a Brookdale National Fellowship, one of four winners. This award provides two years of support for her to pursue her interest in and research on aging. Kung-Yee Liang and PhD candidate Jeff Blume received Advising, Mentoring, and Teaching Recognition Awards from the Student Assembly, and Marie Diener-West won the Golden Apple as the School's best teacher. She was also elected to the Clinical Committee of the Board of Advisors of the Cystic Fibrosis. Richard Royall's book *Statistical Evidence: A Likelihood Primer* (Chapman and Hall, 1997) and Steve Piantadosi's book *Clinical Trials: A Methodologic Perspective* (Wiley and Sons, 1997) both appeared to substantial acclaim. Over the last five years, the faculty have authored or co-authored about 350 scientific papers which have or will soon appear in the best substantive and methodologic journals.
- The faculty successfully competed for a record number of research grants. Kung-Yee Liang received a competitive renewal of his statistical genetics grant. Scott Zeger and several other faculty were awarded a new grant on statistical methods for longitudinal studies in mental health services from NIMH. Mei-Cheng Wang becomes principal investigator of a NIDAA grant on statistical methods for longitudinal and survival data. Subhash Lele is co-investigator on a successful grant application to NASA in collaboration with IBM; this collaboration has the potential to generate substantial growth in the area of geographic information systems at the School.
- During the last year, the Department has successfully built up its endowment to approximately \$700,00, the sources of which are: a gift of \$320,000 from Zenas Sykes; and an additional \$300,00 contribution from the Department's surpluses over the last several years.
- Our new faculty members Daniel Scharfstein, Francesca Dominici, and Brent Johnson,

have settled in and are making important new contributions to the Department. Daniel will be teaching a counting process survival analysis course in the fourth term; Francesca is a leader of the particulate health effects study team and will be teaching a new course on advanced Bayesian methods in the third term. Brent is collaborating with Karen Bandeen-Roche and Scott Zeger on their research projects.

- The Department's budget was balanced for the 1997 fiscal year and it is projected to be balanced again in 1998. A key factor of this financial success is our faculty's ability to maintain approximately 70% of their salary support from sponsored projects. An exciting development in the Department is that our own sponsored projects have grown from \$650,000 in 1996 to \$1,625,000 in 1998, thus providing salary support for our faculty to conduct interesting methodologic research. Another component to our balanced budget is the continued growth in our tuition allocation, which increased approximately 20% from \$782,000 in 1996 to \$945,000 in 1998. We are projected to receive \$1,056,000 in 1999, an additional 12% growth.
- The increase in the tuition allocation method (TAM) reflects the School's increased enrollment. In 1996-97, 9,495 credits were earned in Biostatistics courses, up from 8,533 in the previous year.
- Our PhD program remains strong. Applications were down slightly, from a peak of 107 in 1994-95, to 79 last year. Our entering class was outstanding, however; we successfully recruited four of the six candidates we sought, having competed with other excellence departments of statistics and biostatistics. The PhD curriculum and examination process was substantially revised under the direction of Kung-Yee Liang. The addition of a real analysis and advanced probability in the first year, taught by Jing Qin, is a dramatic improvement that has been well-received by faculty and students alike.
- Over the past year, the Department has invested substantial time in rethinking the instruction of biostatistics to students from other departments. Ron Brookmeyer, Richard Royall, and Marie Diener-West led this effort culminating in the "Brookmeyer Report," which has been well-received by faculty and students across the School. Implementation of the report's recommendations will be undertaken early in the new year.
- Finally, the Department received two generous gifts from the pharmaceutical industry last year. The first, from Janssen Pharmaceutica Foundation, provided \$99,000 to the Department to support statistical teaching and research, partly in collaboration with their statistical staff. The second, from Merck Research Laboratories, was a four-year gift totaling \$350,000 to support junior faculty and students working on statistical models for complex data.

In summary, the state of the Department is excellent. The Department is poised to effectively carry out its leadership role in advancing the force and utility of biostatistics in public health

research and practice.

The Department reviewed its strengths, weakness, opportunities, and threats to create the attached list. One interesting note is that one year ago, the addition of the new SUN server and systems analyst Ying He made computing an apparent strength for the Department. But the addition of new faculty (Scharfstein and Dominici) has made clear that our computing environment remains weak. The faculty identified as our highest priority improving our computing environment, particularly the Department's internet presence. In addition to creating effective homepages for the Department, each faculty member, student, and course, more educational opportunities and better user support are needed to advance the level of computing throughout the Department.

3) Key Elements for Success

In the second morning session, the retreat participants listed key elements for the Department's success of the next five to ten years; a complete, unedited list is attached. TO summarize, the participants indicated that the Department's long-term success requires that it:

- Advance the public's health by:
 1. Teaching biostatistics to public health scientists and professionals
 2. Collaborating with public health and biomedical scientists
 3. Advancing the usefulness of statistical reasoning and methods for public health practice and research
- Meet the School's needs and be recognized as a center of excellence for statistical teaching, research, and collaboration
- Grow in size while maintaining financial balance
- Maintain and nurture the Department's collegial environment
- Become recognized by the School and University as the outstanding center for biostatistical research and practice which we have become

4) Role in the Johns Hopkins Health Institutions

The faculty discussed how to position the Department to be most effective within the School and the Health Institutions. There are more competing demands for faculty, student, and staff time than can be met at the desired level of excellence; therefore, we must set some priorities. After considerable debate, the participants defined the Department's role as follows:

The role of the Department of Biostatistics within the Johns Hopkins University is to:

- *Lead and coordinate biostatistical education for the Johns Hopkins School of Public Health and Health Institutions*
- *Lead and facilitate research on biostatistical reasoning and methods at Johns Hopkins University*
- *Facilitate and to be a major source of biostatistical collaboration and consultation for the Johns Hopkins School of Public Health and Health Institutions.*

As defined above, the Department sees as its responsibility playing a leadership and coordinating role for all biostatistical education at the School of Public Health and, to the extent possible, in East Baltimore. Courses which are fundamentally statistical should be taught by and/or coordinated with the Department of biostatistics faculty.

In the area of statistical and substantive research and statistical collaborations and consultations, the Department faculty recognize that many other statistically-trained faculty must also play a large role. Hence, the Department sees its role as leading and facilitating these activities, which should be expected to take place within Biostatistics but also in many other departments at the School and University.

5) PhD/ScM Programs

This discussion began with a presentation by the student participants about issues of particular concern to them:

- **Teaching Assistantships** – Students feel that the current teaching assistant assignments are not well formulated. Some TAs learn substantial teaching skills from the TA experience, while others learn little. The expectations for TAs are highly variable across faculty. Students requested that TA responsibilities be better defined and made more uniform and that there be a process by which students are taught how to be effective teachers as part of the TA experience. There was also concern that there are too few TAs and too much work per TA.
- **Computing** – Students are unhappy with the current availability of instruction in statistical computing. This responsibility for students outside of the Department typically falls on TAs, who are themselves ill-prepared. Some more regular process by which students master computing methods and software is needed.
- **Faculty Requests of Students** – The responsibility of students to meet requests for assistance from faculty is unclear. Student responsibilities in research and teaching need to be better defined at the beginning of each year.
- **Attracting PhD Candidates** – The students discussed ways in which we might attract the

best undergraduates to Hopkins for their PhD program. The consensus was that the most important factors include: prominence of the faculty; advice given by undergraduate advisors; general reputation of the University and Department; success of the Department's graduates; and information about the Department available over the Worldwide Web. There was consensus that our home page is not competitive with other universities with whom we compete for the best students.

6) Objectives for 1997-98

- Advancing the public's health by collaborations on important substantive research problems.
- Maximizing the productivity and fulfillment of the faculty
- Keeping our research focused on opportunities to advance the public's health
- Meeting the School's needs and being perceived by the School as doing so
- Being recognized by the School and outsiders as being first-rate
- Create an intellectually-stimulating and highly-collegial environment
- Having internationally-prominent faculty
- Achieving excellence in teaching and student learning
- Maintaining a high degree of flexibility and a low degree of hassle
- Retaining a balance of teaching, service, and research
- Be essential to the School's teaching and research
- Accentuate statistical reasoning as well as statistical methods
- Attract high-quality "raw material" in young faculty and students
- Create more effective infrastructure for teaching and research
- Be leaders in biostatistical thinking at the international level
- Translate statistical reasoning for application to substantive fields
- Establish collaborations with quantitatively-oriented substantive experts such as Bill Eaton (Mental Hygiene), Greg Gurri-Glass (MMI), Jon Samet (Epidemiology)
- Develop expertise in new areas of statistical application, including clinical investigations, medical imaging, and quantitative genetics
- Have a stimulating environment that is open to and tolerant of new ideas
- Produce high-quality, effective graduates who are competitive for the best jobs
- Have a "family" (a non-dysfunctional) environment in the Department
- Grow and maintain financial well-being

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