

ON FUNDING OPPORTUNITIES FOR STATISTICAL RESEARCH

University departments are feeling greater pressure to expand their graduate programs by increasing enrollment. This pressure comes at a time that researchers in the statistical sciences are facing greater uncertainty in the level and stability of research funding from traditional sources. This is the first in a series of short entries for *Liaison* organized by the SSC Research Committee which aims to raise awareness of additional funding opportunities for researchers in statistics and related disciplines. While this entry contains a general discussion, we hope that future entries will feature more personal success stories from individuals. The theme of this entry is funding opportunities for research on biostatistical methods.

The field of biostatistics enjoys a high profile in the United States, arising in part from the seminal work of pioneering statisticians (Cornfield, Mantel, Greenhouse, and others) at the National Institutes of Health (NIH) starting in the late 1940s (Greenhouse, 2003). The impact these statisticians had created a scientific culture which values statistical innovation and leadership and today most schools of public health in the United States have dynamic and growing biostatistics departments. Statisticians are also well-recognized for the important role they play in health research in other settings. In the pharmaceutical industry and at the Food and Drug Administration, for example, statisticians play pivotal roles in the design, conduct, analysis and interpretation of studies. Moreover there is a greater tendency for academic statisticians south of the border to engage in pharmaceutical or biotech consultations and collaborations, which in turn fosters innovation in statistical methods. As a result of this engagement in health research, many statistical researchers in the U.S. are well-funded by the National Cancer Institute and other institutes within the NIH.

Support for biostatistical research from the health research community has not historically been as strong in Canada, but things are improving. Many universities across Canada are forming schools of public health which should help increase capacity in biostatistics and offer opportunities for us to demonstrate our ability to conduct independent and collaborative health research. When our primary national granting agency for health research made the transition from the Medical Research Council to the Canadian Institutes of Health Research (CIHR) in May 2000, it came with a broader definition of what constituted health research. Through the Institute of Population and Public Health (IPPH), CIHR now funds “basic methodology development (e.g. epidemiology, biostatistics, survey development, surveillance tools, tools for risk evaluation, risk perception, modeling complex interactions)”. The full mission statement for this institute reveals many areas in which statistical methods play an important role. The Institutes for Cancer Research, Circulatory and Respiratory Health, and Genetics offer other opportunities within CIHR for securing methods grants with an emphasis on particular areas of clinical research.

Statistics from CIHR show an expenditure of approximately 30.4 million dollars for new and on-going research projects self-identified with the Institute for Population and

Public Health. While it is difficult to obtain accurate numbers on the number of grants on biostatistical methods development, it is clear that there are considerable resources available to support the growth of biostatistics within the new schools of public health and elsewhere. There are two funding cycles per year at CIHR: September 15 (registration of intent to apply due August 15) and March 1 (registration due February 1).

Canadian investigators are also eligible to hold grants from the NIH provided the proposed research will have an impact across North America. These grants would most likely be the R01 grants which are basic operating research grants, and there are three competition cycles per year with deadlines of February 5, June 5 and October 5. In addition to these there may be NIH initiated requests for applications (RFA) with their own submission dates. We hope to profile Canadian statistical researchers who hold one of these awards as Principle Investigator in a future entry of this series.

Returning to Canadian sources, career awards are also available for young faculty members through the CIHR New Investigator Salary Award program. To be eligible, researchers must have held a full time research appointment for no more than five years as of the September competition deadline. This program is designed to “provide New Investigators the opportunity to develop and demonstrate their independence in initiating and conducting health research through provision of a contribution to their salary.” The awards are of \$60,000 per year for a five year period. For recipients in a regular academic department this would typically lead to a teaching reduction to enable the development and maintenance of a collaborative health research program.

Provincial salary awards have also been available for some time for biostatistical research from a variety of agencies such as the Michael Smith Foundation for Health Research in British Columbia, the Alberta Heritage Fund for Medical Research, and Fonds de la recherche en santé for researchers in Quebec.

Industrial partnerships can also lead to fruitful collaborations. At the University of Waterloo we enjoyed a seven year Strategic Alliance with GlaxoSmithKline (GSK) which involved the creation of Graduate Scholarships in Pharmaceutical Statistics, applied and technical research meetings, and co-operative work placements for our Master’s graduates at GSK. In addition, several students were hired into full-time positions upon graduation.

Support from industry is more often based on contracts or grants where expectations are for deliverables with a shorter time horizon. While there can be obvious challenges integrating training opportunities into these agreements, balancing academic goals with company requirements, and meeting timelines, when these are overcome this work can often be mutually beneficial. Graduate students who can point to work on a challenging and practically important problem are often viewed favourably when searching for any kind of employment. Finding ways to streamline the process of establishing industrial agreements may make this a more appealing venture for academics.

As a discipline with its origins and evolving history featuring an exciting interplay between innovation and application, in many ways, those of us in the statistical sciences are in an enviable position. Our knowledge and skills are needed and will continue to be needed

in a wide range of areas of science and technology. As demonstrated by numerous individual collaborations and programs such as MITACS (<http://www.mitacsaccelerate.ca/internship>) and the National Institute for Complex Data Structures, interactions between statistical researchers and researchers working on important problems outside of our discipline can foster synergistic and productive research programs.

Of course in the statistical sciences our core funding comes from the Natural Sciences and Engineering Research Council (NSERC). This funding is critical to our research and training and must not be compromised if we are to maintain our international profile in statistics and continue our present level of training highly qualified personnel. In January 2010, NSERC formed a Mathematics and Statistics Liaison Committee to help increase dialogue between NSERC and the community it supports. Louis-Paul Rivest and I are representing the statistical sciences and Gail Ivanoff, as Group Chair for Mathematics and Statistics, is also an ex-officio member of this committee. The first meeting will take place on January 20, 2010, at which point the precise mandate of this committee will be determined. Key issues to be discussed involve the development of mechanisms for reconciling recommendations of sub-committees at the GSC level, transparency and reporting, and long range planning for the Mathematics and Statistics Committee. We will keep you updated on the results of these meetings through future entries of this column.

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Greenhouse SW (2003). The growth and future of biostatistics: A view from the 1980s. *Statistics in Medicine*, 22 : 3323–3335.