



THE LANCASTER GENERAL RESEARCH INSTITUTE

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“All models are wrong; some models are useful.”¹

George Box, Professor Emeritus in the College of Engineering at the University of Wisconsin, coined this phrase to describe the scientific process in fields such as engineering and medicine. The process includes a series of steps that begins with generating a hypothesis, testing it, and basing conclusions upon the data. A key step is the estimation and limitation of the impact of random variation (noise; also known as experimental error) so that we see the true state of nature. Theoretically there will always be some uncontrolled factor, some measurement inaccuracy, some random variation or unknown bias that skews our findings so that we never get a perfectly clear picture of nature. Since at best we can control or minimize, but we can never eliminate these errors, our goal in medicine is to investigate, develop, and test useful models with the recognition that all of them have flaws and are “wrong” to a certain extent.

This reality mandates a continued quest to extend knowledge and test models which deepen our understanding of where models may be useful, as well as to expand the frontiers of scientific and medical knowledge. Our patients and community demand that we seek the most useful models in their care and health management. Thus a community health system can play a role in supporting the scientific process or research in the context of medical care to meet the demands of our patients and community. While this role and culture may differ from a university based system, we believe that the conduct and support of research is essential to promote excellence in care and to meet challenges in the healthcare system and environment.

Within the past few years, Lancaster General has enhanced its commitment to support and develop research through a number of initiatives:

First, to meet the challenge of the increasing volume and complexity of protocols, the Institutional Review

Board (IRB) was restructured. Not only was it enlarged to include additional medical specialties that provide greater understanding of the study protocols, but best practices at other institutions were studied for guidance in revising our policies and procedures for triaging and managing the growing volume of research protocols. A full-time IRB Coordinator is being hired to manage the increasingly complex review process, which is being enhanced to insure that patients are protected and that the risk/benefit ratio of each proposed study is justified.

Second, the Lancaster General Research Institute was formed to conduct and provide support for the design, implementation, and analysis of the steps in research. The Research Institute was originally formed as a function of the Family Practice Residency Program with a focus on primary care research, but it quickly developed into a broader entity with the goal of supporting medical research across the entire organization. In addition to continuing support for the Family Practice Residency Program, we are involved in research projects in diverse clinical specialties such as cardiology, surgery, and emergency medicine. We also support projects related to community health and wellness, such as our recent study to assess the prevalence of pediatric obesity in Lancaster County.

Services provided by the Research Institute include:

- Planning and designing research
- Support for obtaining funding
- Designing research protocols, consent forms, data collection methods and instruments
- Collecting scientific data, creating secure databases and verifying data
- Performing cost-effectiveness studies and analysis
- Performing statistical analysis (including development of methods and sample size determinations)
- GIS mapping and analysis
- Interpreting and summarizing research results
- Preparing tables and graphs of scientific data

- Developing abstracts, posters and papers for scholarly presentation
- Processing manuscripts for publication in peer-reviewed journals

Third, the Lancaster General Research Institute provides a number of opportunities for research internships. During the summer of 2007, there were five interns working in the research offices on numerous projects. Most of the students are undergraduate pre-medical juniors or seniors who look for opportunities to gain research experience to enhance their medical school applications. We occasionally have additional opportunities during the school year, and have hosted students from institutions such as Franklin and Marshall College, Penn State University, University of Pittsburgh, Temple University, and Juniata College.

Finally, the Louise von Hess Medical Research Institute, a part of the Lancaster General Research Institute, was formed in 2006 through the generous endowment of the Louise von Hess Foundation for Medical Education. Funds for research are provided through a process of competitive proposals with oversight from a review

committee. Projects must demonstrate the following characteristics:

- Demonstrate a benefit to the Lancaster Community;
- Focus upon providing improved and high levels of care and outcomes;
- Demonstrate a mechanism of education through dissemination of results, involvement of pre-medical students, medical students, residents, faculty or community physicians or as a part of the purpose of the study;
- Involve pre-medical students, medical students, residents, faculty, or community physicians in the conduct of the study.

The role of research in a community health system is clearly different from a university based system. We are committed to support and explore opportunities to develop and conduct research at Lancaster General. As Director of Research, I am always available to discuss opportunities to expand the scope of research at Lancaster General, in order to enhance the quality of care for our patients and community.

REFERENCE

- 1 Box G., Hunter J., Hunter W. Statistics for experimenters, 2nd ed. 2005, John Wiley & Sons, Inc. Hoboken, NJ.

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