

**SEMINAR SERIES**  
**Department of Quantitative Analysis and Operations Management**  
**University of Cincinnati**

**Weighted Log Rank Subtraction**

**John Bryant**

**Departments of Biostatistics and Statistics**  
**University of Pittsburgh**  
**National Surgical Adjuvant Breast and Bowel Project (NSABP)**

**Friday, January 20, 2006**  
**12:30 PM**  
**214 Lindner Hall**

We consider the comparison of disease-specific mortality in two arms of a randomized clinical trial or a meta-analysis of trials, with emphasis on the setting of operable breast cancer treatment. Particularly in meta-analyses, it can be difficult to obtain adequate cause-of-death information. Even when complete source documentation is available, classification of specific cases is sometimes difficult. We are therefore interested in methods that do not require explicit categorization of deaths according to cause. One such procedure is log rank subtraction, proposed and used by the Early Breast Cancer Trialists Collaborative Group (EBCTCG) in their ongoing quinquennial meta-analyses. We show that this procedure requires assumptions that may not be reasonable in many applications, and therefore propose a modification that eliminates their necessity. We develop the operating characteristics of the new method, compare it to log rank subtraction analytically and by simulation, and illustrate it using data from National Surgical Adjuvant Breast and Bowel Project study B-06.

John Bryant is Professor of Biostatistics, Associate Director of the NSABP Biostatistical Center, and Research Associate Professor of Statistics, at the University of Pittsburgh. Primary responsibilities are associated with his role as Director of the NSABP Biostatistical Center. The NSABP is a large NCI-funded cooperative group which conducts clinical trials in the treatment and prevention of breast and colorectal cancers. The NSABP accrues patients at nearly 300 medical centers in the United States, Canada and Australia, and has registered over 69,000 patients to treatment trials and 27,000 patients to prevention trials. The large majority of these patients are still in active follow-up. Biostatistical Center personnel participate in all phases of the clinical trials process, including concept development, protocol design, implementation, and publication of results. The Center is directly responsible for the development and execution of statistical analysis plans, data management, study monitoring, and quality assurance, including the on-site audit program. The Center participates in designing concomitant scientific and biological studies to accompany ongoing clinical trials, and in providing database support to centralized laboratories involved in these ancillary studies. The Center also provides data summaries and comparative statistics to facilitate the evaluation of institutional performance. His main research interests are in the design and analysis of breast cancer clinical trials. He is also involved in the epidemiology of pneumococcal disease, and in the study of adoptive immunotherapy using natural killer (NK) cells. He is active in the development of statistical methodology, chiefly as it relates to the design and analysis of cancer clinical trials. He holds PhD, MS, and BS degrees from Rensselaer Polytechnic Institute, and from 1977-1990 was an Assistant and then Associate Professor of Quantitative Analysis at the University of Cincinnati.

For more on the QAOM Seminar Series, contact [david.kelton@uc.edu](mailto:david.kelton@uc.edu)  
QAOM Department: <http://www.business.uc.edu/departments/qaom>  
QAOM Seminar Series: <http://www.business.uc.edu/departments/qaom/seminar>