Department of Biostatistics

Bernard G. Greenberg Distinguished Lecture Series

Presented by

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The Early Detection of Disease and Stochastic Models – Part I

ABSTRACT
Early detection of disease presents opportunities for using existing technologies to significantly improve patient benefit. The possibility of diagnosing a disease early, while it is asymptomatic, may result in treating the disease in an earlier stage leading to better prognosis. Many diseases such as cancer, diabetes, tuberculosis, cardiovascular disease, HIV related diseases, etc. may have better prognosis when diagnosed and treated early. However generating scientific evidence to demonstrate benefit of earlier detection has proved to be difficult. Clinical trials have been arduous to carry out, because of the need to have large numbers of subjects, long follow-up periods and dealing with problems of non-compliance. Implementing public health early detection programs are costly and may not be optimal. Many of these difficulties are a result of not understanding the early disease detection process and the disease natural histories. One way to approach these problems is to model the early detection process. This talk will discuss stochastic models for the early detection of disease. Models may be used to help answer questions for which empirical studies or clinical trials may be too costly, not feasible or may not be ethical. The talk will include the role of length biased sampling and biases generated by the lead time. Among the issues which will be discussed are: risk based examination schedules vs. periodical time schedules, estimating maximum benefit for screening programs. Applications of the general theory to breast cancer will consider screening younger and older women, comparison of different recommendations for mammogram screening and estimating exam schedules for high risk women.

Place: Blue Cross Blue Shield Auditorium
Michael Hooker Research Center
Date: Thursday, May 13, 2010
Time: 10:00 – 11:00 AM