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STATISTICAL ISSUES IN COST-EFFECTIVENESS ANALYSIS OF MEDICAL TREATMENTS

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A central problem in the Health Public System in most of the European countries is the selection of a treatment among a set of $k \geq 2$ competitive treatments for a given disease. Since the resources are limited the selection of the treatment is to be based not only on their effectiveness but also on their cost. This problem is called the cost-effectiveness analysis of medical treatments, and it does not have a long history although its interest is rapidly growing.

In this talk we focus the cost-effectiveness analysis as an Statistical Decision Problem, and review the elements of the decision problem that include stochastic rewards and utility functions. For the main utility functions appearing in the literature optimal treatments are provided, and the methodology is illustrated on an example with real data. Unfortunately the data on cost and effectiveness of treatments are typically heterogenous, and this is a source of statistical difficulties. Some ideas about how to solve them are outlined here.