



STATISTICS DEPARTMENT

SEMINAR

TITLE: **MULTIPLE COMPARISONS AND MODELING
IN DOSE FINDING: A UNIFIED APPROACH**

SPEAKER: Jose Pinheiro
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TIME: 4:00 P.M.

DATE: Wednesday, April 27, 2005

ROOM: 140 BARDEEN

ABSTRACT:

The analysis of dose response studies has long been divided according to two major strategies: multiple comparison procedures and model-based approaches. The model-based approach assumes a functional relationship between the response and the dose, taken as a quantitative factor. Such an approach provides flexibility and insight into the dose-response mechanism, but the validity of its conclusions will depend on the correct specification of the dose-response model. Within the regulated drug development environment, in which it is required that analysis methods be defined prior to data collection, this often poses a problem. Multiple comparison procedures, on the other hand, regard the dose as a qualitative factor and make very few, if any, assumptions about the underlying dose-response model. Such procedures are relatively robust to the underlying dose-response shape, but are not designed for extrapolation of information beyond the observed dose levels and provide little insight into the dose-response relationship

This talk describes a unified strategy for the design and analysis of dose-response studies which combines multiple comparison and modeling techniques. A candidate set of possible dose-response models is identified and multiple comparison techniques used to choose the one that best represents the true underlying dose-response curve, provided it achieves statistical significance. The selected model, if any, is then used for dose selection, using modeling techniques. The methods will be illustrated with data from a phase II dose-finding study and simulation results.

Joint work with Frank Bretz and Michael Branson (Novartis Pharma).

Coffee and Cookies at 3:30 p.m. in Room 1210 MSC