

For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar

Dr. Guosheng YIN

Department of Biostatistics
The University of Texas M.D. Anderson Cancer Center
Houston, U.S.A.

will give a talk

entitled

BAYESIAN ADAPTIVE DESIGNS FOR EARLY-PHASE CLINICAL TRIALS

Abstract

The continual reassessment method (CRM) is a popular dose-finding design for phase I clinical trials. This method requires practitioners to prespecify the toxicity probability at each dose. Such prespecification can be arbitrary, and different specifications of toxicity probabilities may lead to very different design properties. We propose using multiple parallel CRM models, each with a different set of prespecified toxicity probabilities. We assign a discrete probability mass to each CRM model as the prior model probability. The posterior probabilities of toxicity can be estimated by the Bayesian model averaging (BMA) approach. Dose escalation or de-escalation is determined by comparing the target toxicity rate and the BMA estimates of the dose toxicity probabilities. Simulations show that the BMA-CRM is competitive, robust, and eliminates the arbitrariness of the skeleton. Treating patients with a combination of agents is becoming commonplace in cancer clinical trials, with biochemical synergism often the primary focus. In a typical drug combination trial, the toxicity profile of each individual drug has already been thoroughly studied in the single-agent trials, which naturally offers rich prior information. We propose a Bayesian adaptive design for dose finding, based on the copula-type regression. To search for the maximum tolerated dose combination, we continuously update the posterior estimates for the toxicity probabilities of the combined doses. By reordering the dose toxicities in the two-dimensional probability space, we adaptively assign each new cohort of patients to the most appropriate dose. We illustrate the proposed methods under various practical scenarios based on recent clinical trials at M.D. Anderson Cancer Center.

on

Monday, April 6, 2009

4:00 p.m. – 5:00 p.m.

at

**Room 527, Meng Wah Complex
(behind the Chong Yuet Ming Amenities Centre)**

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 2859 2466 for parking arrangement.

All interested are welcome