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Control Group versus Treatment Group Designs with Mixture Distributions

Wednesday, 29 June 2022 11:00 (20 minutes)

I will discuss sample size calculations and treatment effect estimation for randomized clinical trials under a model where the responses from the treatment group follow a mixture distribution. The mixture distribution is aimed at capturing the reality that not all treated patients respond to the treatment. Both fixed sample trials and group sequential trials will be discussed. It will be shown that designs that acknowledge the plausibility of non-responders and responders within the treatment group can need substantially larger arm sizes. A generalized definition of the treatment effect will also be presented, and estimation of that treatment effect will be discussed.

This is joint work that spans collaborations with my former UCR PhD student, Hua Peng who is now employed by SoFI, my current UCR PhD students Dylan Friel, Bradley Lubich,and Benjamin Ellis, and my UCR Department of Statistics colleague, Weixin Yao.

Keywords

Presenter: Prof. JESKE, Daniel R. (University of California, Riverside)

Session Classification: CONTRIBUTED Six Sigma and Design of Experiment