



Title: Optimal Designs for a Logistic Dose-Response Model with Restricted Dose Levels

Karabi Nandy*

University of California, Los Angeles, U.S.A. - knandy@sonnet.ucla.edu

Rajesh Nandy

University of North Texas Health Science Center, Fort Worth, U.S.A. - Rajesh.Nandy@unthsc.edu

Dose-response studies arise in many medical applications. Although design optimality has been well studied for binary response in logistic models, little attention has been paid to the construction of optimal designs with a restricted dose-range until in recent years. The goal of this paper is to derive D- and A-optimal designs for a restricted dose-range and assess the loss-in-efficiency compared to the unrestricted case, for a commonly used parametrization of the two-parameter logistic model. We find that efficiency decreases with the increase in severity of the restrictions while two-sided restrictions result in a larger loss than a one-sided restriction.

Keywords: Restricted Dose-range; A-optimality; D-optimality; Information matrix.