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## **Robust strategies to address the uncertainty of the response variable in Optimal Experimental Design**

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The probability distribution of the response variable is one of the necessary assumptions in the design of an experiment and the existence of uncertainty supposes a challenge for practitioners. The aim of this work is the analysis of four strategies to obtain robust optimal designs in order to face this uncertainty. The strategies compared in this paper are compound criteria, multi-stage designs, Multiple Objective Annealing Algorithm and maximum quasi-likelihood estimation. This study is performed in the context of dose-response models, where the mentioned uncertainty sometimes appears. First, the strategies are compared in terms of D-efficiency. Then, a simulation study is carried out to compare these strategies with respect to the goodness of the parameter estimations.

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