

DETAILS

RELATIONS



Statistics in Medicine
Volume 44, Issue 23-24

Oct 2025

RESEARCH ARTICLE

An Approach to Design Adaptive Clinical Trials With Time-to-Event Outcomes Based on a General Bayesian Posterior Distribution

[View article page](#)

James M. McGree, Antony M. Overstall, Mark Jones, Robert K. Mahar

” CITE

Check for updates

© 2025 The Author(s). *Statistics in Medicine* published by John Wiley & Sons Ltd.

<https://doi.org/10.1002/sim.70207>



28. D. R. Cox, “A Remark on Censoring and Surrogate Response Variables,” *Journal of the Royal Statistical Society, Series B* 45 (1983): 391–393.

29. D. Collett, *Modelling Survival Data in Medical Research*, 3rd ed. (Chapman and Hall/CRC, 2015).

30. J. D. Kalbeisch, “Non-Parametric Bayesian Analysis of Survival Time Data,” *Journal of the Royal Statistical Society, Series B* 40 (1978): 214–221.

31. D. Sinha, J. G. Ibrahim, and M. H. Chen, “A Bayesian Justification of Cox’s Partial Likelihood,” *Biometrika* 90 (2003): 629–641.

32. J. W. Miller, “Asymptotic Normality, Concentration, and Coverage of Generalized Posteriors,” *Journal of Machine Learning Research* 22 (2021): 1–53.

33. J. E. Herndon and F. E. Harrell, “The Restricted Cubic Spline as Baseline Hazard in the Proportional Hazards Model With Step Function Time-Dependent Covariables,” *Statistics in Medicine* 14 (1995): 2119–2129.

34. J. Harden and J. Kropko, “Simulating Duration Data for the Cox Model,” *Political Science Research and Methods* 7 (2019): 921–928.

35. A. O’Hagan, “Bayes-Hermite Quadrature,” *Journal of Statistical Planning and Inference* 29 (1991): 245–260.

36. D. Sinha and D. Dey, “Semiparametric Bayesian Analysis of Survival Data,” *Journal of the American Statistical Association* 92 (1997): 1195–1212.

37. A. G. Chapple, “BayesReversePLLH: Fits the Bayesian Piecewise Linear Log-Hazard Model,” (2022) R Package Version 1.5.

38. W. J. Shih, H. Quan, and G. Li, “Two-Stage Adaptive Strategy for Superiority and Non-Inferiority Hypotheses in Active Controlled Clinical Trials,” *Statistics in Medicine* 23 (2004): 2781–2798.

39. E. Christensen, “Methodology of Superiority vs. Equivalence Trials and Non-Inferiority Trials,” *Journal of Hepatology* 46 (2007): 947–954.

40. D. S. Robertson, K. M. Lee, B. C. López-Kolkovska, and S. Villar, “Response-Adaptive Randomization in Clinical Trials: From Myths to Practical Considerations,” *Statistical Science* 38 (2023): 185–208.

41. A. Granholm, B. S. Kaas-Hansen, T. Lange, et al., “An Overview of Methodological Considerations Regarding Adaptive Stopping, Arm Dropping, and Randomization in Clinical Trials,” *Journal of Clinical Epidemiology* 153 (2023): 45–54.

42. Y. Wu, J. A. Marsh, E. S. McBryde, and T. L. Snelling, “The Influence of Incomplete Case Ascertainment on Measures of Vaccine Efficacy,” *Vaccine* 36 (2018): 2946–2952.

43. K. Chaloner and I. Verdinelli, “Bayesian Experimental Design: A Review,” *Statistical Science* 10 (1995): 273–304.

44. H. Dette, L. Haines, and L. Imhof, “Maximin and Bayesian Optimal Designs for Regression Models,” *Statistica Sinica* 17 (2007): 463–480.

45. S. Wu, W. K. Wong, and C. Crespi, “Maximin Optimal Designs for Cluster Randomized Trials,” *Biometrics* 73 (2017): 916–926.

