Reviewer's report

Title: Meta-analysis of randomised Phase II trials to inform subsequent Phase III decisions

Version: 1
Date: 8 May 2014
Reviewer: Lawrence Joseph

Reviewer's report:

Major Compulsory Revisions

1. It is not clear why a continuity correction would be required in a Bayesian approach to meta-analysis. I would have expected that the prior density would take care of any such need. Why is this not the case for the models used here?

2. Perhaps related to the first point, the WinBUGS program in the Appendix, there is a line to calculate variance which is similar to what one would need from a frequentist approach (essentially \(1/a + 1/b + 1/c + 1/d\)) which would seem to be unnecessary when using a Bayesian approach, where the variance would naturally arise from the posterior density, and would not need to be approximated in this way. Again, why is this calculation necessary? See also below equation (4) on page 12 of the paper. The predictive distribution can be derived without this variance formulas, by simply using existing parameters of the model to predict the "next trial" similar to those already in the meta-analysis, the total variance being the sum of within and between study variances. Thus, options 1 and 2 on pages 13 and 14 seem unnecessary as well.

Minor Essential Revisions

1. How were the number of iterations and burn-in used in the MCMC results chosen? 100,000 seems like overkill as burn-in, and I wonder why such a high number was chosen. Is there a particular problem with convergence in this model?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests.