**Reviewer's report**

**Title:** Effectiveness of Evidence-Based Medicine on Knowledge, Attitudes, and Practices of Family Planning Providers: A Randomized Experiment in Jordan

**Version:** 2  
**Date:** 4 May 2015  
**Reviewer:** James Phillips

**Reviewer's report:**

**Major Compulsory Revisions and Minor Essential Revisions**

This paper reports results from the statistical evaluation of an episode of in-service training of medical officers. The study design and the training intervention are well defined. The statistical methods used for this particular investigation are well described. This reviewer is not recommending compulsory revisions. Nor is it appropriate to impose essential minor revisions. The paper is clearly presented and cogently argued and merits publication. The comments that follow concern discretionary revisions for consideration.

**Discretionary Revisions**

The matter of clinical behavior and preferences is a complex concept that seems inadequately addressed by a short seminar with two follow-up visits. That is, the intervention seems intrinsically weak. The evaluation is competently conducted, but it could be argued that its statistical elegance misses the point that the goal of the intervention requires a much more rigorous experiment than the current study.

This work would benefit from mixed method appraisal that would explore qualitative reactions to the issues that are raised. It is unclear if the questions asked in this study are sufficient for gauging medical provider attitudes. Also, the study would have benefited from a qualitative systems approach whereby actual or potential clientele are part of the appraisal process. The paper alludes to “mystery client” methods. This and other approaches to open-systems research would be a more appropriate means of diagnosing problems with the provision of DMPA.

The paper would be strengthened if the systems context could be briefly described. Systems problems, unrelated to the intervention may explain the outcome. If I understand the presentation correctly, baseline availability of DMPA appears to be a major problem. The physicians are private providers, and systems problems may not be an issue. However, it is unclear if this low baseline availability of DMPA is an outcome of participant actions or a systems problem that prevents the participants from stocking DMPA. If systems constraints explain low rates of prescription, the entire intervention may be ill-conceived.

**Data description**
The data that were collected are sound in the sense that the variables under investigation are closely linked to the topics of the seminar. The data and methods are appropriate for a statistical appraisal of change that could be linked to the seminar. I have not reviewed power requirements, but most subjects of this study claimed to be supportive of the provision of DMPA. It is possible that the analysis was under-powered for detecting improvements in indicators. Discussion of power in the study design section would strengthen the presentation.

The figures appear to be genuine, without producing any evidence of manipulation. The manuscript is a cogent representation of relevant standards for reporting and data deposition.

Discussion and conclusions
The discussion and conclusions are well balanced and adequately supported by the data. However, the author(s) are disinclined to challenge the underlying paradigm represented by the seminar. The theory of behavioral change that underlies the medical seminar approach may be flawed. The authors acknowledge this, almost in passing, in the conclusion of their paper, but it would be helpful if the author could engage in a brief critical commentary that extends beyond the technical confines of the statistical analysis. For example, if the medical focus of the seminar failed to address social or spousal contextual barriers to DMPA use or misconceptions about contraception more generally, then the EBM model would be tangential to the goal of understanding why DMPA is seldom prescribed.

Limitations
Limitations of the statistical analysis clearly stated, but underlying limitations of the intervention are not discussed. As a reviewer, I am not adamant about this issue, however. The authors achieved what they set out to do: They evaluated a seminar.

They chose not to comment on whether a seminar as a paradigm could reasonably be expected to a difference in the prescription practices of medical officers who are embedded in a social and institutional setting that profoundly shapes clinical practice.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

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