Author's response to reviews

Title: A review of randomized controlled trials evaluating the effectiveness of handheld computers for data collection.

Authors:
Shannon J Lane (shewhofeels@hotmail.com)
Nancy M Heddle (heddlen@mcmaster.ca)
Emmy Arnold (arnolde@mcmaster.ca)
Irwin Walker (walkeri@mcmaster.ca)

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Author's response to reviews:

Dear Dr. Puebla,

Re: MS: 5332068607241731

In line with your suggestion of August, 19th, we have revised this manuscript taking each of Dr. Moehr's comments into consideration. We have complied with each of Dr. Moehr's suggestions under Major Compulsory Revisions, Minor Essential Revisions and Discretionary Revisions. The exceptions are the changes for Figure 1 and Table 1 which have to do with the display problems Dr. Moehr encountered; the displays print out OK for us, and we will leave it to the journal to make final recommendations on this issue.

We have added a paragraph in the Discussion regarding the applicability of RCTs to the evaluation of computer technology, a particular concern of some of the reviewers. We do not disagree at all with the stated need to include methods other than RCTs in the design and application of technologies. Our view is that both qualitative and quantitative aspects are important, as most of the authorities have acknowledged (e.g. Stoop and Berg "Integrating quantitative and qualitative methods....."). We believe that RCTs are important in comparing new with existing technologies, at the endpoint after other methods have been used to design, evaluate and implement the systems. Dr. Moehr points out that information systems are complex, typically changing over time, and dependent on the situations and persons involved. Given these facts we feel that ultimately it may be difficult to predict the actual performance of systems under actual working conditions, where they are often called upon to improve in some way the performance of existing systems; we note the failure of many expensive computer projects to fail under actual working conditions despite careful design and implementation. We believe that RCTs can help in the final assessment of new systems and their performance should be considered whenever practicable; the assessment of even psychological aspects and user acceptability being clearer when both new and existing technologies are used together, either in parallel or crossover design. The final decision on implementation should then take into account the results from all evaluation methods.

We are not suggesting that reviews such as ours take the place of evaluation in the specific setting, however such reviews can highlight, by the magnitude and consistency of various outcomes in a number of RCTs, what the technology may likely offer, and whether it should be considered. For example, timeliness and data handling, and user preference, appear to be particular strengths of computer technology when compared with paper and pencil methods when used by volunteers in health care research, with other qualities awaiting further assessment.

Dr. Moehr has recommended publication with independent comments. Maybe the critique will be a strong one, in which case we would like to be able to respond, similarly to the above.