Reviewer's report

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

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Reviewer: Robert Jamison

Reviewer’s report:

This is a review article of studies evaluating the use of handheld computers for clinical research. The authors performed a Medline search and found 201 articles on the topic. Of these, 8 met inclusion criteria. The results showed that data from electronic devices were more accurate with less error rates compared with paper measures. Also, data transfer was faster and patients preferred handheld computers for input vs. paper and pencil methods.

This is a well-written paper on a topic that has received little attention. The strengths of this paper include independent reviewers and specific inclusion criteria. The conclusions are clinically relevant and are not overstated. The authors may address the following minor comments.

1. Further description is needed of the notion of data accuracy. The authors equate this with number of data errors. A reader might assume, however, that data entered by electronic means is somehow truer than data from a pencil and paper measure. We don’t know, for instance, whether subjective reports on a PDA on a particular construct (e.g., depression, pain) are more accurate or reliable than those entered on paper. Perhaps use of another term such as ‘rate of error’ rather than accuracy may help, or further definition of accuracy is needed.

2. Some mention of the problems with handheld devices is needed. The authors discuss the financial benefits of using a handheld computer, although this method of assessment can be quite costly. Electronic data entry requires technical support and software development and there is risk of lost or corrupted data. Although numerous advantages of electronic diaries exist, there are limitations that deserve mention.

3. The paper would benefit from more discussion about areas of research that have been understudied. Little has been studied, for instance, in patient compliance with electronic data entry of individuals who have a terminal disease. Also, future studies need to focus on the potential for improved care with electronic data entry.

Which journal?: Appropriate or potentially appropriate for BMC Medicine: an article of importance in its field

What next?: Accept for publication in BMC Medicine after minor essential revisions

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests.