Reviewer's report

Title: House officer procedure documentation using a personal digital assistant: a longitudinal study

Version: 1 Date: 10 October 2005

Reviewer: Scott Strayer

Reviewer's report:

General

This is an interesting and well-written study that extends previous research on the documentation of ER resident procedures using a handheld computer instead of traditional paper-based forms. The previous publication involved data from only 1 year of residency experience, whereas the current manuscript extends the study for the full 3 years of residency. The study design is prospective cohort with retrospective controls for determining if there are any differences in documentation using the two methods. The findings over three years are not significantly changed from the previous 1-year study.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The authors state that the handheld computer documentation did not significantly change resident documentation of resident procedure or patient resuscitation documentation over a three-year period, however, they do note statistically significant increases in documentation of three procedures (conscious sedation, thoracentesis, and ED ultrasound). This seems somewhat inconsistent to me. What is considered a "significant difference in residency documentation"? Would it be possible to compare total documentation of all procedures between groups? Alternatively, could this somehow be addressed prospectively (e.g. randomized) to handheld or paper-based?

2. The authors state that differences between the two groups likely represent alterations in the standard of ED care over time. More detailed elaboration of these changes in standards and other possible confounders should be noted in the manuscript, or this unsubstantiated claim should be omitted.

3. Addressing both these items above, is it possible to obtain historical ER billing documentation to control for #s of procedures captured in this manner, and then control for # documented.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. House officer is misspelled in the "Background" section of the Abstract.

2. In the "Background" section of the main manuscript, the authors state that procedures documentation was historically achieved by looking at handwritten logbooks or index card systems. Did they find any evidence that this may have been done using billing systems in any settings?

3. The references listed in the background to support widespread use of handhelds in medical care might benefit from the addition of:

Lu YC, Xiao Y, Sears A, Jacko JA. A Review and a Framework of Handheld Computer Adoption in HealthCare Intl J of Med Informatics 74:409-244.


There are other good references in these important works that can be added at the author's discretion.

4. It would be helpful if the authors described in more detail what the traditional handwritten index cards looked like. Did they have the 20 procedures pre-listed? Was there room for write-ins? Etc. How closely did the PDA version resemble the original cards? I think knowing this would be helpful to distinguish any possible confounding that might occur due to the design of the form or the PDA database.

5. On page 10, the cost for licensing fees is listed as $500-1500 USD per year. Please clarify if this cost is "per program" or "per resident." Alternatively, it would be helpful to know the "per resident" fee so that different-sized residencies could determine these costs more accurately.

6. The choice of statistical tests and because Excel was used for statistical analysis would make it important to check results using a statistician and appropriate statistical software (e.g. SPSS, SAS, etc.).

Discretionary Revisions (which the author can choose to ignore)

1. In the discussion, the authors state that "There is the potential for the use of PDAs in patient chart documentation in the future..." Isn't that potential present currently?

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Needs some language corrections before being published

Statistical review: Yes

Declaration of competing interests:

I am the CEO and Founder of a small, privately-held handheld software company, PocketMed. We have designed and market a procedures tracking software known as "PocketProcedures." This product might benefit from the publication of positive results on the use of handheld computers to
track residency procedures documentation. I have no other financial or non-financial competing interests.