Reviewer's report

**Title:** Underutilization of Information and Knowledge in Everyday Medical Practice: Computer-based Solutions

**Version:** 2 **Date:** 12 September 2008

**Reviewer:** Rebecca N Jerome

**Reviewer's report:**

The authors tackle an important issue, the capture and use of patient history information, and are to be commended for approaching this challenging issue. With addition of further detail regarding the software development and initial evaluation processes, this paper will likely be of significant interest to the readership of the journal.

**Major compulsory revisions:**

**Title:** The scope of the title is likely too broad to suit the content of the manuscript; a slight revision e.g. “Underutilization of information and knowledge in everyday medical practice: a computer-based solution” or “…evaluating a computer-based solution” would likely address this issue.

**Introduction:**

The introduction would benefit from a more thorough consideration of the challenges related to patient history; asking the right questions, capturing the information effectively, and then using the information appropriately in the care of a given patient all seem key issues to be addressed when developing and testing this kind of software.

It would also be useful to have a strong objective statement in the concluding portion of the introduction. The last sentences of the current introduction seem to be redundant with the methods and results; reworking this portion to be a clear set of objectives for the project and manuscript would likely eliminate unnecessary overlap with other sections of the paper.

**Methods:**

A more formal description of the process for software development and refinement would further strengthen the initial portion of the methods. The organization of the “Description of the software program” section could be improved to provide the reader with a clearer picture of the project stakeholders, the development and refinement process (e.g. how was it tested and refined), and the software’s components and structure (e.g. explanation of the internal logic that supports determining completion of a given interview); the addition of more granular subsections to address these issues, a screenshot of the software (or a note direction the reader to the additional file that includes the software URL and log-in directions) and a flow diagram for the development process may be
useful in complementing this section. Brief background about the institution (size, etc) would also be useful in framing the project.

In the deployment section, it would be useful to know where the patient workstations were located and whether the participating patients received any instruction in use of the software; an estimate of time to complete the interviewing process would also be an interesting addition.

A clear description of the outcomes of interest would also further strengthen the methods section The Patient Selection section may be more appropriately placed before the deployment section; it would also be to characterize how large the overall pool of patients was as compared with those who elected to participate and provide more explicit inclusion/exclusion criteria for the 98 patients and the 45 patients that eventually formed the basis of the analysis. The current description also lacks details regarding how the problems and history details were extracted from the patient charts.

Results:
Additional quantitative summarization of results would be a useful addition to the current results section; while illustrative examples are interesting, quantitative data provides a different picture of how the software compared to the clinician interview (e.g. providing a range of problems “missed” by the physician interview, in addition to the mean 3.5 problems per patient already reported). Subjective commentary and inferences based on the results also should be moved to the discussion section rather than the results; this would also improve the clarity and focus of the results section. Providing n’s for each of the percentages in the results would also.

It is unclear why a subset of 45 patients was the focus of most of the analysis but Table 5 includes satisfaction data for all 98 patients; in future work, it would be useful to include some measure of illness severity to complement this data.

Discussion:
The results section notes some issues with how patients completed certain complaint section as compared with how they were expected to complete these sections; in the discussion, the authors should consider further whether the program had usability issues, e.g. not handling hierarchy in a way that was similar to how a patient would think. Ideas for future refinement of the software would also be interesting to the readership.

A more thorough consideration of potential limitations of the testing approach is a key need for revision of the paper; limitations related to the participant selection approach and use of a subset of only ~50% of the patients who actually used the software, potential preconditioning effects of the software for the patient (e.g. if a patient completed the computerized interview, may be more or less likely to report certain problems to the physician?), issues with the physician blinding (patient might report to physician that he/she had completed the interview, with potential influence on thoroughness of physician interview and notes?),
appropriateness of a software for this purpose (e.g. completeness and utility of information collected from the patient may vary greatly dependent on the severity of the patient's current illness; worthwhile to consider using family member as patient surrogate for completing history), generalizability to other settings/patient groups, etc.

The addition of a brief conclusions section considering the key observations of import from the current work, directions for future research/development, and any insights that may be useful for readers pursuing similar projects would also provide a useful capstone for the manuscript.

Minor essential revisions:
In the illustrations and text, some acronyms are missing explanations of their meaning e.g. TIAs, C/V, NTG, etc.

Level of interest: An article of importance in its field

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.