Author's response to reviews

Title: Increasing utilization of Internet-based resources following efforts to promote evidence-based medicine: a national study in Taiwan

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Author's response to reviews: see over
Reviewer's report
Title: Increasing utilization of Internet-based resources through the dissemination of evidence-based medicine
Version: 1 Date: 12 October 2012
Reviewer: Nai Ming Lai

Reviewer's report:
Thank you for giving me the opportunity to offer my views on this manuscript. First, I think the paper is valuable in providing readers worldwide a record of longer-term change in the usage of internet-based medical information resources in a country following a coordinated national-scale effort to promote evidence based medicine (EBM). Barring some typos or grammar issues, I think the manuscript is sufficiently well-written and easy to follow, the research question is clear and the handling of data is sound. The findings should encourage stakeholders in EBM in other countries to examine similar trends in the usage of EBM resources in a national scale. All my comments relating to this manuscript are relatively minor, the main one pertains to a lack of information provided by the authors on their efforts to promote EBM, as I think such information is critical for the readers to interpret the findings and possibly replicate or adapt the authors’ efforts to suit their own settings. My specific comments are listed as follows:

Minor Essential Revisions
Overall
I think the script will benefit from a round of proof-reading, in particular, there appears to be some grammar issues such as inconsistent use of tenses. I would suggest the authors use past tense throughout the script when they refer to their study.

Reply: Thank you for the comment. In this revised manuscript, we have used past tense throughout the text.

Introduction, paragraph 1
"In recent years, development of medical informatics has provided an opportunity for easy access" This sentence appears incomplete to me. Should it be “easy access to up-to-date medical information.”?

Reply: We have rewritten this sentence as your recommendation in this revised manuscript (page 3, line 6).

Introduction, paragraph 4
“Since the beginning of 2007, the National Health Research Institutes (NHRI) has overseen a collaborative project to provide information systems in support of clinical practice with evidence for regional hospitals of Taiwan” I believe that specific details on what exactly were provided by NHRI might have been described in other papers, but as a stand-alone paper such information is critical to be included here as well. I would suggest that the authors add a brief description on their efforts to promote EBM, either here in the introduction following the statements above, or under a separate heading of ‘Measures implemented to promote EBM” in Materials and Methods. Specific details desired may include what facilities that NHRI has provided, the frequency and location of educational interventions such as EBM workshops, any databases that were emphasized in the authors’ efforts to promote EBM and any other initiatives by the NHRI to up the awareness and skills in EBM.

Reply: We highly appreciate your advice and have added more details about how NHRI disseminated EBM (page 4, first paragraph of Materials and Methods).

Materials and methods
The authors appear to use the terms “questionnaire” and “survey” interchangeably. I suggest the authors use the term “survey” when referring to the conduct of the study, an “questionnaire” when referring to the tool.

Reply: Thank you for the suggestion. In this revised manuscript, we have used the term “survey” for the conduct of this study (page 5, line 1 and page 5, line 2 from the bottom).

Sampling
“Since the 2009 survey was more efficient than the earlier one, we continued the same cluster sampling for the questionnaire survey in 2011.” What is meant by “more efficient”? The authors may wish to be more descriptive here. A suggestion would be “Since we achieved a higher response rates using the cluster sampling method in the 2009 survey compared to the earlier survey, we continued the same cluster sampling method for our subsequent survey in 2011”.

Reply: We appreciate your suggestion and have rewritten this sentence to further clarify why we continued the cluster samplings in 2011 survey in this revised manuscript (page 5, lines 15-18).

Results
Demographic data of respondents

Paragraph 1
“This study enrolled 1156 participants in 2007 (605 physicians and 551 nurses), 2975 in 2009 (563 physicians and 2412 nurses), and 3999 in 2011 (645 physicians and 3354 nurses)” I assume the numbers quoted were the number of returned questionnaires. If so, how many questionnaires were sent out (and hence the response rate)?

Reply: Thank you for the advice. In this revised manuscript, we have added the valid response rate (page 7, lines 4-5 of Results).

Discussion, paragraph 2
“The results highlight that the Internet has become an increasingly important source of medical information, which is consistent with research indicating that the Internet has become the most common source of medical information” This sentence reads a bit awkward to me. Suggestion:“ ……which is consistent with recent research findings”.

Reply: We have rewritten this sentence as your advice in this revised manuscript (page 10, lines 3-4 of second paragraph).

Discretionary Revisions

Title
The title may not be clear to some readers. I think " Increasing utilization of Internet-based resources following efforts to promote evidence-based medicine: a national study in Taiwan” would provide the readers a more appropriate context to read the rest of the paper. The authors may wish to consider modifying their title along this line.

Reply: Thank you for the advice. In this revised manuscript, we have modified the title as your recommendation.

Survey questions, paragraph 3
Regarding the characteristics of the respondents, it might be interesting to include information on whether the participants had attended any of the EBM training run by NHRI if the authors have the data. The findings might enable interpretation on whether those who had attended such courses translated their skills learnt into behaviours and whether or not they had passed the skills on to others.

Reply: Thank you for the advice. In this revised manuscript, we have added
EBM training as one of their personal characteristics (Table 1; page 6, second paragraph; page 7, lines 2-3 from the bottom). We have also performed multivariate regression analysis to further determine the relationship between the EBM training and the use of Internet resources (Table 2 and page 9, lines 9-11).

Discussion, paragraph 6

“These results can provide stakeholders and promoters with valuable information to increase access to evidence-based information” The authors may wish to pen down their thoughts on how the findings of differing access patterns between gender, working period and profession (doctors versus nurses) influence their future efforts to promote EBM.

Reply: Thank you for the recommendation. In this revised manuscript, we have addressed how our findings can devise better strategies to enhance the utilization in the difference patterns between the characteristics, including gender, age, working period, position, and profession (page 12, lines 7-13).

Discussion, Paragraph 7

“As our survey had no identity of individual healthcare professionals, the respondents of the three surveys did not overlap completely” I am not sure this would be considered a limitation. If the authors were examining general trends of usage on a national scale with large samples such as that included in this study, it might not matter whether or not they sampled the same group of people. If they decided to do so from the outset they would have needed a different methodology to link the three survey responses and analysed as matched sample. Otherwise, I think the statement above need not be included.

Reply: We appreciate your advice and have scraped this sentence in this revised manuscript (page 12, second paragraph).

Discussion, paragraph 4

“The current survey has further extended the inquiry by demonstrating a sustaining increase in the utilization of four Internet-based resources over 4-year period.” This shows that there has been a sustained effect following the authors’ efforts in promoting access to EBM resources. It is perhaps more relevant now to examine the quality of usage, in particular how often the search had been fruitful or how often the users had their queries satisfactorily answered through their searches. The authors may wish to briefly describe any future research along this line or others that they plan in response to the
findings.
Reply: Thank you for the thoughtful consideration. We have addressed future research to determine the usage of Internet-related resources in the improvement of patient outcome in the revised discussion (page 12, last 3 lines).

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being published
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:
I declare that I have no competing interests
Reviewer's report

Title: Increasing utilization of Internet-based resources through the dissemination of evidence-based medicine

Version: 1 Date: 5 November 2012
Reviewer: Tony Dowell

Reviewer's report:
See attached document

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

Increasing utilization of Internet-based resources through the dissemination of evidence-based medicine

The paper addresses an important topic in health care, and one on which it is helpful to have ongoing research from a different countries and health systems. While there is considerable literature on the changing patterns of evidence based searching for information this study attempts to identify the role of a specific strategy for disseminating Evidence Based Medicine (EBM).

Introduction
The introduction is clear and summarises aspects of the literature relating to health information access and retrieval.
1. Revision. The authors state their intention is to track the impact of a collaborative project to provide information systems in hospital practice. The questionnaire method chosen while tracking sources of health information appears unlikely to determine the impact of the collaborative project. There would be many other factors which have enabled internet health information searching in all countries, so any growth in the use of electronic searches should take these global trends in to account. The authors should make this clear.

Reply: Thank you for the thoughtful consideration. In this revised Introduction, we have mentioned a nature trend in the increasing use of Internet (page 3, lines 3-4 of second paragraph). In addition, we have addressed it as a limitation in the revised discussion (page 12, lines 8-11 of second paragraph).
Methods.
The questionnaire survey method is appropriate to determine changes in patterns of electronic information use. The multiple surveys over time are a strength of the study.

2. Revision. If the purpose of the study was to assess the impact of the NHRI dissemination EBM programme there is a missed opportunity that the hospitals not having a collaborative project with NHRI were omitted from the study. Had they been included comparative data determining the impact of the NHRI programme would have been available.

Reply: Thank you for the comment. We don’t have data for the hospitals not having a collaborative project with NHRI. We have addressed this as a limitation in this revised manuscript (page 12, lines 8-11 of second paragraph).

3. Revision. The overall sampling frame is not clear. Questionnaires were distributed to 30 members of the clinical staff at 61 hospitals in 2007 and to all physicians (?) from a random selection of 13 hospitals in 2009 /2011. The total number of physicians in each questionnaire wave is roughly the same, but is the sampling frame different? i.e are the doctors from the total sample taken from the selected hospitals in 2009 / 2011 the same as the 30 doctors sampled from all the hospitals in 2007? What was the response rate from each wave?

Reply: Thank you for the comment. After collecting the questionnaires in the 2007 survey, we found the number of returns from doctors was equal with that from nurses. However doctors are outnumbered by nurses in the regional hospitals. In order to collect more questionnaires from nurses, a cluster sampling design was used in the 2009 survey. In this revised manuscript, we have rewritten the sampling methods to further clarify why we continued the cluster samplings in 2011 survey (page 5, lines 15-18). In addition, we have added the valid response rate in the revised Results (page 7, lines 4-5 of Results).

4. It is not clear what the access and usage was for? Usage may vary according to the complexity of the search task e.g A simple check on a drug dosage is a much simpler task than a search about complex management options for a rare condition. The survey questionnaire covers an appropriate range of databases.

Reply: Thank you for the recommendation. Our previous papers have reported that the majority of physicians and nurses searched for the online database for self-learning or clinical practice (pages 17-18, references 28 and 29). In this
revised manuscript, we have addressed why they used online database in the discussion (page 11, lines 8-10).

**Results:**
The results are clearly outlined and easy to follow.
5. Revision. It would be helpful to know whether the increase in the use of online databases was proportionately more or less than other web portal such as google /yahoo. As those portals and search engines become more sophisticated (e.g Google Scholar) there is a lot of discussion about the degree to which they are replacing more formal searchable databases such as Medline.
Reply: We appreciate your advice and have addressed the comparison of online database and Web portals in this revised manuscript (page 11, lines 7-12).

**Discussion**
The discussion is easy to follow.
6. Revision. I am not sure the authors can make the assertion of the first sentence of the discussion. They have clearly demonstrated an increase in the use of internet based resources; without a control group it is not possible to say this was linked to the EBM dissemination programme, and indeed I suspect that the trend increase would be mirrored in many other developed countries. A strength of the study is the ability to track across three survey periods. The strengths and limitations of the study are appropriately described.
Reply: We appreciate your comment and have adjusted the first sentence of discussion (page 9, first sentence of discussion).