Author's response to reviews

**Title:** Web 2.0 applications enhance personalized access to healthcare professionals - an intervention study.

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**Version:** 4  **Date:** 29 September 2011

**Author's response to reviews:** see over
Thank you for the valuable comments from the reviewers – this document lists the authors’ responses (in bold) on the reviewers’ comments:

Reviewer 1

This paper describes the implementation, use of an "Online Patient Book" for communication between health care providers (HCPs) and prostate cancer patients as well as the patients with each other.
I believe that such systems can be an important part in delivering efficient and effective health care.
And generally speaking, this system seems to be a "success" from a patient's perspective, however the reader is left alone in concluding exactly how successful this application is overall.
Whether a success or not, more importantly, the paper would benefit greatly from more systematically deriving, listing and describing your lessons learnt - and I believe you do have very important lessons to tell.
Having said this, I have a couple of issues that I would ask the authors to address:

Major issues:
- English language: I had difficulty understanding parts of this paper as the use of the English language is rather poor at times. I suggest getting this paper revised with the help of a native English speaker.

Response: One of the authors who is a native English speaker has assisted in the reviewing and revising of the paper

- Various views are important: The success of the system is demonstrated only from the patient's perspective. However - even if this is the focus of this paper - I believe that it is important to get at least an impression of other perspectives such as the HCP’s view, the hospital’s view, etc. Is there extra time required by HCPs? How satisfied are HCPs about this system? There (at least) two sides of the coin: patient and health professional.

Response: The healthcare professionals’ experiences are discussed in the discussion section, based on impression from informal meetings with the healthcare professionals, however not systematic explored, as this has not been a part of the study until this date. It is noted within the discussion section that a follow-up evaluation based upon the experiences of the HCPs is planned and since the tool has been adopted into routine care this evaluation is able to occur.

- Shorten the paper: The paper is very lengthy at times. There are sometimes whole paragraphs or even pages that don't seem to contribute a lot to the paper’s aim. I suggest significantly shortening and streamlining these parts of the paper, especially introduction, results, discussion, and conclusion. Have you considered presenting some of the main statements for each of the seven themes in a table? A couple of suggestions as to what could be shortened are listed as part of the discretionary issues.

Response: The main statements are presented in a table documenting the process of analysing, the themes, and the data. Attempts have also been made to streamline sections such as the results and discussion.
- Back up by quantitative data: A qualitative study like yours is valuable, but the paper's impact would be improved a lot if simple quantitative data would be made available such as the overall satisfaction with the system from both the patients and HCP's perspective or the time required by HCPs to communicate with patients before and after, etc. On page 23, you postulate "reduced resource consumption", however if this is really true remains to be seen (and even if so it could be very hard to demonstrate)

**Response:** The section mentioned has been change. The qualitative data is listed in a table to make the process of analysing more transparent – as the background for the listed results. Documentation of the systematic data collection from research question to conclusion is as well presented by including figures. However, the qualitative method used did not, nor was it designed to, provide quantitative data. The research question “asked for” qualitative methods. The discussion section point to the next phase in which the collection of quantitative data is relevant.

- The introduction could be improved by emphasizing some general problems such as unsatisfactory patient-HCP and patient-patient relationships and backing up with literature and what part your research plays in solving these problems.

**Response:** The perspective is limited and the core aspects are defined. The number of listed references has been increased.

- Research aim: With regard to your aim (Page 4) to "evaluate the effects of the Web 2.0 applications", it would make sense to list the effects that you experienced in a more systematic way as well as "how dialogue based web applications can improve the communication quality", i.e. what are potential factors for success? I believe the paper would profit from analysing the Factors for success of an "Online patient book" such as yours more systematically. You repeatedly mention one very important one (24 hr response time), but others could be postulated as well. This also includes political circumstances (e.g. How are such consultations being paid in the Danish system?, What is the incentive for doctors to sit down and answer these questions?, What if wrong or misleading advice is being given? Do potential legal implications scare HCPs (or their organisations) away from using these systems or if so, what was done to ensure that this is not the case.

**Response:** The qualitative effects are listed by way of the table in which the data is presented. The suggestion on political aspects according to the Danish system is not included as the paper seeks to have an international relevance and these are outside the scope of the original research.

- Hermeneutical interpretation of meaning: This reviewer would have expected a more systematically derived "themes". Your seven themes make sense, but there is no indication, e.g. how strong these themes are, how in a bit more detail, they were extracted from the raw data or how exemplary the quotations from the raw data really are. Especially in the absence of any quantitative data this is even more important.
Response: The method used in the process of analysing the data is documented in a table describing the process from primary answers to themes according to the hermeneutic interpretation of meaning as described by Kvale and Brinkmann

Minor issues:
- Abstract: "The qualitative effect of the health informatics system was generated using internet-based interviews." Generated?
- Abstract conclusion: "It is concluded that using Web 2.0 technologies the Internet offers future health informatics tools, which support accessibility of the healthcare professionals." Hard to understand - what is it really that you want to say?
  Response: The abstract has been rewritten to reflect these changes and to improve the readability.

- Page 7: "both as separated answers, meaning parts, and as one whole text." Please explain more. Are these two (both) or three different handlings of the users' evaluations?
  Response: The sentence has been rewritten and a figure is included to illustrate the process of data analysis

- Page 7: The listing of the 7 themes would belong to the Results section rather than the Analysis?
  Response: The analysis is presented in a table and the themes have been presented as results.

- Page 19: "However, it is intended that future study will explore whether quantitative effects are also present." Sure, but some quantitative data (and/or a more systematically presentation of the qualitative data) would be valuable now.
  Response: The qualitative data is systematically presented in a table. The qualitative data is listed in a table to make the process of analysing more transparent. Documentation of the systematic data collection from research question to conclusion is as well presented by including figures. This research did not intend to collect quantitative data as so cannot reflect quantitative outcomes.

Discretionary Revisions
- This reviewer believes that the use of the Web 2.0 buzz word should not be over-emphasised in this paper. Sure, you can call it Web 2.0 or "social media", but what is a lot more important is to systematically extract the factors that make such a system a success (or failure)
  Response: The term Web 2.0 is defined and concretized according to the use of it in this paper

- Page 6: "A year after the noted day of discharged the patient users are automatically informed that they need to contact their private doctor instead of the healthcare professionals at the hospital." Why? This seems to be unnecessary detail of information here.
  Response: This section of text has been deleted
- Page 6: "User identity was automatically generated, which make it possible to count and separate the unique evaluation." In my opinion, this is unnecessary and distracting detail.
Response: This section of text has been deleted

- Page 7: This reviewer believes that "hermeneutical interpretation of meaning" justifies a sentence or two to explain this technique (What did you do to systematically interpret your data?)
Response: An illustration has been provided

- Page 11 (e.g.): "Emphasizing is not always the same as using" Not sure I capture your meaning here: Would "Valuing the application is not the same as using it" capture this better?
Response: The suggested text has been altered directly

- Page 20 bottom: "Before starting to use the Online Patient Book..." to the end of the paragraph. Suggest shortening this as it only marginally relevant
Response: This section of text has been rewritten to reflect the reviewer’s comments

- Page 22 would benefit from significant shortening and streamlining
Response: The part has been rewritten

- Figure 2: Seems to be superfluous
Response: The figure has been excluded due to the limited focus

- Are there limitations to the system that would prevent its "roll-out" to patients with completely different diseases?
Response: This discussion is included in the section: Limitations

The authors thank you for your helpful comments.
Reviewer 2

Major compulsory revisions

1. Background
Web 2.0 is a broadly defined and used term that can refer to many (types of) applications, ideas, etc. Please define how the authors use this term and specify as soon as possible for the reader what the 2 applications are (and are there actually 2? The authors seem only to discuss one). Preferably, the authors should give this information in the introduction/background; otherwise the paper starts off and remains very vague. If the authors do not want to describe the two applications immediately, at least name them and then give the reader a signpost that indicates in which section they will be described further.

Response: The term Web 2.0 is defined and concretized according to the use of it in this paper. The focus is limited to one application and this is specified from the beginning.

Also be clear and consistent in the use of terminology. The authors introduce the online patient book (but fail to explain what it is) and call it a “system”. They then proceed to indicate that it will be addressed throughout the paper as a patients’ health informatics tool; however, in the subsequent section, it is referred to as a web 2.0 application, which the authors seem to define as dialogue-based, although this is not necessarily a good definition of web 2 (chat groups and other applications first used in the mid to late 1990s were also dialogue based!).

Response: The term Web 2.0 is defined and concretized according to the use of it in this paper. The definitions used are limited and clarified.

I would further recommend rewriting the background to start with the patient group, outline the problem, define the research questions, etc. and then introduce the system – what it is and why this offers a potential solution to the problem.

Response: The section has been rewritten to reflect the reviewer’s comments.

2. Method
The aim stays vague because the applications being studied remain vague.

Response: The focus is limited to one application. The aim has been clarified and the process from research question to conclusion is supported by the inclusion of figures.

The ethics section seems fine, but would probably be more logically placed at the end of the methods section.

Response: The section is rewritten, though the ethic section is not placed at the end, as the focus in the ethics section has been expanded and includes perspectives on the health informatics tool, which is introduced in the section ahead.

Under the sub-heading “health informatics tools”, please add methodological literature regarding the methods employed. Explain further which “various participatory methods” were chosen and why? Does an interview qualify as a
participatory method? You seem to have conducted online interviews, although this isn’t evident in the beginning of this section – please refer to literature about best practice when interviewing online and show how the chosen approach meets the requirements of best practice. Did the authors intend to use a full participatory design approach? If so, add references, if not, this choice needs to be justified, etc.

Response: Due to the limited perspective some of the issues mentioned are no longer a part of the manuscript. The terms used to describe the method is clarified and relevant references have been included

The application that emerged from the research project is actually more of a result than a method. In the methods section, the authors should ensure that the necessary information is included to meet the qualitative criteria for validity and reliability (these are different from quantitative criteria but nonetheless important!) To meet these criteria, the authors should tell more about their interviews and design workshops, detailing: what was done, how and why this approach was taken. More information on the number and types of participants is also necessary. Also, please add information about how the translation of the interviews was double-checked and whether or not nuances, colloquialisms, etc. were preserved.

Response: Due to the limited perspective some of the issues mentioned are not longer a relevant part of the manuscript. The research process is described in more details. Documentation of the systematic data collection from research question to conclusion is as well presented by including figures. The qualitative data is listed in a table to make the process of analysing more transparent. The translation process is described in the method section

3. Discussion
A very good discussion, with a few points of attention:
Why is process information about contacting patients listed in the discussion rather than in the methods? Essentially, this is acceptable if that information is also discussed for relevance, importance, etc.; however, the authors fail to do this.
Response: The part has been revised and excluded according to one of the other reviewer’s suggestion

Interesting approach with respect to patient identification. Did patients comment on this in the interviews? How does this relate to literature on privacy, identity and participation in online environments?
Response: This part has been excluded according to the limited perspective on only one of the applications and to decrease the length of the manuscript

BRAID project is suddenly dropped into the discussion without further explanation or definition.
Response: The part has been excluded according to the relevance only one aspect of the application and to decrease the length of the manuscript
4. Literature
I find it especially disappointing that there is no mention of fairly recent work from Medical Informatics about web 2.0 applications in health. One would assume that the authors would begin by reviewing literature on this topic in addition to the literature related to the target group and then use this literature to give a solid definition on which to base their work. This would solve some of the problems mentioned above.

Response: From the beginning of the process, the focus was limited to one group of patients, therefore the literature was restricted to this group when survey on patients’ use of Web 2.0 applications. In the discussion section the area has been broaden. The reviewer is however right that it seems relevant to include papers from BMC Medical Informatics and Decision Making, e.g. in the discussion. According to the limited focus still articles with a focus on online social support between the patients or a focus on design were of limited relevance in this paper – which excluded some of the papers the author is aware of from the BMC Medical Informatics and Decision Making. However, the literature discussed has been expanded.

Minor Essential Revisions
The writing style, especially in the introduction, is very cumbersome. This makes it hard to follow the authors. There are also many grammatical mistakes. Please have a native speaker thoroughly revise the manuscript.

Response: One of the authors who is a native English speaker has assisted in the reviewing and revising of the paper

The authors thank you for your helpful comments.
Reviewer 3

Thank you for this opportunity. I find this submission to be a good qualitative research manuscript. Of the many positive points for me is the study participants, which are male. There is one item of concern, to be considered a major compulsory revision, I would note. In the Methods section, sub-section Analysis, I suggest a providing succinct (1 or 2 sentences in length) definition of hermeneutical interpretation and its reference. The citation used in the manuscript is about learning how to conduct qualitative interviews (Kvale & Brinkmann, 2009).

Response: The section has been rewritten to reflect the reviewer’s comments. The method used in the process of analysing the data is documented in a table: From primary answers to themes according to the hermeneutic interpretation of meaning by Kvale and Brinkmann.

It would be nice, too, in the Method section, sub-section Ethics, a reference about the healthcare informatics system and its security & procedures as provided by the IT Department, The North Denmark Region.

Response: The suggestion has been included, thank you.

Otherwise the other suggested revisions are to be considered discretionary in nature. I do understand English is a second language for the authors. In general a passive writing style is used (an example is the use of the word ‘that’ in a sentence). The preference is for a more active tense instead. For instance, in the Abstract, sub-section Results, the second and third sentences may require re-writing as follows: "Web 2.0 technologies allow for flexible and dialogue-based contact between not only patients and health professionals but also between just the patients. The opportunity to contact healthcare professionals is especially of great value."

The paragraphs throughout the article need to be designated by indenting the first line of each paragraph or leave a blank line between the paragraphs. It is difficult to read in its current state.

Again, thank you for this opportunity.

Response: The manuscript has been rewritten and prepare thoroughly. Terms used have been clarified. Figures have been included to illustrate and document the research process and the results. One of the authors who is a native English speaker has assisted in the reviewing and revising of the paper.

The authors thank you for your helpful comments.