Reviewer's report

**Title:** Smart wearable body sensors for patient self-assessment and monitoring: a systematic review

**Version:** 1  
**Date:** 26 March 2014

**Reviewer:** Alexandre Mouton

**Reviewer's report:**

This paper aims at systematically reviewing the literature regarding to the smart wearable body sensors (SWS) for patients self-assessment and monitoring. While the aim of the paper is of interest for future publication, different issues have to be considered to increase the quality of the paper.

**Major Compulsory Revisions**

1) The title refers to a systematic review. Nevertheless, there is no method section in the paper explaining how the systematic research synthesis was performed in order to minimize bias. If the authors decided not to follow the recommended inclusion of a clear description of all stages of the review process and the design of the review, they should at least explain why this choice was made to make the distinction with a traditional systematic review. However, a short and clear description of the methodology in the paper would be worthwhile to be considered as a systematic review. If not, the title should be adapted accordingly.

2) In the same way, the recommended results and discussion sections are not distinguished, allowing not the provision of an evidence-based synthesis. I guess that the research field encompassed by this paper is too broad for this kind of analysis, but the authors should also mention that in the method or in the limitation section.

**Minor Essential Revisions**

1) The papers often refer to the US to explain how a focus on SWS could change the actual healthcare system: i.e., in the conclusion section, "These changes will alter the way that this country spends money on healthcare". Because this review is not only focused on the US, the conclusions limited to this country should be avoided, or at least accompanied by a more global view.

2) Some parts of the paper do not rely on literature evidence that could ensure the legitimacy of the statements:
   - The first paragraph of the “Wearable body Sensors” section
   - The statement about the ability of the AliveCor’s device to provide accurate and reliable data
   - The definition and the description of the “quantified self” concept
3) Some abbreviations are presented without an earlier full form: BP, EKG and FDA.

4) It is not always clear that numbers in parentheses referred to mean values, confidence interval or square deviation.

5) In the second paragraph of the limitation sections, some references do not respect the referencing style (3-6).

6) In the first paragraph of the Cardiopulmonary and Vascular Monitoring section, a zero number must be deleted in the middle of the word “patterns”.

Discretionary Revisions

1) Regarding to the actual title of the paper, the reader could expect a systematic and evidence-based overview of the main SWS in the field. After reading the paper, it is difficult for the reader to capture a clear synthesis of the current situation. A summary (e.g., in a table) of the actual sensors (and their main characteristics) used in each clinical application would then help to understand the contribution of this review in the field.

2) Bring up to date information about SWS in the last paragraph of the introduction section would be appropriate. Next to Smart Vest, new monitoring tools such as Smart shirts are even more convenient (e.g., see the paper of Sardini & Serpelloni about “T-Shirt for Vital Parameter Monitoring”).

3) In the current limitations section, I recommend to the author to consider the literature about the Actiheart Monitor, another multiple sensor combining accelerometry and heart rate monitoring used in health-related studies (e.g., doi: 10.2337/dc12-2671).

Level of interest: An article of importance in its field

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