Reviewer's report

Title: Efficacy of multiparametric telemonitoring on respiratory outcomes in elderly people with COPD: a randomized controlled trial.

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Reviewer: Stuart Speedie

Reviewer's report:

The authors of this paper are to be congratulated on implementing a randomized, clinical trial approach to examining the effectiveness of a technology for monitoring COPD patients. As noted in their review such attempts are seldom undertaken but much needed in order to establish the medical value of such interventions with respect to patient outcomes. By the authors own reporting of the Confidence Intervals of the Incidence Rate Ratios that include 1.00, this study did not appear to demonstrate a statistically significant difference between the experimental and control groups. Science benefits just as much from well done experiments in which there is no demonstrated difference just as much as it does from those that do demonstrate such differences. This reviewer believes that this is the case with this study and would urge the authors to review the comments below and revise the paper for submission to this journal.

Major Compulsory Revisions

1. Conclusions: Revise the conclusions of the manuscript to more explicitly acknowledge and discuss the lack of significant differences between the groups. The findings of this well-done research study do appear to align with elements of the continuing controversy about the utility of such monitoring as described in the literature. The appropriateness of calling this findings of this study positive is questionable. Rather they could be indicative of potentially positive findings in a larger study with sufficient power (see sample size comment).

2. Results: This impact of monitoring in the experimental group is in large measure dependent on the proper functioning and use of the “Sweet Age” technology. The authors would considerably enhance the value of the manuscript by reporting the degree to which the technology functioned as expected and the degree to which it generated actions on the part of health care professionals in response to reports from the technology. For example it is important to describe the percentage of the ideal reporting rate that was achieved and how this varied over the patients in the experimental group. What is reported appears to indicate that on the average there was data reported on 150 of the 270 possible days for the study. Similarly if the reports from the technology results in few physician actions, then there is support for the findings of no difference. Both of these factors may be important in explaining the lack of differences between the groups.

3. Sample Size: The authors estimated a background rate for exacerbations of
1.5/patient/year. The reported rates are only a fraction of this number. This needs to be addressed and discussed in the paper since it may well be that the study lacks sufficient power. This would also seem to indicate that their study population was much different that the reference used [16].

4. Acknowledgements: Since this was an evaluation of a technology which may or may not be a commercial product, it is very important to explain any role that business interests played in the study and what interests the authors had in the development of that technology and the Sweet Age project. Further clarity in this section would be appreciated.

Minor Essential Revisions

1. In Figure 1, a number of subjects were excluded for “other” reasons. It would be very helpful to understanding the context of the study if this category was given more definition.
2. Figure 3 is identified as Figure 2 in the text.
3. Figure 3 as it stands in not sufficiently explanatory of the data it is reporting. It requires a legend that explains the lines in the chart.
4. It would be helpful to understanding the manuscript to report actual numbers of events (exacerbations and hospitalizations) in a table rather than requiring the reader to work backwards through the reported results to determine them.

Discretionary Revisions

None

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.