Author's response to reviews

**Title:** Validation of the Work Observation Method By Activity Timing (WOMBAT) method of conducting time-motion observations in critical care settings: an observational study

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**Author's response to reviews:** see over
Dear editorial staff,

We would like to thank the reviewers for their thoughtful comments to improve our manuscript. The revisions requested in this round are quite minor.

We address the reviewers’ individual points below – reviewer’s comments are italicized, our return comments are regular font and quotes from the manuscript are indented:

Reviewer’s report

Title: Validation of the Work Observation Method By Activity Timing (WOMBAT) method of conducting time-motion observations in critical care settings: an observational study

Version: 2 Date: 23 February 2011

Reviewer: Maria Hägglund

Reviewer’s report:

Thank you for your revisions of the manuscript. In my opinion, the paper is now much more focused and improved. All my original criticisms have been addressed by the authors. I only have two minor suggestions that may improve the readability of the paper.

Discretionary revisions:

1. In the background section, last paragraph, you refer to CCIS that is to be/has been introduced "The availability of information in stored patient charts may improve after the CCIS introduction...". However you have not yet mentioned that this study is part of a larger study. I suggest you move the sentence "This paper is part of a larger study..." from the first paragraph in the Rationale to aid the reader.

We agree that the final sentences in the background would benefit from an earlier mention of the larger study. We have therefore moved the following two sentences into the background to provide this context.

The CCIS may facilitate access to information that is crucial to decision making associated with patient care. This paper is part of a larger study that will examine whether the use of a CCIS represents a positive step for ICU patient care and for HCPs working in ICUs.

2. The same thing applies for the description of the Hawthorne effect. You introduce the concept in the Results section, but only give the references and explanations in the discussion, and readers that are not familiar with the Hawthorne effect may be confused. I suggest you move some of the explanation of participant reactivity and the Hawthorne effect from the discussion to the results.

We agree that the participant reactivity results would benefit from a clearer introduction. We have made two changes to the text in response. In the introduction we have added:
Finally, we show evidence suggesting that HCPs do not alter their activities based on the presence of an observer, an effect commonly referred to as the Hawthorne effect [27]. This evidence may help to address concerns that care providers alter their activities as a result of being observed.

In the results, we have added an appropriate citation to the existing explanation of the results:

If participants change their behaviour as a result of being observed [27], such changes should be most evident at the start of an observation when participants first learn that they will be observed for the next 90 minutes. As participants habituate to the presence of the observer, we might expect Hawthorne-like effects to lessen. As an approach to exploring whether Hawthorne-like effects exist within our data, we examined amounts of time recorded as ‘social’ tasks. All participants were assured that their personal performance would not be evaluated, yet some individuals expressed some scepticism to the assertion that they were not being personally evaluated. As such, individual participants may have felt uncomfortable engaging in social tasks in the presence of observers. To examine the possibility of participants altering their behaviour due to the presence of an observer, the percentages of time spent on social activities were calculated per session for the first minute, 5 minutes, 10 minutes, and for the entire 90 minute observation (Figure 3).

Other than that, the paper is now much improved. You have clarified the aim of this particular study, adjusted the conclusions and abstract accordingly, clarified the relationship between this study and previously published results and discussed some of the weak points of the study more in detail.

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

Reviewer's report

Title: Validation of the Work Observation Method By Activity Timing (WOMBAT) method of conducting time-motion observations in critical care settings: an observational study

Version: 2 Date: 16 February 2011

Reviewer: Phillip Asaro

Reviewer's report:

In general, the manuscript is much improved. Most of the issues have been reasonably addressed.

However, the following issues should be addressed: The conclusion section of the Abstract states that the data "demonstrate its utility for comparing work-flows before and after the introduction..." This is a
stretch since no before and after comparison was done. You might say that its demonstrated utility in recording time-motion data in the ICU setting supports the plan to do a before and after study in the ICU. Although unsupported statements are problematic anywhere in a scientific paper, it seems particularly problematic as a Conclusion. The conclusion in the paper itself does not use this wording.

We agree with this comment, that the data in this paper do not support that statement and have reworded the last sentence of the abstract as follows:

The data presented here further validate the WOMBAT method, and support plans to compare workflows before and after the introduction of electronic documentation methods in ICUs.

The conclusion that the data do not support a Hawthorne effect assumes that if the effect occurs, it would extinguish over the observation period. This is a major assumption that has face validity by my estimation. However, if the assumption is not true and the effect instead persists, the measure used would fail to identify the effect. This possibility and/or the basis for making the assumption should be mentioned.

We agree that the possibility that this assumption is incorrect is unlikely, but that this possibility should be mentioned in the manuscript. We have added a sentence to the discussion to account for the possibility that this assumption is incorrect.

We found no significant differences between the proportions of time spent on 'social' activities during any of these time periods and the entire observation periods, which is not consistent with a Hawthorne-like effect. This interpretation of the data depends on the assumption that Hawthorne-like effects would extinguish as the observation continues, but if this assumption is incorrect, the results reported would fail to identify a Hawthorne-like effect.

We have also added a subsequent sentence to the above one to support our assertion that changes to clinician behaviour due to being observed in their work environments tends to be minimal:

However, various observational studies of clinicians in situ have suggested that the extent of behaviour change is minimal [10;34;35].

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