Author's response to reviews

Title: A low cost project in a cold economic climate. Operating room data management and the improvement of quality and safety in a surgical block.

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Author's response to reviews: see over
Dear Reviewers,

We would like to thank you for the time you spent reviewing our manuscript. We have worked hard to review the text according to your invaluable advice and comments.

Overview

We appreciated the efforts of each reviewer in pointing out particular sentences and excerpts where clarity was compromised due to grammatical or syntactical errors; however, many of these have been removed altogether since the article has been revisited, changed and elaborated.

The manuscript has been changed to a Correspondence article as requested and it has been edited by a professional English editing service. This revised version of our article has also involved more authors than the previous version.

We have also changed the title from “A low cost project in a cold economic climate. Operating room data management and the improvement of quality and safety in a surgical block” to: “A low cost project in a cold economic climate. Operating room data management: improving efficiency and safety in a surgical block.”. The authors believe this new title places more emphasis on the intrinsic link between the implementation of the new data management system and improvements in efficiency and safety in the surgical block.

The authors have elaborated on the concepts which led to the creation of this system (Background). The Materials and Method section now contain an in-depth description of all the system phases.

As requested, the Introduction provides an overview of the European and Italian context, leading to the specific case of our hospital (effects of its move to premises).

The authors declared their intent in the Rationale section and described initial phases in the development of the project in the Background section. The ORMS system, and how it represents an improvement on previous phases, is described in Materials and Methods. Results of the study have been presented in a more organized way under the Results section; interesting outcomes have also been described. Unfortunately, we were unable to perform a more elaborate statistical analysis of data collected. In the Discussion section, the authors analyzed the results and compared them with those obtained by previous studies presented in literature.
Reviewer n°1

The authors have tried to respond to all issues presented by reviewer num1. All the literature suggested by Reviewer 1 was read with great interest (www.franklindexter.net/bibliography) and helped the authors to clarify just what was scientifically novel about our system when compared to other studies. This suggestion was invaluable, and as Reviewer 1 noted, our previous article referred to literature published 15 years ago, without clearly explaining why and how our system was different. Therefore in the revised version we have specified that our system is based on new technologies which were unavailable 15 years ago (no Intel 486 workstations or manual data entry), enabling our system to elaborate data and results more extensively. We now understand that we started in a similar way to previous studies, but obtained results which were different. Another innovative and scientifically important aspect of the system is that the system enables different operators to obtain relevant information (information accessed depends on the operator logged in).

We shifted the article's original focus on a one-day example of the system, to incorporate examples referring to yearly, monthly and daily examples to better explain the results and effects of this system.

The revised article explicitly states how the project is bottom up and low cost (providing detailed set-up costs) and therefore may be replicated and implemented in different hospitals, at least in Europe. The potential of the project in this sense was rewarded with the Best Nominee Award in the 2011 European Public Sector Award, organized by the European Institute of Public Administration.

In response to Reviewer 1's request for clarification as to what results demonstrate, we have included a more extensive explanation in the article.

Correlations relating to quality were based on all the data analyzed by us. We used indicators of efficiency found in literature to evaluate the operating room system in different years (2009-2010-2011). We found that indicator values continuously improved since the introduction of the ORMS in 2009.

A significant effect of our system was that it encouraged an improvement in the use of surgeon's time. In support of this conclusion we have demonstrated how results indicated:

- an improvement in raw utilization: a comparison of minutes worked versus available minutes is an indicator of the level of organization of available OR time.
- an increase in the number of high complexity procedures.
- a decrease in the number of unscheduled procedures.
- a decrease in over time; intrinsically linked to the aforementioned points, this factor is indicative of an improvement of the quality of organization and has an important effect on the reduction of costs.

Therefore, rather than a decrease in the time OR's were utilized, our system has led to better organization and therefore allocation of time available.

We have also presented data as outcomes rather than outputs (as shown by the 'dashboards').

**Reviewer n°2**

The authors have reorganized the text: part of the results have been moved to material and methods. We thank the reviewer for suggestions which the authors have implemented with the aim of creating a better organized text with a stronger logical sequence, which will hopefully be more navigable for readers.

Previous literature has been taken into account in the discussion and conclusion. The conclusion has been reduced in length and we have tried to make it more incisive.

The authors would like to thank reviewer n°2 for his advice and they hope he will appreciate the effort we made.

**Reviewer n°3**

We divided the manuscript as requested into: introduction/rationale/background, methods, results, discussion and conclusion.

We added descriptions of existing literature to the introduction; the goal of the study has been declared in the rationale section, as suggested.

More details have been added to the Method section, which now contains all the phases and previous versions of the system which culminated in our final work. As requested, the authors have reorganized the content so that it follows a chronological and logical sequence. Changes made to the Materials and Methods section also entailed a reorganization of the results section. It was not possible to perform a more elaborate statistical analysis of the data.

We decontextualized the results. The discussion section now also refers to the European and World context; although the American system is different from ours, this doesn't necessarily mean that our system is of no interest to American healthcare professionals and managers.

We have tried to explain some of these differences.
The authors would like to take this opportunity to thank reviewers 2 and 3 for their invaluable advice and for believing in the potential of our project. This project is the brainchild of a group of professionals dedicated to the development of a system they believe has the potential to unite management and health professionals in the task of improving healthcare and efficiency.

Best Regards