Author's response to reviews

Title: Characteristics of unit-level patient safety culture in hospitals in Japan: a cross-sectional study

Authors:

Shigeru Fujita (sfujita@med.toho-u.ac.jp)
Kanako Seto (setokana@med.toho-u.ac.jp)
Takefumi Kitazawa (kitazawa@med.toho-u.ac.jp)
Kunichika Matsumoto (rakchart@med.toho-u.ac.jp)
Tomonori Hasegawa (tommie@med.toho-u.ac.jp)

Version: 2
Date: 12 August 2014

Author's response to reviews: see over
Dear Dr. Calumpita,

We are grateful to reviewers for the critical comments and useful suggestions that have helped us to improve our paper. We have taken all these comments and suggestions into account in the revised version of our paper as follows.

Comments from editor:
1. Copyedit

We recommend that you copyedit the paper to improve the style of written English. If this is not possible, you may need to use a professional language editing service.

Our paper was copyedited by native speakers of English.

Comments from reviewers:

<Haytham Kaafarani>

1) I am not sure about the subgroup division and analysis. Even though I understand that physicians are not necessarily linked to a certain specific unit, comparing groups that are divided based on role (e.g. physicians) to physical units (e.g. neonatal or intensive care unit) leaves room for unexpected errors. A crisper division of subgroups and delineation that avoids this problem is needed with two-level analysis, one at the unit level and one at the role level. An administrative director of ICU can thus be analyzed as part of "administration" but where physical location is ICU. Both matter.

In Japan, most physicians working in hospitals are directly employed by hospitals. They often work at more than one ward and their work activities are not limited to just one ward. In a typical hospital organization chart, there are some physicians’ units and most physicians belong to one of the physicians’ units. To explain the situation, we added following sentences (Methods, P.6, L.113-116):

“A separate ‘Physicians’ unit’ was created because, in Japan, most physicians are directly employed by hospitals and their responsibilities are not limited to just one ward. In a typical hospital organization chart, there are some physicians’ units and most physicians belong to one of the physicians’ units in Japan [10].”
One of the purposes of this study is to identify common problems in every unit type. ‘Additional file 2’ was added since the information of professional composition might be of help to understand the problems in each unit type.

In this study, the difference of professional composition should be considered as one of the background factors since the target of improvements for PSC is not professions or official positions but ‘unit type’. Therefore we added a sentence as follows (Discussion, P.8, L.177-179):

“To better interpret the results and review possible measures, it may be necessary to take background factors, such as differences in professional composition and responsibilities, for every unit type into account.”

An administrative director should not be divided from their physical unit because the attitude or abilities of the administrative director can be closely related with the unit-level PSC.

2) The wide confidence interval for the "Obstetrics and gynaecology ward, perinatal ward or NICU [OR 9.71 (1.17–80.74)], when compared to all other OR from the same table 2, makes me very suspicious of a statistical error in analysis. Even though I could be wrong, I suggest rechecking the analysis, especially that the whole result/discussion section depends on this specific finding. If it is not a statistical error, how do the authors explain this unusual wide range for the CI, which makes the finding less certain?

Wide range of CI might be caused by a small number of units (11 units) and an extremely unbalanced distribution of this unit type because only one of 11 units was categorised as Low-PSC unit. If high-PSC unit and low-PSC unit are increase by one each, the results will be as follows: OR=5.1, P=0.04, CI=1.05-24.8. It might suggest the need for increased number of samples. Therefore following sentence was added in the limitations. (Limitations, P.11, L.238-240)

“Some of our results may have limited statistical power because the numbers of some unit types were relatively small.”
1. Data Analysis section – paragraph 2 – Please explain why Obstetrics and gynaecology wards, perinatal units or neonatal intensive care units (NICU) were treated as one unit type. It is not immediately obvious to this reviewer why these three unit types would be grouped together. The justification for treating them as one unit type is particularly important given the staggering Odds Ratio for this grouping of units relative to other units shown in table 2.

In Japan, those unit types are likely to put them together in a single nursing unit because operations among those unit types are closely related to each other. Therefore we added following sentence. (Methods, P.6, L.110-113)

“Obstetrics and gynaecology wards, perinatal wards and neonatal intensive care units (NICU) were combined to form one unit type because those units are generally part of a single nursing entity with shared facilities and resources.”

2. Discussion section – paragraph 2 – This grouping of units noted in the previous comment also caused me to have some difficulty with the 2nd paragraph in the discussion section where strong findings for this group are explained only in reference to literature on obstetrics units.

There are few studies regarding PSC in perinatal wards and NICU. We added following sentence (Discussion, P.9, L.194-196):

“A study found better PSC in NICUs than in adult ICUs, but further studies are needed to determine PSC in perinatal wards and NICUs [16].”

3. Results section – 2nd paragraph – Can you please explain the finding that “Percent positive scores of all PSC sub-dimensions were significantly higher for high-PSC units than for low-PSC units.” Was this result just to show that the clustering worked or to show that it differentiates across all 12 of the PSC dimensions? You sort of get to this in the discussion section but it is a bit hard to tell because details on how clustering was done are not provided (did you use K-means clusters?) Perhaps some additional detail on how clustering was done would help clarify this.

To make it plain, we changed sentences as follows (Methods, P.6, L.119-122):

Pre: “Cluster analysis was used to categorise the units according to the percent positive scores for the 12 sub-dimensions, and a t-test was performed to compare the percent positive scores among the clusters.”
Post: “Hierarchical cluster analysis based on the squared Euclidean distance and Ward’s method was used to categorise the units according to the percent positive scores for the 12 sub-dimensions. The percent positive scores of the 12 sub-dimensions were compared between the two clusters using $t$ tests.”

Following sentence was written in notes of figure 1. (Figure 1)

“All pairs of percent positive scores for high-PSC units and low-PSC units were significantly different ($P <0.01$).”

4. Discussion section – paragraph 3 – the discussion of findings for administrative units and, in particular, the suggestion that event reporting culture may be “inferior” should be reworked to emphasize the latter part of this paragraph which quite rightly points out that admin units involve less (and perhaps little to no) direct care so event reporting may not be overly relevant for this area.

We changed the sentence as follows (P.9, L.197-201):

Pre: In administration units, the culture of improvements based on event reporting might be inferior compared with that in other units because the percent positive scores of ‘Frequency of events reported’ and ‘Organisational learning - continuous improvement’ were the lowest, and the proportion of respondents who reported one or more events during the previous year was also the lowest among the unit types.

Post: In administration units, the culture of improvements based on event reporting may not be established because the percent positive scores of ‘Frequency of events reported’ and ‘Organisational learning - continuous improvement’ were the lowest, and the proportion of respondents who reported one or more events during the previous year was also the lowest among the unit types.

5. Discussion section – paragraph 5 – the first sentence is quite strong and does not appear to be supported by the data in this study which did not look at ‘actual patient safety levels. So the statement that “In long-term care wards, actual levels of patient safety could be lower than those in other units because outcome measures for PSC, such as ‘Patient safety grade’ and ‘Overall perceptions of patient safety’, were the lowest among all unit types” needs to be revised or removed.

We deleted the sentence as follows (P.10, L.214-216):

“In long-term care wards, actual levels of patient safety could be lower than those in other units because outcome measures for PSC, such as ‘Patient safety grade’ and ‘Overall...
perceptions of patient safety’, were the lowest among all unit types.”

6. General comment · it was not clear if the authors have accounted for differences in respondent groups that are found in some of the units they characterized. For instance, some units have mainly nurse respondents, while at least one has all physician respondents, and others may have a higher proportion of non-direct care provider responders. It seems quite possible, even likely that some of the differences in PSC scores may be due as much to respondent group as to unit type. Can this be teased out, explored, or, at least, controlled for?

One of the purposes of this study is to identify common problems in each unit type. ‘Additional file 2’ was added because the information of professional composition might be needed to understand the problems in each unit type.

In this study, the difference of professional composition should be considered as one of the background factors since the target of improvements for PSC is not professions or official positions but ‘unit type’. Therefore we added a sentence as follows (Discussion, P.8, L.177-179):

“To better interpret the results and review possible measures, it may be necessary to take background factors, such as differences in professional composition and responsibilities, for every unit type into account.”

Finally, we thank the reviewers for his/her constructive comments that have helped to improve our manuscript. Looking forward to hearing from you.

Yours truly,