Author’s response to reviews

Title: Association between registered nurse staffing levels and in-hospital mortality in craniotomy patients using Korean National Health Insurance data

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Author’s response to reviews:

Thank you very much for your helpful comments.
We have carefully considered them and have done our best to properly address them.
The changes are shown in red in the manuscript, and our detailed responses to the comments are presented below.

* Comments Response

The authors have responded well to comments and the paper is greatly improved as a result. However, a considerable strength of this study which the authors have not emphasised is the access to the large national database. Healthcare research in Korea can therefore be conducted at scale, which is not easy elsewhere, and positions the country well to host the future research identified by the authors.

-&gt; In several places, we have emphasized the use of the large national database in the Background, Methods, Discussion, and Conclusions sections. In addition, in the Discussion section, the starting phrase was modified from 'In this study, ...' to 'In this study using a large national database, ...'.

My previous comment on using 'registered nurse' and abbreviating it to 'RN' has not been addressed. This is exemplified in Page 3- Lines 11, 18, 26, 35. Following the use of the first abbreviation, the wording 'registered nurse' should be replaced by 'RN' (in approximately 120 cases where this term is used)
These are editorial points but important for consistency.

-&gt; We changed all wording to ‘registered nurse’, and abbreviated all wording of ‘registered nurse’ to ‘RN’ except the first ‘registered nurse’.

Page 3 Line 16- Delete 'with this rule' as repetitious

-&gt; Page 3 Line 16: We deleted 'with this rule’ in accordance with the reviewer’s comment.
From ‘Since punishment for violation of this rule is weak, it is virtually impossible to regulate hospitals that fail to comply with this rule.’ to ‘Since punishment for violation of this rule is weak, it is virtually impossible to regulate hospitals that fail to comply’
Page 7 Line 22: Replace 'this study' with 'our sample'.
Page 7 Line 19: We replaced 'this study' with 'our sample'. From 'This study included 43 out of the total of …' to 'Our sample included 43 out of the total of …'

Page 8 Line 3: The sentence contains a tautology: 'the nursing grade system of general wards bifurcates hospitals into two tiers'. Please either delete 'into two tiers' or replace 'bifurcates' with 'divides'.

Page 7 Line 56: We replaced 'bifurcates' with 'divides'. From 'the nursing grade system of general wards bifurcates hospitals into two tiers' to 'the nursing grade system of general wards divides hospitals into two tiers'.

Page 16 Lines 5-12: The wording is superfluous, which can be conveyed more succinctly by 'In California, the patient to RN staffing standard is 2:1 in the ICUs and 5:1 in general medical and surgical wards. In Victoria, it is 2-3:1 in the ICUs and 4-6:1 in the general wards. Please also indicate the country and type of regions covered by the named areas (city, state, nation, borough, county, etc.).'

Page 15 Lines 47-52: We modified the wording and inserted the country (USA and Australia) in accordance with the reviewer’s comment. From 'In California, the registered nurse staffing standard is 2 patients per nurse on duty in the ICUs and 5 patients per nurse in general medical and surgical wards. In Victoria, the nurse-to-patient ratio is also based on duty, with 2-3 patients per nurse in the ICUs and 4-6 patients per nurse on day shift in the general ward.' to 'In California, USA, the patient to RN staffing standard is 2:1 in ICUs and 5:1 in general medical and surgical wards. In Victoria, Australia, it is 2-3:1 in ICUs and 4-6:1 in general wards'.

Line 12: The authors should indicate that the '5 to 20 rule' has been developed or advocated by authors within a specific study, and is not a measure or ratio that is applied internationally or universally.

Page 15 : We have deleted this sentence in accordance with the reviewer’s comment that the '5 to 20 rule' is not applied internationally. Delete: ‘This is the 5:20 rule, according to which the number of patients per nurse can be changed according to patients' condition, within the standard of 5 nurses per 20 patients’

Line 22: The authors need to qualify this statement by inserting wording after 'enforced' e.g. in many countries, or 'as outlined by … in their study of …'.

Page 16 Line 3: We inserted 'in many countries' after 'enforced'. From 'The importance of adequate levels of registered nurse staffing is increasingly recognized, as mandated registered nurse staffing standards (nurse-patient ratios) are enacted and enforced’ to ‘The importance of adequate levels of registered nurse staffing is increasingly recognized, as mandated registered nurse staffing standards (patient- RN ratios) are enacted and enforced in many countries’

Line 45: The wording 'the primary goal should be to set the bed-to-RN ratio…' should be modified to state 'the findings from our study suggest that the bed to RN ratio should be…'

Page 16 Lines 23-25: We modified the wording accordingly. From ‘the primary goal should be to set the bed-to-RN ratio to less …’ to ‘the findings from our study suggest that the bed-to-RN ratio should be less~’
Page 17 Line 5: As with my preceding comment, the wording should be modified to state 
'Our findings that mortality rates decreased when .... suggest that RN to patient ratios should 
be increased in Korea from the current 2.5:1 to 1.66:1.'

Page 16 Lines 33-38: We modified the wording accordingly. 
From ‘Since the mortality rate decreased when the bed-to-RN ratio was less than 1.67:1, this 
criterion for registered nurse staffing levels should be revised to 1.66 inpatients per nurse’. to 
‘Our findings that mortality rates decreased when the bed-to-RN ratio was less than 1.67:1 
suggest that bed-to-RN ratio should be increased in Korea from the current 2.5:1 to 1.66:1.’

Lines 5-12: I am not convinced that the following wording contributes anything to the paper, 
but inclusion would be an editorial decision 'In this context, the findings of this study could 
furnish useful criteria for calculating the adequate registered nurse staffing level. It is 
necessary to develop a scientific basis for mandating appropriate registered nurse staffing 
standards to guarantee the people's health rights and to ensure patient safety.'

Page 16 Lines 38-45: After careful consideration, all of the authors thought that this 
phrasing made a valuable contribution and therefore did not delete it. We are willing to 
accept the editorial decision.

Lines 16-43: Please insert a separate section for 'Limitations' and move this text to that 
section, preferably following the section on 'Conclusions'.

Page 16 Line 51: We inserted a 'Limitations' section and moved the text.

Line 53: The views of the authors as to the strengths of the study should be presented as that. 
The wording should therefore be revised to 'We believe that this study is meaningful as …'

Page 17 Lines 34-37: We modified the wording accordingly. 
From 'This study is meaningful since…’ to ‘We believe that this study is meaningful as …’

Page 18 Lines 15-25: Please move this text to the section on study limitations, avoiding 
repetition of content. Suggestions for future research could be included in the conclusions 
section.

Page 17 Lines 17-22: We moved this text to the ‘limitations’ section. & Page 17 Line 46 - Page 18 Line 2: We moved this suggestion to the ‘conclusions’ section.