Author’s response to reviews

Title: Increasing Trend in Hospital Deaths Consistent among Older Decedents in Korea: A Population-based Study using a Death Registration Database, 2001-2014

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Author’s response to reviews:

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Maria Zalm
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Dear Editor:

We are pleased to resubmit the revised version of "Increasing Trend in Hospital Deaths Consistent among Older Decedents in Korea: A Population-based Study using a Death Registration Database, 2001-2014" (PCAR-D-17-00068). Thank you for the revision invitation and positive evaluations for our manuscript. We really appreciated constructive comments of Editor and reviewers.

We have carefully reviewed the comments and have revised the manuscript accordingly. The most substantial revision concern was adding references for some sentences as recommended by reviewers and shorten the length of the discussion for predictors in discussion. Moreover, in order to prevent the misperception for future readers, in the manuscript, we decided to use “South Korea” instead of only “Korea”. Our responses are given in a point-by-point manner below.
We hope the revised version is now suitable for publication and look forward to hearing from you in due course.

Sincerely,

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Editor Comments:
Thank you for your interest in publishing with BMC Palliative Care. Following peer-review reports, we would kindly ask you to make some minor revisions to your manuscript as is indicated by the reviewer reports found at the bottom of this email. Please do not hesitate to contact me if you have any questions regarding your manuscript.
Response: Thank you for your revision invitation. We have carefully reviewed the comments and our responses are given in a point-by-point manner below.

Response to Reviewer 1:

Thank you for your review of our paper. We have answered each of your points below.

Camilla Zimmermann (Reviewer 1): This is a well written, interesting paper on trends in place of death in the Republic of Korea. It is clearly presented and I have few suggestions for its improvement. Below are my comments:

1. Although it is inherently obvious that this publication is about the Republic of Korea (rather than North Korea), for clarity this should be specified the first time the country is mentioned in the abstract and in the paper.

Response: We added information to specify that this publication is about Republic of Korea. For the following part of manuscript, we used South Korea instead of Korea. (Line 36)

2. It is stated on the first page of the introduction that the vast majority of decedents hope to eventually die in their usual place of residence. Although it is the majority in most countries, I'm not sure that it's the vast majority. There should be a reference provided for this statement. This preference would also likely depend on the resources that are available for patients at home versus in the hospital and therefore vary by country and circumstance.

Response: Thank you for you helpful comment. We added some references regarding the preference for place of death. One study conducted in Korea report that half of the interviewed patients and half of the family members expressed a preference for the patient being cared for and dying at home [1]. Other two studies conducted in Japan, one in 2003 [2] reported two-thirds and one in 2011 [3] reported 44% of Japanese people expressed preference for a home care setting and eventually dying at home.

Based on the references [1-4], around half (50%) of patient and care givers preferred to die at home. Therefore, we revised the sentence: “Approximately half of decedents expressed preference for a home-based end-of-life and eventually die at their usual place of residence.”. References were added in manuscript. (Line 73, 74).
Below is list of used references:


3. It is stated in the methods that both a univariate and multivariate logistic regression was performed. Do the results on Table 3 and in the results section reflect the multivariate regression results? If so, then this should be stated. If not, then these should be presented.

Response: Table 3 includes results from both univariate (crude) and multivariate (adjusted) logistic model. More details were added to clarify this in table title.

4. I presume that palliative care units are included in the hospital deaths? Has there been an increase in palliative care units for the time period mentioned? It would be useful to mention in the discussion what fraction of hospital beds is made up of palliative care unit beds - I assume a very small fraction.

Response: Thank you for suggestion. We have discussed palliative care services in Korea as well as related policies. How these changes impact to where people died was also discussed. For the general elderly population, although palliative care and long-term health care were introduced in South Korea in 2003 and 2008, respectively, health care systems in South Korea have been deemed to be ill equipped to cope with a rapidly aging population. Patients requiring these services have been found to occupy acute care beds in hospitals, potentially leading to the increasing number of deaths in hospitals. (Line 221-227) Furthermore, during the study period,
palliative care in South Korea remains exclusively available to only people with cancer [5]. (Line 265-268, 273-274).

To answer for your question, palliative care units are included in hospital deaths in our analysis. We have added in the limitation part: “However, in the death registration database, long-term care hospitals and palliative care are coded together with general and other kinds of hospitals. Due to this limitation, we could not explore the distribution of deaths in this particular setting.” (Line 295-297)

The number of terminal cancer patients utilizing hospice and palliative units in South Korea has been increasing. Unfortunately, we do not have information regarding the proportion of hospital beds made up the palliative care units beds.


5. The discussion is very long and could be shortened and focused a bit more. The most striking finding in this paper is the change in location of death over time. The discussion on predictors could be shortened.

Response: In order to shorten the discussion, some sentences discussing predictors such as living areas, marital status and education were deleted or revised.

For education, we revised or combined sentences to shorten. For example, in our previous manuscript: “In our study, higher education was consistently a strong predictor of a higher likelihood of dying in a hospital. Previous investigations in South Korea have reported the same results”. These two sentences were combined and revised into one: “In our study, higher education was consistently a strong predictor of a higher likelihood of dying in a hospital and was consistent with previous investigations in South Korea”. (Line 239-240)

Same approach was used for other predictors. We also combined the paragraphs discussing for education, marital status and living are (rural vs. urban) into one paragraph. (Line 252-259)

Response to Reviewer 2:

Thank you for your comments. Our answers to your points are as follows.
Rosemary Ann Frey (Reviewer 2): Thank you for the opportunity to review your manuscript. I have included some brief comments by section below:

Introduction:

Palliative care policy internationally has 'problematised' the provision of palliative care in the hospital setting, focusing instead on reducing hospital admissions and supporting patient's assumed preference to be cared for at home. The article follows that trend.

Current evidence is limited to the negative aspects of care and little attention paid to potential benefits of hospital admission. However recent qualitative research has shown that the benefits patients experience being in hospital extend beyond the treatment they receive, and these additional benefits appear to influence patients' preferences to return to the hospital during periods of acute illness. See Robinson J Robinson J. Are there any benefits to hospital admissions for people with palliative care needs? In: Care EAoP, (ed.). 2015. Also new research by Robinson et al (2017) has shown that feeling safe in hospital is a significant predictor of a preference to return to hospital during a period of acute illness in palliative care.

Response: Thank you for your recommendations of interesting references. We agree that hospital admission also might have some potential benefits for patients and might have impact on their preferences in choosing where to receive end-of-life care. We have checked for the references of where patients and their care givers prefer to experience end-of-life care in Korea. This study was conducted in 2005 [1] and reported around of half of patients and care givers expressed a preference for the patient being cared for and dying at home.

Methods

In many populations, residential aged care is an important site of death (see Broad, J. B., Gott, M., Kim, H., Boyd, M., Chen, H., & Connolly, M. J. (2013). Where do people die? An international comparison of the percentage of deaths occurring in hospital and residential aged care settings in 45 populations, using published and available statistics. International Journal of Public Health, 58(2), 257-267) It would have been informative to include this variable in the regression model.

Response: Thank you for your suggestion. In this study, we used the Death Registration. In this data, place of death was classified as: home, hospital or medical institution, institutions, etc. Institutions include residential aged care, orphanages and other welfare facilities. There was no specific category for residential aged care. Therefore, we could not include in our analysis as your recommendation. However, we discussed it as one of our limitation of using administrative dataset. (Line 295-297)
Results are adequately described.

Discussion is appropriate and informative. It would be helpful to include some supportive evidence for the statement: "This discrepancy might reflect better development of other types of end-of-life services in some European countries".

Response: We re-checked this statement and added this reference: Cohen J et al., Using death certificate data to study place of death in 9 European countries: opportunities and weaknesses. BMC Public Health 2007, 7:283. (Line 280)

Conclusion sounds more like a recommendation.

Response: Thank you for your comment. We slightly revised the conclusion to improve it. (Line 299-302).