Author's response to reviews

Title: Determinants of Place of place of death: a population-based retrospective cohort study.

Authors:

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Author's response to reviews: see over
This is well-written, interesting retrospective population-based study of place of death among over 150,000 adults in British Columbia Canada. This study found that Asian places of birth were significantly associated with increased likelihoods of hospital death and decreased likelihoods of nursing home death. I agree with the authors’ discussion that the relationship between place of birth and place of death was intriguing. The question is well defined, methods seem appropriate and well described and the data appear sound. The authors used satisfactory analyses and clearly explained their methods.

- Major Compulsory Revisions
The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

1. The major component of this article that was missing was any reference to hospice services in relation to home deaths. As home deaths are much more likely among patients with hospice services, it is important to assess the availability and utilization of hospice services when examining place of death. If the authors have no access to hospice data, this should be acknowledged as a limitation, but the discussion should still discuss, in general, the hospice utilization and availability in British Columbia.

A paragraph has been added at the beginning of the Methods section describing the BC Palliative Care Program. Line 6, Paragraph 10 of discussions contains a line acknowledging the limitation.

Page 4
“End of life care in British Columbia is delivered in different locations, by different teams, with relatively good integration in the delivery of patient care. At the provincial level, all patients with less than 6 months life expectancy are enrolled in the British Columbia Palliative Care Benefits Program which entitles them to receive medications, equipment and home support. In the tertiary care hospitals there are Palliative Care Units, and a Palliative Care consult team for patients in other parts of hospital with palliative care needs. There are free-standing hospices across the province for stable patients. The home-hospice program is integrated with the community home care program and the latter provides home support and nursing to patients at home. Clinical nurse specialists in palliative care and palliative care physicians provide support to primary care physicians and nurses in the community. There is also a 24 hour toll free phone line, staffed by palliative care specialists, for physicians in remote areas with no direct access to palliative care specialists.

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“…..our study was descriptive and focused on where people died and not what kind of services they received as we did not have access to data about end of life services.”

2. Also, in the discussion, rather than referring to previous literature on “minorities”, it would be more helpful and interesting to cite some of the place of death literature specifically related to Asian populations in America and/or Canada, since it is not clear that Chinese, Indian and Filipino populations necessarily share place of death characteristics with African-Americans, for example. It would be helpful if the authors shared with the reader some of the reasons given in the literature for different rates of hospital and/or nursing home deaths in some of these populations, or other Asian populations, such as Japanese-Americans.

2 paragraphs have been added in the Discussion section in response to this comment. Page 10.

“In our study, we noted differences in place of death preference among people with place of birth in China, India and the Philippines. These three groups were more likely to die in hospital than people born in Canada. Whereas those born in China were less likely to die at home and extended care and more likely to die in hospital, people born in India and the Philippines were as likely as those born in Canada to die at home though not in extended care facilities. There is little information in the literature on the influence of place of birth and/or ethnicity on place of death. A study from California [23] showed that death in hospital was most common for Asian and Hispanic immigrants and least common for non-Hispanic whites and US-born Asians. Similarly, a study done on cancer patients in the United Kingdom [25] reported that Indian, Pakistani, Bangladeshi and Chinese patients were significantly more likely to die in hospital than White patients. A systematic review on minority ethnic groups and end of life care done in the United Kingdom [28] also showed that Asian patients with cancer were half as likely as non-Asians to die in a hospice and that elderly Chinese expressed a preference for hospital care. The authors of these different studies have speculated that observed differences were due to cultural preferences with reluctance among some immigrant subpopulations to utilize hospice services and complete advance directives.”

References
- Minor Essential Revisions
- The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.
1. I was surprised that pneumonia was associated with increased likelihood of hospital death and reduced likelihood of nursing home death compared to cancer, given that pneumonia is such a common cause of death in nursing home facilities. It would be helpful if the authors could comment on this a little, such as, if this is because of the overlap between dementia and pneumonia as a cause of death and limitations of death certificates if only the primary cause of death on the death registration was used?
Only the underlying cause of death on the death certificate was used as, at this time, British Columbia Vital Statistics only codes the primary cause of death. It is possible that dementia patients in Extended Care did, indeed die of pneumonia (as a result of swallowing difficulties associated with dementia) but we are unable to comment further on this. We have revised the manuscript to mention the fact that there is only a single coded underlying cause of death in the British Columbia Vital Statistics death data. These mentions are made in the Methods section and in the limitation section.

2. On Table 5, please align the rows "Place of death: Extended care facility" and "Place of death: Hospital" to the left so they are in the same alignment as "place of death: home". At first, it was hard to tell that this was a three-part table, stratified by place of death. This correction has been made.

- Discretionary Revisions
These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential. NONE.
Level of interest: An article of importance in its field
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: Determinants of Place of death: a population-based retrospective cohort study.
Version: 1 Date: 25 February 2013
Reviewer: Dave Lu
Reviewer's report:
Major Compulsory Revisions:
1. Discussion, fourth paragraph, is the result of Asians and place of death possibly due to more Asians living in urban areas?
Table 5 describes the crude and adjusted associations between place of birth and place of death. The odds ratio was adjusted for place of residence (Vancouver, Victoria, Other city and rural). The association remained highly significant irrespective of (or controlling for) rural/urban residence.

Or do more Asians die from cancer, rather than cardiovascular disease, and therefore more of them die in hospitals as the study's other conclusion suggests?

Our study showed that people born in China (crude OR 1.69, 95% CI 1.59-1.80; adjusted OR 1.31, 95% CI 1.23-1.39), India (crude OR 2.07, 95% CI 1.91-2.24; adjusted OR 1.69, 95% CI 1.55-1.83), and the Philippines (crude OR 1.70, 95% CI 1.48-1.95; adjusted OR 1.35, 95% CI 1.17-1.56) were more likely to die in hospital than people born in Canada (Table 5). The adjusted odds ratios were obtained from a logistic regression model that controlled for age, sex, marital
status, residence, cause of death and year of death implying that differences in causes of death, etc, did not account for the higher rates of hospital death among Asians. However, the crude odds ratios were attenuated by the adjustment procedure suggesting some confounding of the crude odds ratios by age, sex, marital status, residence, cause of death and year of death.

Similarly in the fifth paragraph, I worry that place of birth is too complicated a factor to use as a determinant in making any conclusion about place of death. Two individuals who were both born in China may have very different places of death based on their age upon immigration, language skills, assimilated or non-assimilated children, etc. There may be associations between age of immigration and assimilation into Canadian culture, for example, that actually might be influencing place of death. This, however, would NOT be reflected in the crude measure of "place of birth," and therefore may muddy the picture and any conclusion we can draw from it.

We concur with the reviewer that place of birth may mask the differences within the immigrant population. Our study deals with averages and not individuals. At the same time, we think it is important not to ignore robust findings based on good quality data. They are supported by a study done in California and described in greater detail in the Discussion section [23] which showed a significant difference in place of death between Asians born in the US and those born outside. Other studies in the United Kingdom [25,28] also supported this finding.

Minor Essential Revisions:
1. Discussion, first paragraph, careful about use of the word "determined." Consider replacing with "associated with" since you can't show cause and effect here.

In the first sentence of the discussion section we have replaced ‘determined’ with the term ‘associated with’. Elsewhere we have used the term ‘determinant’ as in the context of an epidemiologic study, the word ‘determinant’ does not denote causality i.e., ‘determinants’ are not necessarily ‘causal’ factors.

2. Discussion, second paragraph, final sentence, did the authors mean "hospital" instead of "extended care"?

Adjusting for confounding factors decreased the odds ratio of males dying more frequently than females in hospital. However, the association between increased home deaths and decreased deaths in extended care remained for males versus females. This sentence was modified to improve clarity.

Discretionary Revisions:
1. Background, third paragraph, fix wording in final sentence.

   This has been done.

2. Results, second paragraph, consider taking out "expected pattern," since I would not be surprised if 50-year-olds more frequently died in hospital. The only expected pattern I would have predicted is that older individuals died more frequently in extended care facilities. This sentence, however, addresses home deaths, the results of which - whatever they may be - I would not say is obviously
intuitive.

This sentence has been revised, with the words ‘expected pattern’ deleted.

Level of interest: An article of limited interest

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.