Author's response to reviews

Title: Impact of diabetes on hospital admission and length of stay among a general population aged 45 year or more: a record linkage study.

Authors:

Elizabeth J Comino (E.Comino@unsw.edu.au)
Mark F Harris (M.F.Harris@unsw.edu.au)
Islam Fakhrul (M.Islam@unsw.edu.au)
Duong T Tran (D.Tran@uws.edu.au)
Bin Jalaludin (Bin.Jalaludin@sswahs.nsw.gov.au)
Louisa Jorm (L.Jorm@uws.edu.au)
Jeff Flack (Jeff.Flack@sswahs.nsw.gov.au)
Marion Haas (Marion.Haas@chere.uts.edu.au)

Version: 4 Date: 5 November 2014

Author's response to reviews: see over
Dear Professor Damiani,

Please find attached a revised copy of our paper as requested. We are grateful for the comments from the two reviewers and for their time. We have incorporated the changes into the document. The attached table details the changes that were made to the paper.

The authors and their contact details have not altered. All have made substantial contribution to this work and have agreed to publication.

Yours Sincerely

A/Prof Elizabeth Comino

Elizabeth Comino
Associate Professor
Centre for Primary Health Care and Equity

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**Paper Title:** Impact of diabetes on hospital admission and length of stay among a general population aged 45 year or more: a record linkage study.

**Investigators:** A/Prof Elizabeth Comino, Prof Mark Harris, Mr Md Fakhrul Islam, Dr Duong Thuy Tran, Prof Bin Jalaludin, A/Prof Jeff Flack, Prof Louisa Jorm, Prof Marion Haas
### Response to reviewers’ comments

<table>
<thead>
<tr>
<th>Reviewer comment</th>
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<tr>
<td><strong>Reviewer: Daniel J Rubin</strong></td>
<td>Thank you for your review of this paper and helpful comments.</td>
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</table>

**Discretionary revisions**

1. Presumably retrospective population cohort
   - This was a prospective study; participants completed a questionnaire when they joined the study. Their health records on hospitalisation were extracted for the 12 month period following recruitment. – no change

**Major compulsory revisions**

2. Proportion with more than one admission
   - 72% of participants with an admission were admitted more than once. The sequence blocks were designed to take into account transfers and same day readmissions. Clustering within and between participants and effects on readmission was beyond the scope of the paper. (Page 12, line 4)

3. How were variables selected for inclusion
   - We included all variables associated with diabetes in the univariate analysis and individually adjusted by age and gender in multivariate analysis – no change

4. Missing data
   - We did not exclude any variables due to missing values – no change

5. Methods – detail
   - Addressed in the emended text as commented above

**Reviewer: Massimo Maurici**

Thank you for your review of this paper, helpful comments and detail.

**Minor Essential Revisions**

153 It’s not clear to me why the survey recruitment was undertaken between 01/01/2006 and 17/02/2010 and data on hospital admissions for participants were from 2000 to 2009. What about follow up data about hospitalization of people recruited from 01/01/2010 to 7/02/2010?
   - Recruitment was between February 2006 and April 2009; Hospitalisation was taken as the 12 month period following the date of recruitment to the 45 and Up Study. This has been corrected (Page 7, line 2 and Page 8, line 3)

Some explanation on cut off values used to categorize physiological distress in this study should be given in order to understand the criteria behind this choice (some authors used different cut
   - We used the cut off points that have been reported and used with other studies using these data. Action: I have adder a reference to my colleagues work – (Page
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<tr>
<td>Same comment for SF-36 physical functioning scale and the reason which has lead the authors to adopt the proposed cut-off values</td>
<td>8, line 6 and 7)</td>
</tr>
<tr>
<td>Some explanation on Australian National Health Service and hospital organization could be useful for non-Australian readers</td>
<td>Some further explanation has been added (Page 8, lines 15-18)</td>
</tr>
<tr>
<td>193. Explain why you choose to use the reasons for hospitalization instead of diagnosis at discharge. Also explain the reason to analyze APDC records in the 12 months after questionnaire completion</td>
<td>These are hospital separation data and based on information provided following discharge. For each separation (i.e. discharge, death or transfer), the principal cause (and up to 50 additional causes) of hospitalisation are allocated to a diagnosis group using ICD-10 codes. ‘Reasons for hospitalization’ was possibly confusing as the data are completed following discharge and diagnostic codes applied. (Page 8, line 23)</td>
</tr>
<tr>
<td>220 To simplify the comprehension of this passage please specify (although the significance became clear in the next page) if “number of days” refers to total number of hospitalization days in 12 months</td>
<td>Yes number of days during the 12 month study period - clarified (Page 10, line 6)</td>
</tr>
<tr>
<td>224-225 Please specify here with appropriate reference what ambulatory care sensitive classification (ACSC) you are referring to [perhaps Ref. 23?]</td>
<td>The reference has been added here also (Page 10, line 11)</td>
</tr>
<tr>
<td>269-270 Referring to BMI in table 1, it seems that participants with diabetes are more likely to be only obese (and not overweight) compared to those without diabetes (overweight 34% vs 36,8; obese 39,6 vs 19,6 respectively).</td>
<td>Yes, that is true – the mention of ‘overweight’ has been removed (Page 12, line 10)</td>
</tr>
<tr>
<td>271 It seems you have missing the words “compared to” before “those without diabetes”</td>
<td>Yes, this has been corrected (Page 12, line 12)</td>
</tr>
<tr>
<td>277-278 It is not clear to me from what data you calculated the RR (1,24). Please clarify or report this result in table 2</td>
<td>This result reported the aRR for all cause hospitalisation, comparing those with and without diabetes. This information is not given in the table.</td>
</tr>
<tr>
<td>315 In “discussion”, note that overweight seems not related with diabetes (see comment</td>
<td>Agree, this has been removed (Page 14, line 11)</td>
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<td>Reviewer comment</td>
<td>Response/action taken</td>
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<td>to line 269-270)</td>
<td></td>
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<td>363-366 Please motivate this result with some hypothesis (e.g. great distance from hospital? People in this area have access to a good health facility reducing hospital admission thanks to a timely outpatient follow-up visits?)</td>
<td>We have included a hypothesis (Page 16, line 5-7)</td>
</tr>
<tr>
<td>402 It is not clear how physiological changes associated with obesity hypertension and hyperlipidaemia can reduce the risk of hospital admission. Can you explain this results with some example? (e.g. self reporting risk factors could lead to make a mistake in the baseline survey; or people who knows to have this risk factors are pharmacologically treated with consistent reduction of risk of hospitalization. Or that the “non clinical population” here investigated could explain that these risk factors have not already had an effect creating a confounding result).</td>
<td>We have attempted to clarify these issues (Page18, line 3-12)</td>
</tr>
<tr>
<td>421-424 This phrase is a little bit confusing to me. The affirmation here seems to justify the strange result obtained in the study with the current state of knowledge concerning those important risk factors</td>
<td>This section has been reworded in an attempt at clarification (Page 19, lines 2-12)</td>
</tr>
<tr>
<td>427 Please explain the acronym PHC (primary health care) the first time you cite it.</td>
<td>Acronym has been removed (Page 19, lines 15 and 17)</td>
</tr>
<tr>
<td>448 You state here that during analysis you try exclude from analysis also elective surgery (in addition to day one admission). Please report it in methods.</td>
<td>Removed to the methods (Page 19, lines 13-15)</td>
</tr>
<tr>
<td>463-465 The last sentence is not aligned with the results and the purpose of the study</td>
<td>The last sentence has been reworded (Page 21, lines 5-8)</td>
</tr>
<tr>
<td>455 The percentage here reported is not equal to the data reported in line 278</td>
<td>The percent has been changed to reflect the adjusted result – 24% is drawn from the aRR of 1.24. (Page 20, line 21)</td>
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</table>

**References, Table and figures**

Ref. 4 cite correctly. The paper is published in 2014 (International Journal of Clinical Practice Volume 68, Issue 1, pages 40–48, January 2014) | corrected
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<tr>
<td>Ref. 10 missing year (2012)</td>
<td>corrected</td>
</tr>
<tr>
<td>Ref. 17,18 and 23 uniform web link across references.</td>
<td>17: corrected</td>
</tr>
<tr>
<td></td>
<td>18: corrected</td>
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<tr>
<td></td>
<td>23: corrected</td>
</tr>
<tr>
<td>Ref. 19 This voice was often cited with 2 authors (Kessler R, Mroczek D). More,</td>
<td>Corrected</td>
</tr>
<tr>
<td>after square bracket there is , and :</td>
<td></td>
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<tr>
<td>Ref. 20: “3” in The SF-36 is missing</td>
<td>Corrected</td>
</tr>
<tr>
<td>Ref. 23 It seems to be missing internet link <a href="http://meteor.aihw.gov.au/">http://meteor.aihw.gov.au/</a>...</td>
<td>Corrected</td>
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<tr>
<td>Ref. 24 duplicate voice with Ref 23</td>
<td>Deleted</td>
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<tr>
<td>Ref. 33 error in a character between 246 and 361 and correct the citation</td>
<td>The 246 361 was correct; the reference</td>
</tr>
<tr>
<td>(International Journal of Obesity 37, 790-799 (June 2013). The “doi” appears</td>
<td>has been completed</td>
</tr>
<tr>
<td>only in this paper. Uniform with other references.</td>
<td></td>
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<tr>
<td>Ref. 34-38 the year of the papers is missing</td>
<td>The years have been added to the paper.</td>
</tr>
<tr>
<td>Ref. 39 doubled “;” after 13</td>
<td>Corrected</td>
</tr>
<tr>
<td>In table 3 the “% admitted” must be placed under “Diabetes”/“No diabetes”</td>
<td>Corrected</td>
</tr>
<tr>
<td>including the 2 underlying columns</td>
<td></td>
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<tr>
<td>Figure 1 In the risk factors (sex, low income, anxiety and depression) smoking</td>
<td>See Figure 1</td>
</tr>
<tr>
<td>(cited in discussion in line 406) is missing.</td>
<td></td>
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<tr>
<td><strong>Discretionary Revisions</strong></td>
<td></td>
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<tr>
<td>In table 3 it could be useful to introduce both for Diabetes/No diabetes adj. RR</td>
<td>We feel that the 95% confidence intervals</td>
</tr>
<tr>
<td>“p value” although it may lead to a table full of data.</td>
<td>are satisfactory.</td>
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<tr>
<td></td>
<td>Thank you for your detailed comments; they</td>
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<td>are appreciated.</td>
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