Reviewer’s report

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

Version: 3 Date: 17 October 2014

Reviewer: Daniel J Rubin

Reviewer’s report:

Summary: In this presumably retrospective population cohort study of 263,000 Australians, people with diabetes had significantly higher hospital admission rates and length-of-stay than people without diabetes. Diabetes modified the associations of certain sociodemographic and health covariates with admission. The authors make a decent case that there is a need to determine the risk of hospitalization and the impact of diabetes in a general community-dwelling population.

- Discretionary Revisions: none

- Minor Essential Revisions

1) If the study is retrospective, this should be stated in the methods and in the limitations with relevant points (perhaps misclassification, missing data, unmeasured confounders).

- Major Compulsory Revisions

2) Many of the admissions were likely among patients who had more than 1 admission. While a detailed analysis of multiple admissions is beyond the scope of this manuscript, the authors should provide the proportions of patients who had only 1 admission and those who had more than 1 admission. Also, how was clustering by patient with multiple admissions accounted for?

3) How were variables selected for inclusion in initial and final models?

4) Missing data was mentioned in Methods without much detail. Were any variables not included because of missing data? Was there a threshold below which it was considered acceptable to keep a variable with a missing values category rather than exclude the variable?

5) The methods are appropriate and generally well-described; some details should be presented (see revisions).

6) The data appear sound. Figures appear genuine. Discussion and conclusions are sound. While this study provides new insight into risk factors for admission in diabetic and non-diabetic populations, the clinical importance of the interactions among diabetes, age and obesity with admission are unclear.

7) The limitations are clearly stated. Relevant prior work is acknowledged.

8) Title and abstract are fine.
9) Writing is acceptable (needs a few minor edits).

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests'