Reviewer's report

Title: The number of discharge medications predicts thirty-day hospital readmission: a cohort study

Version: 2 Date: 24 January 2015

Reviewer: J Simon Bell

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Overall comments:

This is an interesting and well written manuscript. The findings are relevant to clinical practice. I have a series of major and minor suggestions for the authors.

Major Compulsory Revisions:

1. Methods: I recommend the authors describe how they accounted for deaths within 30 days post discharge. Patients who died within the 30-day period could not be readmitted. Hospital readmission data are often analysed using Cox regression with patients censored on their date of death or the end of the follow-up, whichever occurs first. This is important for the present study because presumably if a patient had limited life expectancy they may have had a number of their medications discontinued prior to discharge.

2. Methods: The authors have analysed readmission for any reason. I recommend that the authors clarify whether this also included planned hospitalizations (e.g. for dialysis, chemotherapy) or transfers between hospitals.

3. Methods: I recommend the authors provide further detail about how they computed each patient’s number of medications. Did the number of medications include both regular and as-needed medications? Did the number of medications include prescription, non-prescription and complementary and alternative medications? Were different strengths or formulations of the same active ingredient considered different medications? Were both short-term (e.g. 5-day course of antibiotics) and long-term medications (e.g. antihypertensives) included?

Minor Essential Revisions:

4. Methods: In line 119 page 6, the authors state that they report adjusted odds ratios (AORs). However, in the results section they present corrected risk ratios. I assume the authors transformed their odds ratios to risk ratios. If so, I recommend that this process is described in the methods section. Alternatively, if the authors re-analyse their data using Cox regression that produces hazard ratios then this step will be unnecessary.

Discretionary Revisions:
5. Introduction: I recommend the authors provide a brief description of the nature
and extent of mediation-related hospitalizations. This would help highlight the
importance of their work.

6. Methods: It would help readers better understand the context of the study if the
authors could briefly describe how medications are supplied to patients at
discharge. For example, does the hospital pharmacy supply 30 days of
medications in a dose administration aid/pill box or similar on discharge?

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