Reviewer's report

Title: Drug cost by a multidisciplinary approach to potentially inappropriate medications for older patients in home care settings: cross-sectional study and propensity score analysis

Version: 3
Date: 24 November 2014
Reviewer: Kurt Anderson

Reviewer's report:

First I would like to applaud the investigators for the obvious effort that went into this study. Please consider that my review of this manuscript comes from the point of view and experience I have as a clinician, not as a statistician or primary investigator.

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. Are the methods appropriate and well described?

It would be helpful if the nursing and pharmacy home visit programs could be described in some detail. Please include what each discipline’s role/service is and what they typically evaluate in the home visits. Did nursing and pharmacy both have equal access to clinical records? What is the frequency of home visits by each discipline? What constitutes regular home visits, and how often were patients seen during the study period by either discipline? What constitutes a “regularly prescribed by the clinic” medication? Since the study was over a period of time, and medication lists likely changed over this time period, at what point were medication lists considered for inclusion in the study? Why was brand name medication cost used over generic?

2. Are the data sound?

It seems questionable that the total monthly cost of PIM (as brand name medication) should be as low as it is reported. Could this be due to cost differences of medication between the markets in United States and Japan? What reference was used to estimate the cost of medication?

3. Do the title and abstract accurately convey what has been found?

The title is misleading. The primary intervention evaluated was not a multidisciplinary approach (i.e. a combined nursing and pharmacist collaboration). The title choice is odd, given that the author recognizes on lines 226-229 that the study is limited in its ability to evaluate a multidisciplinary approach.
The abstract, on the other hand, does seem to convey the findings reported elsewhere in the paper.

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.

4. Is the writing acceptable?
For the most part, the writing is acceptable. There are a few minor grammatical errors and word choices that I would change. I will list the manuscript line number and my recommended changes below.

46 – In patient groups…
49 – In patient groups…
54 - …visiting programs did not have the…
63 – Prescription medications are an essential…
74 - …countries with an aging…
75 - …population, such as Japan,…
83 - …reduce the number of patients with PIMs…
181 – In patient groups who used nurse home….
183 – In patient
184 – groups who did not….
240 - …in multidisciplinary teams.

Tables 4 and 5. The second column headings should read “Patients who did not use…”

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.

5. Is the question posed by the authors well defined?
Yes, if further clarification is given to define what the nurse and pharmacist home visiting programs entail (see comment 1 above).

6. Do the figures appear to be genuine, i.e. without evidence of manipulation?
Yes

7. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes. However, more inclusion of (n) by discipline (nursing or pharmacy) would be beneficial. Table 3 would be improved with a breakdown of occurrence (n) by discipline. The propensity analyses on Table 2 would be improved with this same treatment if possible, listing (n) in addition to percentages where possible.
8. Are the discussion and conclusions well balanced and adequately supported by the data?

The discussion does have some reasonably balanced arguments. The conclusion, however, seems somewhat disjointed, particularly the second half. Perhaps some reference to the need for future study to better elucidate or further clarify the findings presented in this study would be merited.

9. Are limitations of the work clearly stated?

The author does list some limitations of the study.

I applaud the author’s efforts. A great deal of work went into this study. However, the study seems to have limited clinical relevance. The standard deviations for PIM costs are all so large compared to the means reported and the differences between means so low that the significance seems minimal. Medications as identified by the various screening tools (such as STOP criteria) are regularly used appropriately when further evaluated given patient specific criteria, despite being identified as potentially inappropriate. Perhaps some further discussion of the limitations of these tools would be helpful.

10. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

Yes

**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, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests