Reviewer's report

Title: Evaluation of pharmacotherapy complexity in residents of long-term care facilities: a cross-sectional descriptive study

Version: 0 Date: 21 Apr 2017

Reviewer: Mauro Cataldi

Reviewer's report:

The paper entitled "Evaluation of pharmacotherapy complexity in residents of long-term care facilities: a cross-sectional descriptive study" (PAT-D-17-00050) analyzes the complexity of polypharmacy regimens in older adults from three different long term facilities in Brazil. The authors found a high prevalence of therapy complexity that was positively associated with potential drug interactions, inappropriate medication and therapeutic duplicity. Although the findings obtained are highly expected, the paper could have some interest in the context of the Brazilian health system. However, some points needs to be addressed to make the paper stronger.

-1. The authors evaluated the association between MRCI and drug interactions, inappropriate medications and therapeutic duplicity using a series of 2 tests. This approach could obscure the role of other important determinants of the aforementioned variables such as age, sex, polypharmacy per se and so on. Therefore, a more appropriate approach would be to perform a logistic regression analysis and it is crucial that the authors assess whether MRCI is still affecting drug interactions, inappropriate medications and therapeutic duplicity when the others aforementioned variables are included in the model.

-2. To examine the relationship between MRCI and drug interactions, inappropriate medications and therapeutic duplicity, the authors dichotomized MRCI data into two groups: subjects with MRCI values equal or less than the mean of the population and values above the mean. This appears a totally arbitrary choice that could have with potentially serious consequences for the interpretation of the data especially if MRCI data were not normally distributed. Could the authors provide some data about this point? Some skewing is actually expected towards the lower MRCI values considering that, according to Table 1, 65% of the patients was taking less than 5 drugs and 81% less than 6 drugs. How many patients were included in each of these groups? Have the authors performed a sample size calculation and have they evaluated whether the number of patients in each group is large enough to comply with the results of this calculation? Once again the analysis of the data by logistic regression by using the actual values of MRCI and not their dichotomized categorization could help.

-3. Could the authors better clarify how Table 1 was generated? More specifically, in the methods section it is stated that in each subject dosage forms, dose frequency and additional instructions were scored and the values obtained added. Looking at Table 1 it looks like only one
of this parameter was different from zero in each patient. Indeed, in each row of the table the number of patients equals the sum of the values in sections A, B and C with the only exception of the fourth row (number of drugs equal to 4) where the number of patients is 31 and the sum of A, B and C is 30 and of the fifth row (number of drugs equal to 5) where the number of patients is 8 and the sum of A, B and C is 9.

-4. The legends of the tables are confusing and should be improved. Specifically: Table 1: please rephrase the title of Table 1 in better English; Table 2: the legend deals about "frequency" but the table reports prevalence data; Table 4: what do the authors mean by "frequency of the number of medicines ….." is this poly pharmacy?

-5. Please define the criterion used to identify poly pharmacy in the methods section.

-6. Consider moving Table 3 and the related text of the Results section at the beginning of the Results section itself: it mainly pertains the description of patient population.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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