Reviewer’s report

Title: Potentially inappropriate Medication Use in Nursing Homes. An observational study using the NORGEP-NH Criteria

Version: 0 Date: 05 Jun 2017

Reviewer: Kurt E. Hersberger

Reviewer’s report:

With great interest I read this paper. The topic is currently studied in different settings and with different research questions. This observational study used the NORGREP-NH Criteria for a study in a nursing home population. Data were opportunistically used from an interventional study of peroral or intravenous treatment with antibiotics and intravenous fluids run over 13 months in the nursing homes and 26 months in the local hospital. During study period 66.1% patients were registered once and only those were included in the current study. Thus, the index date for the evaluation of the treatment was the first enrolment into the interventional study and additional data refer to the period before need for antibiotic or intravenous fluid therapy.

I have general and specific comments which could help to improve the manuscript. But, because of pressure of time I skipped to review the statistical methods and I was not able to complete this review in all aspects.

1. Such data from an interventional study can provide a valuable source for epidemiological studies and often the patients are quite well characterised. The authors used the NORGRE-NH Criteria for these data gathered between 2009-2011, thus data are quite old. This should be addressed in a limitation section.

2. Background, second section: Please add that medication is not only "crucial for symptom relief" but even more importantly to reduce morbidity and mortality.

3. Background, last section: Please clarify which version of NORGRIP criteria were applied (in line 6 you refer to 2008 and in line 16 to 2012). And in case of applicable, add some information about validation of the criteria.

4. In my view, the rational for this study is not well explained in the introduction.

5. Aims, are placed in the methods, but this should be part of the introduction. In addition, the formulation is not clear. In the same sentence the authors write about assessment of the "level of use" and of the "relevance of the criteria". The relevance of the criteria can only be evaluated when distinct outcomes were prospectively studied or eventually with a comparison to other criteria.
6. Methods: Aims should be moved to the introduction (see above). Next two subchapters could be named "Setting", "Study design, participants and data collection" or the subtitles even omitted.

7. Results: Why are Tables 1 and 3 introduced into the text and tables 2 and 4 at the end of the manuscript? All 4 tables are relevant and should be integral part of the paper.

8. Table 3: "Hits per person" is a crazy indicator. You mean number of PIMs and you stratify according to the 3 domains "single substance criteria", "combination criteria" and "deprescribing criteria". Eventually table 3 could be omitted and summarised in the text.

9. At the end of the first part of the results the statement "One in ten was given more PIMs…Please give exact numbers. In the next sentence "only 7.2% did not receive any medication that requires special attention". These statements are confusing. I suggest to stick clearly on the three subtypes of PIM listed in the NORGREP (see above).

10. Discussion: I miss the discussion of limitations.

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.

Unable to assess

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

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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