Reviewer's report

Title: Inappropriate Medication Use among the Elderly: a Systematic Review

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Reviewer: Sarah Berdot

Reviewer's report:

This paper provides a synthesis of the inappropriate medication use in the community-dwelling elderly. Inappropriate medication is fully studied but less publications concern the elderly living in the community. At least 2 reviews on inappropriate prescribing or Beers criteria exist (Liu 2002, J Am Pharm Assoc and Aparasu 2000, Annals of Pharmacist), these publications are old but should be cited in the present work. Two other recent reviews on healthcare outcomes associated with Beers criteria (Jano 2007, Annals of pharmacotherapy) or intervention to reduce inappropriate medication use (Forsetlund 2001, BMC Geriatrics) are also interesting.

Major Compulsory Revisions

I based my comments on the MOOSE items. The authors should reporting their study using the MOOSE items or more recently the PRISMA items.

1. The paper lacks of clear paragraph on inclusion criteria and exclusion criteria for the selection of studies in the Method. I do not understand the distinction between the limits in the strategy search and the excluded criteria in the selection paragraph. The authors present results in the selection paragraph, but this should be presented in the results part. Why did the authors choose to begin the search in 1990 while the first Beers criteria were published in September 1991?

2. The study population of studies potentially eligible is not specified: retrospective studies, prospective studies, cohort ...

3. The authors should indicate who did the strategy search and indicate if a librarian helped them. Who did the selection of studies on title and abstracts? Could the authors indicate the search strategy done on PubMed for the reviewers? I tried a search with the search indications but I could not find the same number of publications. I am surprised by the 338 articles founded, perhaps the study is too specific and not enough sensitive with too much limits in the search strategy.

4. The database used for the strategy search is PubMed. Did the authors search on Embase or other databases (like Cochrane)? Did the authors used terms exploded in the MeSH? Did the authors include only publications in English, if yes, they should discuss it in the discussion.

5. In the paragraph data extraction, the authors indicate that they used a “tested instrument” to extract data but this instrument is not presented in the paper. More information on this instrument is needed.

6. Statistical analysis is not enough explicit. Epidata is used for data entry but
descriptive analysis are not described. Discussion on a meta-analysis is not included in the Method part but in the Results. It should be mentioned in the Methods and in the statistical paragraph (Q statistic, heterogeneity, I2 statistic …).

7. There are results in the Method part (exclusion of studies in the strategy with the number of publications) and in the Discussion part (Q statistic).

8. Table 2: It presents multivariate analysis but the factors used in the multivariate analysis are not presented. The authors should indicate the factors for adjustment for age, sex and number of medications. Could the authors indicate p-value for all the significant results? Presentation of OR are not usual. For Pugh 2006, results for women aged 70-84 are not available.

9. The lack of information in clinical impact of inappropriate medication use is evocate. Could the authors mention interventions developed to reduce the inappropriate medication use?

Minor Essential Revisions

10. Background : Jano instead of Janu. In the references, the first author should be Jano (Jano E, Aparasu R, Ann Pharmacoth 2007 41(3))

11. Table 1: Lack of definition (sample (elderly), NHI, IM), what is « (2004) » in the sample of Lai 2009? The authors should verify the sample for Fick 2008 and homogenize the results of the age (Pugh 2008, Bierman 2007). For Bierman 2007, what is « diagnosis-adjusted » ? For Roughhead 2007, and “21% of elderly dispensed …” means “21% of elderly with” ?

12. Table 1: McLeod instead of Mcleod

13. Discussion: heterogeneity instead of heterogeinity

Discretionary Revisions

14. Did the authors contact authors of studies to specify some information ?

15. A few words on Beers criteria (“drug-disease interaction”, “do not use”…) and others criteria to describe inappropriate medication use in the Method would be useful. The term Elderly should be define in introduction or Method (> 65 years, > 75 years …).

16. Results: paragraph 2, “2 133 864 elderly” is not correct

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

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
No reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this paper, either now or in the future, received in the past five years.

No stocks or shares in an organisation that may in any way gain or lose financially from the publication of this paper, either now or in the future.

No currently applying for any patents relating to the content of the manuscript.

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