Reviewer's report

Title: Effect of interventions to reduce potentially inappropriate use of medicines in nursing homes: a systematic review of randomised controlled trials

Version: 2 Date: 10 November 2010

Reviewer: Michael Roberts

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'Effect of interventions to reduce potentially inappropriate use of medicines in nursing homes: a systematic review of randomised controlled trials'

Overall Comments

The review is well structured and includes detailed description of each study included. Overall, review emphasises more on quality of evidence included rather then on collaborative findings/results generated from review. Some of the key references are missing which are mentioned in detail below. Author needs to address issues like exclusion criteria needs to be clear and explicit, population demographics should be included in review, important interventions like changes in regulatory policies on the inappropriate prescribing, multi-disciplinary teamwork and multi-facet interventions should be included in review.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

1. Background: Lacks in explaining the significance of appropriate medicine use. A brief description of what inappropriate medicine use is, how it is assessed and what can be consequences of it, will give readers overall view of problems associated with inappropriate medicine use.

2. Results, Outcomes, Last line: “In the remaining 13 studies use or prescription of selected drugs were measured on a general basis” is not clear. What is meant by general basis should be explained in the review. For instance does this mean reduction in overall number of medicines prescribed or reduction in prescription of targeted class of medications?

3. A table or figure summarising which of the interventions were effective in reducing inappropriate prescribing and which were unsuccessful will provide a clear picture of the outcomes of the systematic review.

4. There is no mention of follow up of the studies. It would be informative to include if any of the studies were followed up to find long term benefits of interventions.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Results, Medication review, Drug use 1st line: Number of drugs prescribed instead of number of drug prescriptions because it is confusing.

2. Methods, Literature search: Abbreviated terms are not elaborated like DARE, HTA

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. Title: 'Effect of interventions to reduce potentially inappropriate use of medicines in nursing homes: a systematic review of randomised controlled trials'

In review the term drug is used instead of medicine which makes it inconsistent with the title. Also, not sure whether in British Journals word drug is used or medicine/medication is used instead of that.

2. Methods, Inclusion and exclusion criteria: Exclusion criteria are not clear. In additional file 2, reason for exclusion of review is elderly population is general but in text there is no mention that studies which included only elderly population are not included. Does this mean that author has excluded studies which specifically included elderly population? But if nursing home studies are considered, a large proportion of population will be elderly.

3. Results: Description of demographics of population e.g. age, if added to review will strengthen the results. Age of participants from various studies is not mentioned in the review except for one study in Table 1, last row for Testad 2010 study. Age is important determinant in effectiveness of interventions to improve inappropriate prescribing as intervention to optimise prescribing in younger patients might not be applicable to frail elderly because of several comorbidites and polypharmacy. Similarly, if studies include patients with specific disease condition and polypharmacy, the results of interventions will differ. Hence, patient demographics and characteristics are important factor in determining the success of any intervention

3. Results, Categorisation: First two categories enlisting educational interventions are not clearly differentiated. Study by Avorn 1992 is categorised under education outreach initiative included educational meeting intervention, then why is it separated from educational meeting interventions category. A clear description of different types of interventions will be easy for readers to understand.

4. Discussions, Last paragraph, 1st line: ‘preselected primary outcomes were prescription and use of drugs’. This is not consistent with primary outcomes mentioned in inclusion criteria which are inappropriateness of drugs and specific drug categories. ‘Use of drug’ needs to be elaborated as this term can be misleading as it includes many other aspects how drug is used.

5. Table 1, Roberts 2001: It has been mentioned that extent of implementation of this study is not reported. It should be noted that this study led to nation-wide
implementation of mandatory twelve monthly medication reviews for all residents in nursing homes by pharmacist. (Reference: Roughead EE, Semple SJ and Gilbert AL. Quality Use of Medicines in Aged-Care Facilities in Australia. Drugs Aging 2003; 20 (9): 643-653)

6. This review has not considered interventions like effect of changes in regulatory policies on the inappropriate prescribing, multi-disciplinary teamwork and multi-facet interventions. It should be clarified, either studies conducted using these interventions does not meet inclusion criteria or the outcomes of these interventions is not effective in reducing inappropriate prescribing.

7. Some of the key references are missing. In case, they do not meet the selection criteria, these should be listed in excluded studies table. Below are some of the examples:


What next?
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- Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest
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- An article of importance in its field
Quality of written English
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- Needs some language corrections before being published

Statistical review
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Is it essential that this manuscript be seen by an expert statistician?
NO

**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'