Reviewer’s report

Title: Government policy interventions to reduce human antimicrobial use: protocol for a systematic review and meta-analysis

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Reviewer: Alexandra McAleenan

Reviewer's report:

This paper describes a protocol for a systematic review with the dual aim of identifying and describing evaluated government policy interventions to decrease antimicrobial use, and to estimate the effectiveness of these strategies.

The methodology for the review is in general well described.

However, I think that the eligible population and eligible intervention sections need clarifying, as I think that details which are relevant regarding the eligible population are under the intervention section and vice versa. For example, I think the fact that impact of the government policy can be assessed at any level should go under the population section, whereas details of what constitutes a 'government' should go under the intervention section.

In the eligibility criteria for the effectiveness review it states that to be included studies will need to meet the methodological requirements of the EPOC group. It would be preferable for these criteria to be explicitly reported. Does it, for example, include the requirement that controlled before-after studies have more than one intervention and control group?

The researchers report that they will use the EPOC criteria for assessing risk of bias of the included studies. Although not a requirement of the tool, it would be nice if the baseline characteristics that will be assessed to look at comparability of populations could be pre-specified in the protocol.

In the methods, the first section should be modified to read "This systematic review protocol has been reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA-P) guidelines."

I have primarily assessed the methodology of the review. However, I note that the authors concentrate heavily on the fact that reducing antimicrobial use is a method of reducing the risk of antimicrobial resistance. Therefore, it seems that levels of antimicrobial use are being used as a proxy for antimicrobial resistance, and that this should instead be the outcome of interest for this review? It may be that there are very few studies that have looked directly at how policy interventions affect antimicrobial resistance, or another reason for concentrating on this outcome. In any case, I think the protocol would benefit from reporting of the rationale for choosing levels
of antimicrobial use as an outcome rather than antimicrobial resistance. Note that in Prospero there is a review registered that may overlap with this research question: Jane Lim, Shweta Singh, Minh Cam Duong, Clarence Tam, Li Yang Hsu, Mishal Khan, Johanna Hanefeld, Helena Legido-Quigley. Assessing the impact of policies and programs targeting antimicrobial resistance: a systematic review. PROSPERO 2017:CRD42017064629 Available from http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42017064629

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