Reviewer’s report

Title: Vaccination in England: a review of why business as usual is not enough to maintain coverage.

Version: 0 Date: 19 Jun 2018

Reviewer: Charles Shey Wiysonge

Reviewer's report:

I read the manuscript by Tim Crocker-Buque and Sandra Mounier-Jack with great interest, and applaud the authors for this work. The development of the logic model is particularly praiseworthy. The authors set out to: (1) develop and describe a logic model for the implementation of the vaccination programme in England; (2) undertake a systematic review of interventions designed to increase vaccination coverage; and (3) evaluate how the available evidence base relates to critical components of the logic model.

General comment:

For a review of why business as usual is not enough to maintain (or increase) vaccination coverage in England, objective 2, I would have expected the authors to conduct a systematic review of the effects of interventions tested in any setting (or at a minimum, any high-income country) similar to England and discussed the applicability of the findings to England; and/or mapped out the interventions currently implemented in GP practices in England to improve vaccination coverage (based on their logic model) and assessed the quality of the evidence supporting the use of such interventions. There could be interventions that have been tested in randomised trials outside the UK, which are currently implemented in the vaccination programme in England with the aim of improving coverage. Why do the authors think that an intervention should be tested in a randomised or quasi-randomised trial in the UK before it can be implemented in England? In addition, the GRADE approach is now widely considered as a gold standard for assessing the quality (or certainty) of evidence on effects of interventions. Without the use of a systematic approach such as GRADE (or a similar method), claims of "good quality evidence" of effects (e.g. page 2, line 25) seem unfounded.

Specific comments:

1. The manuscript needs some language editing e.g. page 4 line 27 (different NOT difference), page 4 line 32 (thus NOT this), page 8 line 29 (for NOT or), page 11 line 3 ("is to" is used two times), etc.
2. In some places the authors indicate the setting for eligible studies for the systematic review as UK (e.g. page 2 line 16, page 6 line 3) and in others as England (e.g. page 5 line 39).

3. Page 5 line 48. Note that "Cochrane Database of Systematic Reviews" contains systematic reviews NOT trials.

4. To develop the logic model, the authors report searching websites of UK Department of Health, Public Health England, NHS England, NHS Digital, British Medical Association, Royal College of Nursing, and Google; using the search terms "vaccination" and "immunisation" and spelling variants (see page 5, lines 14). On page 7, line 11, the authors report that this search yielded ONLY 83 documents. That is not possible. Such an extensive website search (including Google), using "vaccination" and "immunisation" and spelling variants would yield more records than 83. The authors should indicate how many records they got before screening down to 83 documents.

5. Page 11 line 47, and elsewhere in the manuscript. PCV is not an appropriate abbreviation for pneumococcal vaccines; since the latter includes both pneumococcal conjugate vaccines (PCV) and the pneumococcal polysaccharide vaccine.

6. Was the systematic review referred to on page 11 line 59 and page 14 lines 10-17 limited to studies conducted in England? What interventions did the 710 participants (page 14 line 15) receive?

7. Pages 12-13 (Table 1), for "effect measures", the authors should consistently report the odd ratio with its 95% confidence interval for each study. For studies with more than two arms, they should report the odd ratio with its 95% confidence interval for each intervention-control pair. This should also be applicable to the quasi-experimental studies (Table 2, pages 16-18).

8. Page 25, line 25. HPV usually refers to "human papillomavirus" NOT "human papillomavirus vaccine".

9. Figure 1 (Logic Model).
   a. Why is "vaccinations" put under "inputs"? Did the authors intend to write "vaccines (pharma industry)"?
   b. The statement "expertise exists to accurately analyse the data" seems appropriately placed under processes/outputs, but I doubt whether the statement "Data collection systems are available
and accurate" is appropriately put under outcomes/impacts. Is there a difference in the message conveyed by the two statements?

c. Does reduction in incidence not lead to a reduction in morbidity? If yes, why are these concepts contained in two different "indicators" under impact?

**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.

Yes

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

No

**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 am able to assess the statistics

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

Acceptable

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