Reviewer's report

Title: A literature review on the representativeness of randomized controlled trial samples and implications for the external validity of trial results

Version: Date: 14 May 2015

Reviewer: Philip Riley

Reviewer's report:

This is a well written review with a good discussion that has taken into account all the review's limitations. All my comments are discretionary revisions.

1. Background (2nd para, 3rd sentence): 'quantify' seems an odd term to use here in relation to external validity, especially when comparing clinical characteristics of RCT populations to 'everyday patients' (i).

2. Info sources, search approach, and strategy (2nd para, 1st sentence): what is your rationale for only including adults? Are you reducing the external validity of your conclusions?

3. Info sources, search approach, and strategy (2nd para, 3rd sentence): How did the authors of the studies decide if the patients included in observational cohorts (or patients identified from medical chart review, registries, or insurance databases) constituted 'everyday clinical practice patients' (they may be different in different areas/populations)?

4. Study selection, data extraction, and reporting (2nd para, 2nd sentence): 10% seems quite low, and could this introduce potential for error and/or bias? Was there agreement between the researchers? If not, what happened then?

5. Study selection, data extraction, and reporting (3rd para, 2nd sentence): "formal statistical comparison" - I think more detail could be added on how this was done.

6. Study selection, data extraction, and reporting (3rd para): What would happen in the event that there was insufficient information to determine if the real-world patients met the RCT inclusion/exclusion criteria or not?

7. Discussion: I think you could mention that including higher-risk patients with more co-morbidities and co-interventions etc would create problems, for example in terms of retention, there may be excessively high attrition rates? How might such things impact on research and the ability of researchers to carry out high quality research?

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:
I declare that I have no competing interests.