Reviewer’s report

Title: Treatment Use in Prognostic Model Research: a Systematic Review of Cardiovascular Prognostic Studies

Version: 0 Date: 17 Aug 2017

Reviewer: Matthew Sperrin

Reviewer’s report:

This paper discusses how treatment is handled in the cardiovascular prognostic modelling literature, as well as clarifying the importance of this issue and some suggestions for handling it in future. The paper is well written and clear, and the findings are highly relevant and important for the prognostic modelling field. The dichotomy of guided v background treatments is, I think, particularly helpful.

Major comments

1. As the authors themselves acknowledge, the findings are based on a systematic review that was conducted in 2013 - and is hence now 4 years out of date. I do find this a little concerning, especially given - as the authors report in Section 3.2 - that the handling of treatment has improved over time. This raises the possibility that reporting of treatment is 2017 is now far better. I am not suggesting that the authors repeat the systematic review but they should consider checking recent papers - perhaps in the Discussion section where they raise this limitation (QRISK3 being an obvious example).

Minor comments

2. The title needs to be clear that the review is restricted to CVD.

3. Example 1 (line 108) feels out of place, given the CVD focus of the rest of the paper.

4. Readers may find the paragraph starting on line 33 a little unclear. However, the paragraph starting on line 75 is much clearer about the issue the authors wish to raise, about the difficulty of estimating, and the consequences of it being hard to estimate, treatment naïve risk when using prognostic models to guide treatment initiation. I ask the authors to consider (at their discretion) restructuring such that a paragraph more like the one on l75 features in the Introduction.

5. Treatment initiation after baseline ascertainment but before outcome has been termed 'treatment drop-in' in the literature (e.g. Liew S, Doust J, Glasziou P. Cardiovascular risk scores do not account for the effect of treatment: a review. Heart 2011.). Can the authors use this term?
Also note that the guidelines given by the author in Fig 4 do not offer any guidance on handling treatment drop-in.

6. Please check the abbreviations list: I didn't see PCE anywhere in the paper.

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