Reviewer's report

Title: Evaluation of Risk Equations for Prediction of Short-Term Coronary Heart Disease Events in Patients with Long-Standing Type 2 Diabetes: A Follow-Up Study

Version: 1 Date: 17 April 2012

Reviewer: Peter Donnan

Reviewer's report:

The paper has been updated with re-calibration of the prediction algorithm to better fit the new dataset.

The fundamental problem is still the use of UKPDS and Framingham which are not sensible in the present context. When these were developed medication treatment was limited and this is admitted in the discussion with around 80% receiving anti-hypertensives and 28% statins so really these algorithms are not appropriate for those individuals. The purpose of Framingham was to determine people at high risk and then treat (with statins and possibly anti-hypertensives) so such individuals should probably be removed if you are really assessing how Framingham performs.

UKPDS was a trial and fairly young and healthy people with type 2 diabetes and so less medicated. The TRIAD population are clearly more recent with well-medicated management and given most are already receiving medication what is the purpose of prediction?

The results clearly show that these algorithms overpredict and that is down to the medication lowering risk in the modern population.

Some more recent algorithms do include medication such as the Tayside prediction model which includes treated hypertension as a factor but this was not used.

So the study shows two algorithms overpredict that are inappropriate to use in the first place. If you are saying people are using these algorithms and they should not then that is reasonable but the fundamental reason is that they are inappropriate.

The abstract does not reflect the changes made to the paper. It does not mention re-calibration which can make the agreement good in any new population. The poor discrimination is down to medication and better management but is not mentioned.

The numbers differ between this version and the previous and not sure why. Previously n = 5516 for UKPDS and now n = 5914, Framingham-Initial n = 6064, now n = 5914, etc.

Typo in abstract with n = 8803 which should be 8303, I think.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I have no competing interests.