Reviewer's report

Title: Prediction of cardiovascular risk using default risk factor values compared to clinically estimated cardiovascular risk

Version: 1 Date: 8 October 2007

Reviewer: Peter Jackson

Reviewer's report:

General
Thank you for giving details of your methods. I warm to them having had similar ideas in the mid 90s and suggesting them to the primary care software developers but the ideas never got further than that.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Methods lines 8 and 9. I note that you abstracted information on antihypertensive therapy and pre-existing cardiovascular disease but you don't tell us how you used it. Did you just exclude those with CVD and expect the tool to be used only for primary prevention. Including them in estimation of default values would of course bias these. There is nothing about how you dealt with data from those on antihypertensive drugs.

A significant proportion of patients at older age groups on treatment will have diabetes or end-organ damage. Why did you take a default of absence of these risk factors? Won't this make the approach conservative. Although they appear as binomial in the Framingham equation it is quite straightforward to estimate an average risk value based on a weighted mean of the risks with and without the risk factor being present.

Page 7 line 9 What is the basis of measuring the blood pressure on 2 occasions to estimate risk. Surely regression dilution means that a more accurate estimate of blood pressure (by taking the mean of more than 1) will have a different relationship with risk than that observed in the Framingham study (when BPs were taken a 1 visit).

Page 7 line 14 following from the above I am really not clear of the statistical necessity to simulate further readings from the observed one. If there is a good reason you should explain or refer to a source.

Page 9 line 12 (&17) It is really not clear why only risks over 14% can be estimated. I can guess but I think you should spell it out.

Page 10 line 3 I am not sure how large numbers can magnify statistical
significance. They can certainly make differences of little practical importance significant but I don't think this is the same as magnifying statistical significance.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Strictly in Qrisk cholesterol was not a significant determinant of cardiovascular risk

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Discretionary Revisions (which the author can choose to ignore)

As patients will have a mixed set of data some with and some without BP readings (of varying age) could you not make your method more general to include all real data and only include default values when missing.

A further improvement would be to use default distributions rather than values. This would have the advantage of being able to start with say the 10th centile which would only identify the highest risk patients and then as workload allows move the centiles upwards progressively identifying for screening patients at lower and lower risk

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

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 financial conflicts but have published in similar areas (and hopefully will continue to do so.)