

Reviewer's report

Title: Coronary Age as a Risk Factor in the Modified Framingham Risk Score

Version: 2 **Date:** 23 December 2003

Reviewer: Gil L'Italien

Reviewer's report:

General

This study describes a novel methodology for modifying a patient's Framingham risk score according to their level of coronary calcium. The rationale for such a study is clearly stated: there is a need to more reliably estimate the risk level of patients at risk for CHD because we have preventative therapies available to treat patients at intermediate risk. Earlier in my career, I faced a similar issue: how does one refine a risk estimate for postoperative MI among vascular surgery patients in order to better assess whether the surgery could be safely performed? My solution was a complex one; the authors have achieved a simple yet elegant solution to the problem of CHD risk estimation and how best to factor in new information (ie the CCS). They also provide a strong case for acceptance of CCS as a reliable surrogate for subsequent CHD.

Discretionary Revisions (which the author can choose to ignore)

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

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

There is an implicit assumption that the populations from which the Framingham and CC scores are derived are quite comparable. This should be confirmed. The authors should provide a description of the study population from which the coronary calcium scores are derived. Ideally, a list of the distribution of risk factors for both the Framingham and CCS populations should be provided. Admittedly, this may be difficult since the analysis is derived from published data. Failing that, a written description, comparing and contrasting the two populations would suffice.

The authors MUST state that until the method is validated in an external population of patients, risk estimates should be interpreted with caution. Hopefully, soon after publication of the paper, researchers with data sources containing both CC and Framingham risk factors as well as CHD outcomes will evaluate the risk model. Perhaps, in the publication, the authors could invite researchers to validate the risk model and to offer assistance. Validation would be critical because there's an inherent assumption that the age-risk curves are very similar between the Framingham and CC populations, and thus CC simply 'ages' the patient to a higher risk along that same curve. If on validation, the observed

CHD rates are similar to the expected rates, then that assumption is tenable.

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

Declaration of competing interests:

Employee of a Pharmaceutical company which manufactures a cholesterol-lowering agent (pravachol)