Reviewer's report

Title: Diagnostic accuracy of point-of-care testing for acute coronary syndromes, heart failure and thromboembolic events in primary care: a cluster-randomised controlled trial

Version: 2 Date: 11 September 2010

Reviewer: Andrew R Willan

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Major Essential Revisions

1. The statement in the abstract," The 218 POCT patients and 151 conventional diagnosis controls were similar in characteristics, symptoms and pre-existing diagnoses" contradicts the statement on page 6: “The groups statistically differed in rates of acute chest and calf pain.” This needs to be rectified.

2. The justification for the non-inclusion criteria, except refusal of consent, should be given.

3. What measures were in place to insure that all potentially eligible patients were approached.

4. The statements “Intergroup comparisons were performed using the chi-square test for categorical data and Student's t-test for independent groups for continuous data. A p value <0.05 was deemed statistically significant; p values were adjusted for the effect of clustering utilising a generalised estimating equations approach.” are contradictory. If generalized estimating equations were used to adjust for the clustering then clearly chi-squared and t-test were not used to compare groups. This needs to be clarified.

5. The statement on page 7, “(due to two false-negative ACS in the POCT group in patients given a working diagnosis of stable angina)” should be removed. The comparison of the sensitivities depends on all the data from both groups, and it is very misleading to state that the comparison hinged on the observations on two patients. The statement should be removed.

6. I don’t understand the statement "A second limitation could be the selection of the patients: as shown in figure 1, the diagnostic frequencies by the working diagnoses in the two groups were significantly different.” The POCT group had more diagnostic information (i.e. the biomarkers), so surely you wouldn’t expect the working diagnoses in the two groups to be the same. I thought that was the whole point of the trial. This limitation should be removed.

7. The sampling error as described as “A third limitation could be the physician randomisation. Although the mean year of medical qualification was similar in both physician groups, as were the patient characteristics, it cannot be excluded that the study results were affected by residual confounding or chance effects.” is not a specific issue for this study, but is an issue for all empirical research. The additional uncertainty due to randomizing practices, rather than patients, is
reflected in the p-values since the authors accounted for the clustering in the analysis. I recommend removing this as “limitation”.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests.