Author's response to reviews

Title: Record linked retrospective cohort study of 4.6 million people exploring ethnic variations in disease: myocardial infarction in South Asians

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Author's response to reviews: see over
Reviewer’s report with authors response (in bold)

Apology: we apologise for failing to download this report. Fortunately, the first reviewer also made similar points and we had made several appropriate amendments in our resubmitted draft of the ninth of March. We have now completed a revision.

Record linkage of census and health databases to examine ethnic variations in incidence Title: and survival in myocardial infarction: example of South Asians
Version: 1 Date: 27 January 2007
Reviewer: Niklas Hammar
Reviewer's report:
General
Administrative data on hospital discharges and deaths offer possibilities to study acute myocardial infarction (AMI) incidence and case fatality in several countries, and this has not been fully utilized. This study contributes by showing how this can be applied in Scotland. The results, especially regarding case fatality, were somewhat unexpected with a much better survival in subjects with South-Asian origin in particular during the first 30 days after AMI onset.

We are coming to the view, as discussed in the manuscript, that survival in South Asians is more or less that expected, but survival in the white Scottish population is surprisingly low, for reasons that need further investigation. The issue of survival is discussed in some detail under the heading 'Findings on incidence of etc' in the discussion.

This raises several questions including regarding the validity of the data. To my understanding no attempt was made to examine the validity of the diagnostic information and whether there could be differences in this respect between ethnic groups in this particular study. It is stated that the diagnostic accuracy of the Scottish Morbidity Record database has been previously shown to be about 97%. This sounds very high and it is unclear to what extent it concerns AMI in the present study. There is a rather extensive experience of using administrative data for studies of AMI incidence and case fatality, especially in the Nordic countries. This is not well acknowledged in the manuscript. This experience has shown that it is of great importance to evaluate the diagnostic quality and other aspects influencing the validity of the results when record linkage of administrative data is applied for the purpose of estimating incidence and case fatality.
The validity of the diagnostic information has been assessed in Scotland. The current best estimate of diagnostic validity is 92%, and information published on the website shows 91%, while a journal article shows 90%. Our previous figure of 97% has now been corrected.

This is the first-ever study of the subject in Scotland. There was no previous way of identifying ethnic group, so validity studies by ethnic group were not possible. In view of the sensitivity of this linkage, ethical approval was only for fully anonymised data, with personal identifiers stripped out. We agree with the referee that validation by ethnic group is important and in association with phase 2 of this project starting in August 2007 we will seek to follow this excellent advice from the referee. This will require fresh ethical approval. There is no way for us to resolve this limitation, except to acknowledge it, which we have done.

There are also studies in the Nordic countries where census data or other similar data has been linked to hospital discharges and deaths for evaluations of differences in incidence and mortality between population groups defined by social class, ethnicity etc. These studies should be referenced and discussed in the present manuscript.

In our March revision in the introduction we refer to the work of Hammar and colleagues in this field,

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

The validity of the diagnostic information must be better evaluated and described. Is there a possibility for a differential validity between the ethnic groups compared? It cannot be assumed that the routine diagnoses in hospital discharge and mortality records has the same diagnostic quality for all population groups. For example the autopsy rate may vary.

We have responded to this point above, and in the discussion.

How was an AMI event defined? The diagnostic codes mentioned on page 5 are clearly too broad, at least for non fatal cases and how were different events separated in the follow-up of survival?

We have now provided the details requested.
How was South Asian origin defined? The category ‘non South Asians’ is very broad and there were only few cases in South Asians.

We have acknowledged this limitation. As the number of events in this cohort accrues, it will be possible to separate out different South Asian populations, but as the referee says the number of events is too small to do this at the moment. We have described the nature of the South Asian population more carefully than hitherto, in response to this comment.

It would be meaningful to have at least a separation of native Scotts and immigrants overall and other than those of South Asian origin.

98% of the Scottish population was, in 2001, non-South Asian, and of them less than 1% were other non-white immigrants/ethnic minorities. Undertaking the analysis the referee suggests will not alter the results, but we accept the principle. In view of the security features built into this project, we have no direct access to the database, which is held in a locked room under tight security, and repeating analyses is not easy. We hope that the editors and the referee will accept our judgment that the extra analysis would not be worth while in this context. In phase 2 of the project we are committed to producing results for a broader range of groups. These results, however, will not be available for another three years.

The results for South Asians were based on small numbers. In order to compare results between subjects with and without South-Asian origin relative risks with 95% confidence intervals should be computed using Poisson models and Cox regression where appropriate.

We had done this analysis for the March draft, and it is in the text, and to give it appropriate emphasis we have also replaced the standardised rates previously in the abstract with ratios.

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

Discretionary Revisions (which the author can choose to ignore)

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

An article whose findings are important to those with closely related Level of interest: research interests

Quality of written English: Acceptable

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