Reviewer’s report

Title: Impact On Mortality And Cancer Incidence Rates Of Using Random Invitation From Population Registers For Recruitment To Trials

Version: 3 Date: 16 December 2010

Reviewer: Johannes Blom

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Major Compulsory Revisions:
1. Overall, the manuscript is very well written with impressive statistical work. But, is the question posed really answered? The study is more a product of the necessitated revision of the design of the ongoing screening trial (see Conclusions). The ongoing RCT should be highlighted.

2. One of the major determinants of a screening programs effectiveness (or efficacy within RCT) is the compliance. There will always be a self-selection to screening of more healthy individuals with probably less risk of the disease and early mortality, as compared both to the non-participants and to the general population. This will occur with or without random invitations. This self-selection effect will be less with a high participation rate. The overall compliance in this study is only 16% and this is not discussed at all.

3. The discussion should be focused on compliance and selection bias. How were the people invited? Usage of reminders? This affects the generalizability of the results to ongoing screening programs. The discussion currently has too many details, e.g. the incidence rates of specific cancers.

Minor Essential Revisions:
1. How could the younger, as discussed, less morbid people have a higher mortality? This discussion should be extended since it is one of the significant findings.

Discretionary Revisions:
1. Is this actually the first report to explore the impact of a "Healthy Volunteer Effect"?

2. I suggest that how deprivation is related to mortality and incidence should not be presented. These are secondary findings generating too many details. Moreover, the random invited people were more deprived than the national average due to the higher proportion of urban centres.

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

Quality of written English: Acceptable
**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.