Author's response to reviews

Title: Is the high-risk strategy to prevent cardiovascular disease equitable? A pharmacoepidemiological cohort study

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Author's response to reviews: see over
Answers to reviewer comments

Below we have tried answering (in Italic) the reviewer comments (in Bold). We have copied all modified words/sentences underlined from the revised paper to this document (underlined in both documents).

**Reviewer 1:**

Where the paper falls somewhat short is in suggesting alternatives. While they quote Marmot, they do not suggest that risk for CVD be attacked closer to the roots — at the social determinants of health.

We have inserted the following sentence, under a new subheading ('Unanswered questions and future research'):

Proposing a range of actions to be taking, a newly published Danish report “Health inequality - determinants and policies” (2011 1878 /id) demonstrates that reducing health inequality is not primarily the health care task, but a complex task requiring coordinated efforts from different sectors (e.g. the education, social, healthcare, and employment sectors).

The authors might wish to reference the Finnish experience. The Finns have observed that, despite efforts to close the gap, social disparities in health have been increasing. See, for example Hannele Palosuo, Seppo Koskinen, Eero Lahelma, Elisa Kostiainen, Ritva Prättälä, Tuija Martelin, Aini Ostamo, Ilmo Keskimäki, Marita Sihto and Eila Linnanmäki (eds.) Health inequalities in Finland TRENDS IN SOCIOECONOMIC HEALTH DIFFERENCES 1980-2005

*The reference has been added in the Introduction in the following sentence:*  
“The social gradient has widened over the last decades (Mackenbach, 2003; Paslosuo, 2009) and is to a large extent mediated by the conventional risk factors (i.e., smoking, high blood pressure and serum cholesterol”

**Reviewer 2:**

**Minor Essential Revisions:**

1. A misprint on page 8: ..elevated high-density lipid cholesterol (LDL)

Corrected to:
“elevated low-density lipid cholesterol (LDL)”

2. Page 5 (Study design). Could you please specify what is the censoring in the calculation of “observed incidence of statin therapy”?

*The censoring events are now specified in the underlined words in the sentence below:*  
“Analogously, we calculated the ‘observed’ incidence of statin therapy (number redeeming the first statin prescription/10,000 PYR – censoring at death, emigration and register-markers of CVD or diabetes)”
3. Page 6 first sentence: Please specify what is “need standardized PYR”?

We inserted the underlined sentence to specify “need standardized PYR” in the method section
“The need-standardized statin incidence was calculated as the observed statin incidence divided by the stratum specific need weights corresponding to the incidence rate ratio of MI (MI-IRR), Table 2. The denominator (PYR) of the observed statin incidence rather than the nominator (number of events) was need-standardized, dividing the observed PYR by MI-IRR.”

Discretionary Revisions:

1. It is surprising that the incidence of statin treatment did not show a decreasing trend by level of income and education. Could the authors speculate why?

The following paragraph has been added under the sub-heading “Interpretation and comparison with other studies”

In contrast to a Norwegian health survey study (Selmer, 2009) showing a decreasing trend of incidence of statin treatment by increasing education in individuals without reported CVD or diabetes at baseline, we found almost the same incidence across educational groups among asymptomatic individuals, censoring for new onset of CVD/diabetes. The lack of censoring for onset of disease in the Norwegian study most likely explains the discrepancy between the studies, as lower SEP individuals are at higher risk of developing disease and thereby to be misclassified as free of CVD or diabetes when initiating statin treatment.

2. The authors claim that long-term adherence to statin treatment is disappointing. However, adherence to therapy may vary between different countries. Thus, it could be interesting to know something about adherence to therapy in Denmark. In the Norwegian study mentioned above, persistence to treatment did not vary by educational level.

In a forthcoming study on the same nationwide Danish data we explore potential socioeconomic differences in adherence to statin treatment in asymptomatic individuals.

3. Studies have shown that statin therapy reduces cardiovascular risk also in asymptomatic individuals. On this background I wonder what the implications of the present study for policy and practice could be? Develop a better screening tool taking other risk factors into account? Change the reimbursement policy? What are the challenges for further research?

After discussing the British strategy, we have modified the sentences below to the underlined version proposing a more focused preventive statin strategy.

“Whatever the details will be, it is very likely that the universal screening programme in the UK also will face equity challenges. Moreover, by not controlling the causes of high CVD incidence (e.g., low cigarette prices; high levels of saturated and trans-fats, sugars, salt hidden in processed foods, and environmental factors) this ‘population’ strategy will be palliative and not radical as structural/ population strategies may be (Rose, 1985).”

“While recent cost-effectiveness reviews indicate a very high cost effectiveness of polypill strategies (Vos, 2010), a pilot project may uncover equity concerns before implementation of a general screening strategy. Another strategy could be to focus the high-risk drug strategy on middle-aged asymptomatic men in whom the beneficial effect of preventive statin treatment is best documented, testing various settings in order to reach lower SEP groups before implementation- potentially also modifying the reimbursement system. Yet, by not controlling the causes of high CVD incidence (e.g., low cigarette prices; high levels of saturated and trans-fats, sugars, salt hidden in processed foods, and environmental factors) this ‘population’ strategy will be palliative and not radical as structural/
population strategies may be (Rose, 1985). Proposing a range of actions to be taking, a newly published Danish report “Health inequality - determinants and policies” (Diderichsen, 2011) demonstrates that reducing health inequality is not primarily the health care task, but a complex task requiring coordinated efforts from different sectors (e.g. the education, social, healthcare, and employment sectors).”