Author's response to reviews

Title: Differences in avoidable mortality between migrants and the native Dutch in the Netherlands

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Author's response to reviews: see over
Thank you for taking the time to review our manuscript. Please see below the reply to the comments marked in bolded italic in the text.

Reviewer's report

Title: Differences in avoidable mortality between migrants and the native Dutch in the Netherlands
Version: 1
Date: 22 December 2005
Reviewer: Oliver Razum

“Avoidable mortality” refers to deaths that could have been averted by existing preventive or treatment measures; it provides a measure of access to, and quality of, health care services. Avoidable conditions comprise, for example, neonatal and maternal conditions, as well as infectious diseases.

The authors of this paper present, to my knowledge, the first studies comparing avoidable mortality between immigrants from four different countries and a host population, in this case the autochthonous Dutch population. By taking this approach, the authors aim to establish whether there exist opportunities for improving the service quality of specific areas within the Dutch health care system targeted to disadvantaged groups.

The style of the paper is clear and concise. The findings are based on person time data derived from national registries. Data are sound, and quality appears to be good. The methods are well described and are, in principle, appropriate to assess differences in avoidable mortality.

The paper has a conceptual problem, however, that should be given more emphasis: the higher risk of mortality from infection diseases among immigrants could, as the authors themselves state, be the result of a higher exposure to infection in the countries of origin. This alone could explain a higher incidence of these diseases among immigrants, compared to the native Dutch population, and in consequence also a higher mortality. Hence, the explanation for variation in mortality may be due to the variation in incidence, not to problems of quality of, or access to, health care services. In Germany, for example, immigrants have five times the risk of autochthonous Germans to fall ill with tuberculosis. This would have substantial effects also on TB mortality. The authors claim they could have adjusted for the incidence of such diseases – it remains unclear why they have not done so.

We agree that increased incidence for some diseases among migrants could have explained their increased mortality found in our study. The group of infectious diseases is one of the examples where adjustments for incidence would have most probably reduced the difference in mortality between migrants and the native Dutch people. Unfortunately, we did not have the possibility to link our mortality dataset to the incidence data, therefore, we could not perform adjustment for incidence. We adjusted the text of the discussion part on infectious diseases so that our view on the possibly large contribution of incidence to the increased risk of death is made clearer. We also mentioned our inability to adjust for incidence.

There are two other statements in the discussion section that are debatable:
- The lower risk of death from infectious diseases among immigrants who have been staying in the Netherlands for a long time, compared to recent immigrants, may simply be a survivor effect. No deaths before 1995 were registered!
We acknowledge that mortality selection could account for the lower levels of mortality among migrants who stayed longer in the Netherlands. This is, however, unlikely to be the whole story. Other factors may play a complementary role, and we think that from the perspective of our paper these factors should be mentioned in particular. We believe that the reason for lower mortality from infectious diseases for migrants who have been residing longer in the Netherlands compared to recent migrants has also to do with reduced exposure to infectious agents and better integration into the Dutch society (better knowledge of Dutch language and better knowledge of health system) that enables ‘older’ migrants to benefit from the opportunities offered by the Dutch healthcare system. We chose not to discuss the possible role of mortality selection effect in order not to extend an already large paragraph on explanatory factors for higher mortality from infectious diseases among migrants observed in our study.

- The authors relate elevated maternal mortality to fertility patterns, especially to a higher parity among immigrants. To my knowledge, maternal mortality is lower with the second to forth child, as compared to the first child.

Indeed, the risk of death during the first delivery was found to be higher due to prolonged labour characteristic for nulliparous. We agree that, therefore, the higher parity of migrant women can probably not explain their higher maternal mortality. We have, therefore, changed this section, and we mentioned another fertility factor that may be more relevant: the simple fact that migrant women on the average give more often birth to children and, therefore, have a higher risk of maternal mortality (per 100,000 person years).

Finally, the authors state in their conclusions that the role of the health care system remains uncertain and possibly weak. This is in contradiction with the abstract where the authors claim that there are opportunities for quality improvement.

Although we understand why the reviewer made this point, we would like to argue that these two conclusions are not in contradiction. On one hand, the role of health system remains uncertain and possibly weak in view of: (1) our finding that elevated mortality risks were confined only to specific diseases and/or specific migrant groups, (2) our finding that in many cases, elevated mortality risks were largely explained by socioeconomic and demographic factors, (3) the fact that overall the current healthcare system in the Netherlands ensures equal financial access to healthcare services, with relatively small differences between socioeconomic groups in health care utilization.

On the other hand, we think that the substantially elevated mortality levels for some ‘avoidable’ conditions among some migrant groups suggest that, even though medical services cannot be directly responsible, there are opportunities for quality improvement within specific areas. For example, substantial reduction in the difference in infectious diseases mortality could be achieved by improvements in the screening, access and quality of care targeted at migrant populations.

On a more technical side, the authors should redraw figure 1 in 2-D and use shading instead of colours. They should explain why they do not report men and women separately, as there are no space constraints.
We agree and we have redrawn figure 1 as suggested by the reviewer.

The main reason for reporting standardized mortality rates for men and women combined was the lack of substantial differences in mortality by group between men and women.

Overall, I recommend that this paper should be published. A prerequisite is that the abstract and the discussion section are revised. The discussion should deal more systematically with the question of how useful comparisons of avoidable mortality between immigrants and autochthonous populations actually are (conceptual discussion).

What next?: Accept after minor essential revisions
Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No
Declaration of competing interests: Non-financial competing interests: I do research work on related topics.

Thank you for taking the time to review our manuscript. Please see below the reply to the comments marked in bolded italic in the text.

Reviewer's report

Title: Differences in avoidable mortality between migrants and the native Dutch in the Netherlands
Version: 1
Date: 6 January 2006
Reviewer: Ellen E. Nolte

General
This analysis examines the potential contribution of health care to differences in mortality by ethnicity in the Netherlands using the concept of ‘avoidable’ mortality. This is a topical issue and the analysis could thus make an important contribution. The paper is well written and organised, number and choice of tables and figures seems appropriate.

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

Introduction
1. Page 4, para 3, line 2f: definition of ‘avoidable’ mortality usually refers to premature death rather than any death as suggested by the definition provided by the authors

The text is adjusted as suggested.

Methods
2. The selection of avoidable causes of death (p. 6) is based on Tobias & Jackson. The authors decided to include only those conditions that according to consensus estimates by Tobias & Jackson are considered to be largely preventable through secondary and tertiary measures. However, based on this line of reasoning the inclusion of some causes of death seems inconsistent:
2.1 The inclusion of suicide may be debatable, mainly because of the difficulties in disentangling the boundaries of health and social care. This may be not relevant in the context of the Netherlands; however, the decision to include these conditions needs to be justified by the authors - the quoted reference #22 (p. 6) does not refer to suicide and the discussion fails to explain why suicide was included (see p. 11, 3rd para, line 4f).

We added additional references to the text to justify the inclusion of suicides as part of preventable by the health care conditions [1]. In their study Morgan et al found that better detection and treatment of depression with antidepressant drugs was associated with a significant reduction in suicide rates in England. Similar findings were reported in the US[2] and Australia[3].


2.2 The inclusion of liver cancer also needs to be justified: while the majority of cases worldwide appear to be attributable to infection with hepatitis B and C viruses and – by virtue of preventing infection with HBV through immunisation – to certain degree preventable, survival of those with cancer in the European region remains low and the impact of health care thus uncertain. This assumes particular importance in the context of this analysis and needs to be accounted for.

We included liver cancer to the list of avoidable conditions for the same reason as hepatitis. The “health care” factor is considered to be relevant because of possibilities for treatment of hepatitis and thus prevention of liver cancer, not because of the limited possibilities to treat liver cancer itself.

3. Choice of upper age limit of 74 years “for most causes of death” (p. 6, 3rd para) – it is not clear from the analysis whether different age limits have indeed been applied to different causes of death. The comment in the discussion section “[For] diabetes mellitus, our standard age interval of 0 to 74 years may be too high, as death at ages of 60 years and over become less avoidable” (p. 11. 2nd para, line 6f) suggests that the upper age limit has not been modified according to cause of death; the authors are thus asked to give more precise information as to the nature of this part of the analysis.

The age limit 0-74 was applied to all causes of death. We made this information more clear in the methods section.

I essentially agree with the statement that “any modification [to the] selection of causes of death would not change the general conclusion that the relative level of mortality greatly varies according to ‘avoidable’ death” (p. 11. 2nd para, line 8f); however, given the reported concerns as to the preventability of deaths from diabetes (and leukaemia) through curative treatment beyond the age of 45 the current analysis is likely to overestimate the risk of ‘avoidable’ death from diabetes and the authors are asked to adjust for this accordingly.
We agree that the increased age-limit for diabetes (and leukemia) does to some extent overestimate the number of ‘avoidable’ deaths from diabetes. However, it might equally overestimate the mortality risk for both the native Dutch and migrant populations. Our paper focuses on the difference in risk of death from Diabetes between native Dutch and migrant populations. We re-calculated this difference in relative risks of death from diabetes for reduced age-limits. We found that this does not substantially change our results and still supports the conclusion that migrant populations have a significantly higher risk of death from diabetes. More specifically, the RR for diabetes in the age-group 0-49 = 3.13 (CI: 2.48-3.96) for men and women combined adjusted for age and gender, while in the age-group 0-74 this RR=3.45 (CI: 3.13-3.81, Table 3). Similar results were found for leukemia (RR for age-group 0-44=0.90 CI: 0.68-1.21 vs. RR for age-group 0-74=0.81 CI: 0.60-1.15). We added a paragraph on this issue in the Discussion section.

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

Methods
4. p. 7, para 2: the selection of socio-demographic and –economic variables requires some further explanation: were the variables included because they were available or is there an underlying theoretical framework to choosing those?

We examined the effect of several demographic indicators (age, gender, marital status, and degree of urbanization) and one socio-economic indicator (mean household equivalent income of the neighborhoods) in our study. These indicators were included because they were available in our dataset and because in previous analyses they have been shown to be related to cause-specific mortality rates. We added an additional statement to the text of the methods section to explain the selection of socio-demographic factors in our study.

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: I declare that I have no competing interests

Thank you for taking the time to review our manuscript. Please see below the reply to the comments marked in bolded italic in the text.

Reviewer's report

Title: Differences in avoidable mortality between migrants and the native Dutch in the Netherlands
Version: 1
Date: 5 December 2005
Reviewer: Martin Tobias

General
Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
None

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

Migrants who arrived in the Netherlands more than 15 years ago - does this also include second generation born in the Netherlands (which seems to be the case)? If so, change definition accordingly.

*Yes, our dataset included both 1\textsuperscript{st} and 2\textsuperscript{nd} generation migrants. The text is adjusted as suggested.*

Page 10 first para change "..while 'older' immigrants more often died from suicides" which is clumsy to "..but a lower risk of suicide (both sexes)".

*The text is adjusted as suggested.*

Page 13 last para first sentence change ".. late prenatal control" to "..delayed prenatal care".

*The text is adjusted as suggested.*

Table 3 - 5 caption change "..to die from groups of conditions" to "..of death by condition group".

*The text is adjusted as suggested.*

Figure 1 caption change "Age standardized group specific mortality rates" to "Age standardized mortality rates by condition group".

*The text is adjusted as suggested.*

Figure 1 legend write out "Antil/Arub" in full.

*The text is adjusted as suggested.*

Discretionary Revisions (which the author can choose to ignore)

Clarify that 'migrant' and 'ethnic minority' are being used synonymously.

*The text is adjusted as suggested.*

Comment on choice of pooled migrant population as the reference population for direct age standardisation.

*We used pooled numbers from all migrant populations as a reference for direct age standardization because it better reflects the age structure of the migrant population in the Netherlands. The Dutch population is older with a*
considerable share of age groups above 70 years, where migrants are virtually absent. We clarified this in the paper.

I would have expected recent migrants to have lower avoidable mortality rates because of health selection effects. Some further speculation as to why this was not found to be the case would be valuable.

Labour migration at the start of migration period (the 1960s and 1970s) was different than in later migration waves (the 1980s and 1990s) when family reunification was the main reason. Possible health selection effects may have played a larger role in case of labour migration, but its importance is likely to be reduced with the change of the reasons for migration.

Some comment on inclusion of IHD and stroke - even though at least 50% is ‘primary preventable’ - may be helpful for the general reader.

We added the following statement: Although the contribution of non-medical factors (smoking, nutrition) to the prevention of death from ischemic heart disease (IHD) and stroke is large, the advancement in medicine may have made the healthcare system an important determinant in shaping the patterns of IHD and stroke mortality. In absolute terms, the role of the healthcare system in preventing death from IHD and stroke is higher than for many other conditions combined.

What next?: Accept after minor essential revisions
Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No
Declaration of competing interests: Non-financial - I also do research in avoidable mortality