Reviewer's report

Title: Estimating health-adjusted life expectancy conditional on risk factors: results for smoking and obesity

Version: 1 Date: 23 June 2006

Reviewer: Jan J Barendregt

Reviewer's report:

General
Re: estimating health-adjusted life expectancy conditional on risk factors: results for smoking and obesity

This article reports the estimation of life expectancy (LE) and health adjusted life expectancy (HALE) of cohorts of people who either smoke, are obese, or neither. The estimation is done using a dynamic population model. The results show reasonable losses in life years and health life years for smokers and obese. It concludes that relative compression of morbidity will occur when smoking and obesity is prevented.

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

I have two main problems with this article.

1) The calculation of a HALE requires an estimate of age-specific total morbidity. The authors use the Dutch Burden of Disease study for this purpose (ref 7). However, in that study 48 diseases were distinguished, leading to an under-estimation of total morbidity. This is particularly important at high ages, when a considerable part of morbidity is difficult to attribute to specific causes. The conclusion on compression of morbidity is very sensitive to this issue, because the extra life years lived by the non-smokers and non-obese are of course at high ages.

2) I think it is methodologically wrong to use a dynamic population model to estimate a cohort. You can do it of course, but it is overkill: it could just as well be done in a multi-state life table (the authors are aware of this, see ref 25). Such a life table can be implemented in a spreadsheet, that could easily be made available on the web. Now we are referred for the RIVM Chronic Disease Model to an internal, and therefore presumably not peer-reviewed, RIVM report. When a population projection is made, it is necessary to use a dynamic population model, but when cohorts are modelled, transparency requires that a life table is used.

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

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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

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

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.