Reviewer’s report

Title: Impact of transportation infrastructure on bicycling safety

Version: 1 Date: 17 July 2009

Reviewer: Luc Louis Rosa Int Panis

Reviewer’s report:

Major Compulsory Revisions: None

Minor Essential Revisions: None

Discretionary Revisions

- General appreciation:
  This is a well written review paper but no meta-analysis was attempted.
  A very good background of the field is given with plenty of references to back up the summary.

Table 1 holds detailed descriptions of different cycling infrastructure types. A lack of clear descriptions may hamper the comparison of results from different studies especially in different countries. The definitions provided in this paper are therefore very useful and may become a reference for future studies in the English language. Comparing descriptions of infrastructure across different languages is an even more difficult task. In the future non-English papers can be included in the review and infrastructure types classified by using the examples in the European cycling dictionary (a list of words and photographs for cyclists and policy makers in all 23 official European languages (published by the European Economic and Social committee at the Vélocity 2009 conference in Brussels)).

- Abstract

P1. Other “potential” health benefits could be mentioned based on the review from Nick Cavill (see ref below) and related documents from the WHO (e.g. by Sonja Kahlmeier).

A potential additional risk is the increased exposure to exhaust emissions. Some of the fractions in vehicle exhaust have been associated with increased health risks from exposure to general air pollution and "proximity to traffic" seems to be a factor that explains part of that health risk. In addition the physical activity leads to an increased exposure through increased ventilation, but 'stress' may also be a factor. (e.g. Annette Peters et.al Exposure to Traffic and the Onset of Myocardial Infarction, NEJM, Volume 351:1721-1730 October 21, 2004 Number 17)

Page 1
Following discussions with cycling advocates it may be wise to include a statement saying that there is, at this point, no reason to assume that (on balance) the health risks outweigh the health benefits. In the past purely scientific statements on risks have later been misinterpreted in popular articles and in the press to suggest that cycling was dangerous and/or unhealthy.

Page 2

Collisions and falls are very different incidents with a different injury outcome. Authors may consider to keep these two classes apart if data permits.

- Background

Psychological benefits could be mentioned (de Geus, 2007 see reference below)

Page 4. A recent analysis of bicycling rates (and accident risks) in Belgium can be found in (Vandenbulcke et al., 2009)

Page 5. It's a bit strange that the two first tables to be mentioned in the text are numbered 2 & 3

Page 5. Average cycling trip percentages for Belgium should discriminate between Flanders and Wallonia which are very different in this respect.

Page 6. 2nd paragraph line 4: explain whether this is a general statement or only about North America

Page 6. 2nd paragraph line 5: this has been shown to be true by Vandenbulcke et al., 2009

Page 6. 2nd paragraph last line: we have unpublished data from the SHAPES project that seems to confirm this assessment both for Flanders and for Wallonia:

Cycling to work: Modelling meso-scale spatial variations
Grégory Vandenbulcke, Claire Dujardin, Isabelle Thomas, Bas de Geus, Bart Degraeuwe, Rudi Torfs, Romain Meeusen, Luc Int Panis (in preparation)

Page 8. Second paragraph. On the other hand it may be that it is the number of conflicts rather than the number of accidents that contributes to the perception of risk. Nevertheless “conflicts” remain an “illusive” concept that is difficult to handle and is therefore often excluded from studies or questionnaires.

Page 10. This sentence is not really relevant for the paper.

“Those papers considered potentially relevant were collected from the University of British Columbia libraries, electronic databases maintained by the journals, or through inter-library loan.”

Page 11. I agree that studies outside the OECD may probably not be relevant to the goal of this review.
Page 20 Bias in the data and underreporting cfr. Unpublished results from the survey in the SHAPES project suggests that underreporting of cycling accidents is probably even worse than assumed here.

Page 21 first paragraph. It is true that surveys cannot capture the most serious (e.g. lethal) accidents, but at prevailing risk levels, the chances of a lethal accident occurring to one of the participants during the survey are negligible.

Page 22 I agree that there are difficulties associated in controlling for the exposure to risk (few studies (e.g. see paper by Vandenbulcke et al., 2009) quantify both the risk and the exposure to that risk.)

Additional references:


Grégory Vandenbulcke, Isabelle Thomas, Bas de Geus, Bart Degraeuwe, Rudi Torfs, Romain Meeusen and Luc Int Panis, 2009. Mapping bicycle use and the risk of accidents for commuters who cycle to work in Belgium. Transport Policy, Volume 16, Issue 2, March 2009, Pages 77-87


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.

Declaration of competing interests:

I declare that I have no competing interests