Reviewer's report

Title: Ischemic stroke incidence in Santa Coloma de Gramenet (ISISCOG), Spain. A community-based study.

Version: 1 Date: 5 October 2007

Reviewer: Mauricio Avendano

Reviewer's report:

General

This is an interesting study that examines the incidence and case-fatality of ischaemic stroke and related disability in a specific Spanish region. The study is well conducted and uses an appropriate methodology. The study is important because major efforts have been done to ascertain stroke in a valid way. Despite these strengths, whether this study is interesting for an international audience depends on the extent to which results about this Spanish region could tell us something about stroke incidence, case-fatality and their determinants in general. Furthermore, the study has a number of areas in which further improvements can be introduced. My main comments are outlined below:

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

1. The main weakness of this study is that it is mostly a descriptive overview of stroke incidence and case-fatality in a Spanish region, but it is unclear what this paper adds to the international literature on stroke. Part of the reason for this problem is that the paper does not touch on fundamental issues regarding why such study is important or what are the particularities of this studies. Since previous studies have extensively investigated stroke incidence, case-fatality and sub-type distribution, more clarity is needed on the added value of this paper—which main potential could be the particularities of the Spanish region in question.

2. In regard point 1 above, the reasoning of the paper in the introduction is not presented convincingly. Authors present as background the incidence of stroke in Spain and discuss some risk factors for stroke. However, the introduction does not present a clear reasoning of what the motivation and justification for this study is, and why it would be interesting for an international audience. Basically, I suggest authors discuss what the particularities of stroke in Spain are in comparison to other European or world regions, and what the expectations are in this respect. Do authors expect that stroke incidence, subtype distribution, case-fatality and stroke-related disability are different in this region of Spain? What is the reasoning behind this?

3. In the introduction there is an emphasis on risk factors, but the focus of the
paper on case-fatality and disability may also point at a role of healthcare related factors. Is there anything in particular about this Spanish region that may explain a possible difference in case-fatality and disability with respect to other European regions? This needs to be discussed in the introduction.

4. The strategy developed by the authors to ascertain stroke incidence seems appropriate. However, this study is of the ‘unlinked type’ (information on the denominator and the numerator came from different sources), which may be a drawback in the estimation of first incident stroke: In particular, when a stroke case is detected and the clinical history reveals that this person had a stroke before the study started, this would no longer be considered a first stroke. However, this person should also be excluded from the denominator, because he or she was not at risk of first stroke at the time the study started. I believe their unlinked method does not take this into account. This could artificially make stroke rates lower than they actually are, for instance in comparison to follow-up studies in which information from the population and the outcome comes from the same source. This may not be a large problem and it may have only a small impact on the results. However, it is essential that authors spend more space in the discussion to discuss the limitations of their study and the possible biases that could arise as a consequence.

5. The main conclusion of the authors is that the incidence and case-fatality of ischaemic stroke is lower in this region of Spain as compared to other world regions. However, the validity of this main conclusion is not fully developed in the paper. Firstly, it is not clear how the present study population compares to the population in other studies, which may have very different age ranges. Authors standardized their rates to the European standard population, but many of the studies presented in Table 3 presumably use a different standard population, e.g., the World population. Furthermore, even after standardization, the age ranges may be so different that comparisons are not fully valid. Since this is the main conclusion of the paper (and the one most likely to be interesting for an international audience), I suggest authors present and discuss Table 3 in more detail in the results section. Issues to address include: Firstly, it is not always clear that the incidence of ischaemic stroke is lower in their study as compared to other studies, specially if confidence intervals are taken into account. Can a more convincing comparison be made? Secondly, how age or other factors influence these conclusions?

6. Discussion, paragraph 1: From this paragraph it would appear that the rate of stroke in this Spanish region is within the normal ranges of the incidence in Spain as a whole (163-257 for total rate and 132-174 for first ever stroke). Therefore, and particularly taking confidence intervals into account, it is difficult to conclude that in this region the incidence of stroke is lower as compared to Spain as a whole.

7. The discussion lacks a more detailed presentation of the limitations of the study and the possible biases, as well as a more precise discussion of the implications of the study. I suggest authors make an attempt for a more thorough discussion of these issues.
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Abstract: Please include information on the size of the population, age and number of cases in the methods section.

2. Abstract results: Please present only the European standardized rates – the crude rates are almost the same and are difficult to interpret since they are not standardized.

3. Abstract: The finding on ‘low recurrent stroke’ is not included in the abstract results. Either this should be described in the results or not mentioned in the conclusions of the abstract.

4. There are a number of English language errors in the paper. The paper may need to be reviewed by an English editor.

**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:** Needs some language corrections before being published

**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