Reviewer's report

Title: Municipal mortality due to thyroid cancer in Spain

Version: Date: 2 28 November 2006

Reviewer: Milena Maria Maule

Reviewer's report:

General

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

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

Background.
1. Paragraph1, pag. 3, line 5: remove comma after ref. [2]
2. Paragraph1, pag. 3, line 5: consider changing "adjusted for" to "standardized to"

Methods.
3. Paragraph 4, pag. 4, line 19: change "a) the effects which vary in a structured manner in space (municipal heterogeneity)" to something like "a) the effects which vary in a structured manner in space (local spatially-structured variation)"
4. Paragraph 5, pag. 4. Consider explaining why using adjacency of municipal boundaries as the contiguity criterion is sensible, i.e. saying that geographically close areas may tend to have similar relative risks.

Discussion.
5. Paragraph 2, pag. 6, lines 20-21. You write: "The unsmoothed SMR map shows municipal areas with and without cases, so that, owing to the low frequency of this tumor, the largest towns and cities have greater possibilities of being represented.". This is not exact. Consider explaining the following: Standard errors of SMR are inversely dependent on the number of expected cases. This implies that the most extreme SMRs occur in small population areas and are based on a small number of cases. Maps of unsmoothed SMRs are therefore dominated by "white" (RR=0) and "black" areas (RR very high), most likely reflecting random variation. On the other side, the smallest p-values associated to SMRs simply identify areas with large populations.
6. Paragraph 3, pag. 7, line 3. Given that the highest risks appear in remote rural areas, consider saying that mortality likely reflects incidence of the most aggressive cancer type, but could also reflect differential accessibility to health care.
7. Paragraph 6, pag. 7, line 23. Change “thyroids” to “thyroid”.
8. Paragraph 6, pag. 7, lines 28-29 & pag. 8, lines 1-4. How does untimely diagnosis in endemic goiter area explain that papillary carcinoma occurs in areas with sufficient iodine whereas follicular and anaplastic cancer occurs in areas with iodine deficiency? Please consider rewording the sentence.
9. Paragraph 8, pag. 8, lines 29-30. Reword the sentence “all types were more common in cases where patients were or had been residing in such areas; but if the same patient were to be transferred to urban/industrial areas he/she would preferably develop into differentiated carcinoma” (1. it is not the patient that develops into differentiated carcinoma; 2. patients/patient: please do not refer to single individuals but make sure your considerations remain at a population level)
10. Paragraph 9, page 9, line 10: change “Close on” to “Nearly” or “Approximately”

Conclusions.
11. Pag. 10, line12. Since there is no information on histological types, please consider writing something like “The hypothetical( or likely, plausible...) presence of more aggressive histologic types in such areas...”
12. Pag. 10, line 12. Remove “previously”: the other genetic or environmental risk factors are still unknown.

Discretionary Revisions (which the author can choose to ignore)
What next?: Accept after minor essential 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

Declaration of competing interests:

I declare that I have no competing interests