Reviewer’s report

Title: In-hospital mortality in stomach cancer surgery: patient factors, clinical factors, and relationship with volume of interventions

Version: 1 Date: 30 January 2009

Reviewer: Barbara Peleteiro

Reviewer’s report:

This manuscript evaluates possible determinants of in-hospital mortality after gastric cancer surgery. It takes into account several factors such as patient-related and hospital characteristics. It is a multicenter study using an administrative database which collects information from the various regions of Spain. It analyses 4 of these regions, covering half of the Spanish population. It is the first article to present these results for this country, although is not a new topic worldwide. Authors should consider the following minor but essential points:

- I strongly suggest changing the title as follows: “Determinants of in-hospital mortality after stomach cancer surgery in Spain”.

- “in function of different variables” should be substituted with “according to patient and hospital characteristics”.

- The sentence “We constructed a logistic regression model and figured the adjusted in-hospital mortality according to hospital volume” should be rephrased; a possible suggestion is “We adjusted a logistic regression model in order to calculate the in-hospital mortality according to hospital volume”.

- “We identified no relation between hospital volume and in-hospital mortality” could be substituted with “No association was found between hospital volume and in-hospital mortality”; and “relation” should be substituted with “association” throughout the text.

- Please delete the last sentence of the abstract.

- The authors should give some support to the sentence “In-hospital mortality has often been considered an outcome indicator directly related with the quality of care”, providing at least one relevant reference.

- The association between hospital volume and in-hospital mortality seems highly confounded by other factors, such as other hospital characteristics (e.g., hospital volume is closely related to referral systems, personnel qualification and experience); also, different definitions and cut-points when referring to hospital volume could be responsible for the divergent results found among different studies; this should be considered in the introduction section.

- I suggest substituting “man or woman” with “male or female”.

- The authors asked to experts to pre-select factors that might be associated with in-hospital mortality; however, it wasn’t possible to include the stage of the tumor due to the inexistence of this information in the database used; this should be further discussed in the discussion section; what the authors would expect to change in the results if this data had been available in accordance to other studies.

- Why use this definition and cut-points of hospital volume? Do other articles use the same definition and cut-points? This information should be presented in table 3 and further discussed; in addition, it should be stated how the authors identified the articles presented in table 3 (was it by a systematic review?).

- Which software was used to perform the statistical analyses?

- When presenting the hospital stay duration, it should be stated that 18 is the standard deviation; moreover, the authors should specify whether 29 and 15 are median or mean days.

- Table 2 should be divided into two tables: one with the results of the secondary diagnosis and the other with the results stratified by tumor location.

- The authors could present a table with the results from the regression model.

- Please delete figures 1 and 2 providing the main results in the results section; apart from ORs and CIs, provide also the N for each category in a new table; I strongly advise the authors to consider less categories of hospital volume, tertiles or quartiles may be a better option to present these results.

- The authors state that some studies did not adjust the mortality rates for tumor stage at diagnosis, but this factor was also not taken into account here since no data regarding this factor was available; this should be specified in the text.

- The authors adequately address the limitations of using administrative databases, but make some assumptions without proper support (for instance, “In stomach cancer, it is evident that the specific location of the tumour is often under coded”).

- Also references supporting the following statements are missing: “many tumours of the fundus also invade the cardia”; “Bilroth I is an uncommon intervention for gastric cancer”.

- The authors properly acknowledge the advantages of using databases that systematic collect information, despite the obvious limitations.

- The authors state that there could be a “certain degree of centralization” but they don’t refer the impact that this could have on their results, and this should also be taken into account when analyzing the other studies results.

- The sentence “A consensus should be reached about study design and key specific variables for outcome analyses using administrative databases” is
neither an objective nor a direct conclusion of this study. Please delete it.

- Again, the key message of the need to create a National Cancer Registry is out of the scope of this study. Please delete this part from the conclusions section.

**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.