Reviewer's report

Title: Hospital factors and patient characteristics in the treatment of colorectal cancer: a population based study.

Version: 3 Date: 29 July 2012

Reviewer: Dianne O'Connell

Reviewer's report:

Overall comments
The authors are to be commended on the revisions made. The manuscript is much improved.
There are a few minor changes to be made as described below.

Minor essential revisions

Abstract
1. Last sentence of results. People with unknown marital status were also at higher risk of postoperative in-hospital mortality. This should be added in the abstract and the main results section.

Methods
2. Page 6, para 1, last sentence. Change to "Multiple records relevant to ... means of this encrypted code."
3. Page 8, statistical analysis. I still do not agree with the authors on the rationale for using logistic regression rather than proportional hazards models for the analysis of in-hospital mortality. While the authors argue (in response to point 6 in my previous review) that the length of follow-up (i.e. time to discharge) is too short to show any meaningful difference in survival times, there are no data to support this. The authors should at least provide information on the distribution of length-of-stay for patients undergoing curative surgery.

Results
4. Figure 1. It is still unclear what has happened to the 142 patients with lesions in both the colon and rectum (in response to point 12 in my previous review). Were they classified as having colon or rectal cancer in the Figure and analyses?
5. Page 11, para 1. In response to point 14 in my previous review, the authors indicated that there was no statistically significant difference in the odds of AP resection for patients with and without an emergency admission (p=0.05 and the upper 95% confidence limit is 1.01). However the text still suggests that AP resection was performed less frequently in patients with an emergency admission. Emergency admission should be added in the next sentence with the other variables where there was no independent association.
6. Page 11, para 2. Include a description of the length of stay after curative surgery (median, interquartile range).
Tables

7. The authors have added p-values in the current Tables 1-3 for each coefficient (odds ratio) in the logistic regression models. These should be the overall p-values for the association between the categorical variable and the outcome. For example, for age with 4 categories, the p-value should be that for the likelihood ratio test comparing the logistic models with and without age included (which is chi-squared with 3 degrees of freedom). Please make these changes.

8. Also p-values should be quoted to 3 decimal places and smaller p-values should be indicated as <0.001, not 0.000.

9. I am confused by the response to point 51 in my previous review. A “missing” category is not shown for OPE in the current Table 2 and the frequencies for “no” and “yes” add to 7033. Were those with “missing” OPE (n=5437-5382=55?) considered to be “no” for OPE for Table 1 and “yes” for Table 2.

Discretionary revisions

Methods

10. Page 6, para 1. It would strengthen the paper to add the explanation regarding the completeness of the population coverage of the HDR database that was offered in response to point 3 in my previous review. This could be inserted after the second sentence beginning “The HDR system routinely ...”.

11. Page 7, last sentence. 15-30 minutes should be “15 to less than 30 minutes”

12. Page 9. Tables should be numbered in sequence so the current Table 4 should become Table 1.

Results

13. The current Tables 1-3 should become Tables 2-4.

14. Page 10, para 2. Change “seemed” to “tended” in the sentence commencing “The adjusted OR to receive neo-adjuvant RT ..”

15. Page 10, last sentence of para 2. Change to “The results of this model ... RT decreased with decreasing hospital volume (11-25 cases/year versus >25 cases/year OR ...).”

16. Page 11, para 2, second sentence. Change “probability” to “odds”. Also, those with unknown marital status were at increased risk of postoperative in-hospital mortality and this should be mentioned.

Discussion

17. Page 12, para 1. In-hospital mortality analysed in this study really cannot be compared with longer term survival after colorectal cancer resection. Therefore the comparisons are somewhat tenuous. Also change “they present more emergently” to “they are more likely to have an emergency admission”.

18. Page 12, para 2, first sentence. Add “and those with unknown marital status” showing a significantly ...


20. Page 12, para 4 first sentence. Change “hospital’s volume” to “hospital’s surgical volume”.

Tables
21. Change the title for current Table 3 to “Postoperative in-hospital mortality for 22289 incident colorectal cancer patients after curative surgery”
22. The title for current Table 4 is too long.

**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:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**
I declare that I have no competing interests.