Reviewer's report

Title: Breast cancer management guidelines: does compliance depend on the local cancer organisation?

Version: 1 Date: 31 August 2010

Reviewer: Antonio Ponti

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Objectives of this paper are measuring compliance to a set of 20 clinical criteria for the management of breast cancer and identify factors associated with non-compliance. The study concerns 926 patients accrued in 20 hospitals during 2003-2004.

1. Major compulsory revisions.

1.1 The definition of clinical practice criteria (Appendix 1 and p.5) (1). It is mentioned that criteria derive from National Clinical Guidelines but these are not referenced. Please provide a reference.

1.2 The definition of clinical practice criteria (Appendix 1 and p.5) (2). The process of classifying each criterion in three levels of compliance should be clarified: in addition to those listed as Authors (who don't include radiologists or pathologists) who are the experts and which disciplines represent (it seems their names are in the acknowledgments, it could be sufficient to explain and add the description of the discipline)? Did you attempt to reach a consensus on the final list and the description of criteria by the entire expert group or each expert was responsible solely for his/her discipline?

1.3 The definition of clinical practice criteria (Appendix 1 and p.5) (3). The classification in the three classes is rather complex and at times it seems ambiguous. Please improve punctuation or layout of the Table in order to remove the current ambiguity of interpretation (see for example criteria 1 "AND mastectomy OR conservative surgery" etc).

1.4 The definition of clinical practice criteria (Appendix 1 and p.5) (4). Management of missing values should be clarified. The way they are managed in the classification of compliance is at times contradictory: for example for criterion 3 missing values are ignored (are there any? Table 2 does not help in answering this question), for criterion 4 they are included in the J category and for criterion 5 they are included in the NC category. Although I understand this cannot be changed now, a quantification of missing values for each variable (Table 2, at present there is one column which includes both "missing" and "not eligible") is required.

1.5. Study population (1). Can you explain briefly how informed consent was obtained and how you interpret a rather high proportion of refusers (about one
third, in a study requiring data abstraction only). Was the proportion of refusers very different from Hospital to Hospital.

1.6. Study population (2). Total eligible population was 1416 non-metastatic invasive breast cancer cases in 20 Hospitals in 16 months, which makes an average of about 50 cases per Hospital per year. Is this correct, and if so can you comment about this low average volume? Information on volume distribution in the 20 Hospitals would be useful in the Methods section of the paper.

1.7. Univariate analysis. When you describe univariate analysis for therapeutic indications (p. 8) and for radiotherapy (p. 9) variables used in univariate analysis change completely. Please clarify text.

1.8 page 12: "Concerning the location of treatment, the region with a higher compliance rate had already implemented breast cancer CPGs (guidelines) when the study started which may explain the intraregional differences." What do you mean by implemented? It would be great if implementation of guidelines would provide such an amazing effect! This should be regarded as the main result in your paper. This may be true but needs validation. Could you also provide alternative explanations on this huge and consistent difference between the two Regions?

2. Essential minor revisions.

2.1 You mention that your study domain concerns early breast cancer (p. 4) but inclusion criteria (p. 4) exclude metastatic from onset cancer only and in fact from Table 1 it is clear that also stage 2 or 3 cancers are included. Please correct or explain.

2.2 The classification of compliance is described ion a contradictory way in these two passages, both in page 5:

-(NC): non-compliance with CPGs and no justification available in the patient’s medical record.

- When no data were available in the medical record to classify the criterion as ‘NC’, it was considered potentially ‘justifiable’ (J).

2.3 Pages 8 and 9: check p of “teaching status”, in one case quoted as p=0.0004 and in the other as p=0.04.

2.4 page 10: "Until now, most publications have focused on therapeutic care management steps and do not provide details on compliance with treatment intervention indications". Please expand and clarify.

3. Discretionary revisions.

3.1 Explanatory variables. Did you consider including Hospital volume?

3.2 As for radiotherapy, the difference between Regions could be an effect of accessibility? (see PAGANO E, DI CUONZO D, BONA C, BALDI I, GABRIELE P,

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

'I declare that I have no competing interests’