Reviewer's report

Title: Variation in incidence of breast, lung and cervical cancer and malignant melanoma of skin by socioeconomic group in England.

Version: 2 Date: 8 January 2008

Reviewer: Gwenn Menvielle

Reviewer's report:

This paper deals with variation in incidence of several cancer sites in relation with SES. The study is conducted in England. This study is of interest but should be substantially improved. It provides results for England, where no studies are available on this topic, and it also provides results by geographical regions. Nevertheless I have several major criticisms.

Major compulsory revisions

1. Why do the authors select only four cancer sites? They give no justification for this choice. I really do not see any reason to restrict the analysis to these cancers. From a scientific point of view, it would be very interesting to have results for other cancer sites. For instance, why do the authors not include colon and rectal cancer?

2. One interest of the paper is the results by geographical region and by age group. The authors should elaborate more on this. In the current version of the paper, the authors almost don’t discuss the results by age group and by geographical region. These results nevertheless are important and deserve more attention in the discussion. The authors should mention the possible explanations and implications of these findings. Just mentioning the North-South divide in relation to the results by geographical region is not sufficient.

3. The paper focuses on SES and cancer incidence. However, the authors do not mention the general context of SES and cancer incidence/mortality/survival in England. They even do not mention any results about SES and cancer incidence in this paper. This is lacking. They should add some information about the state of the art in England and clearly emphasize what their paper adds to the literature. No studies have been conducted on SES and cancer incidence in England, but there is some information on SES and cancer mortality for instance. It would be interesting to mention it. The authors should also say some words about the literature in the discussion and compare their results with the available evidence. It would be especially of interest for the less studied cancer: melanoma.

Below more precise comments:

4. Abstract

Do not include references in the abstract. The first paragraph of the abstract is the same as the first paragraph of the introduction. It should be shortened and
rewritten in order to briefly give the background of the paper.

5. Discussion

5.1. Paragraph on results by age group for lung cancer: add references. Are higher levels of smoking observed in the most deprived groups in younger generations, or is it just a hypothesis?

5.2. Paragraph on melanoma: Do the authors really believe that the regional differences in exposure to UV explain the regional differences in the incidence of melanoma? I wouldn’t expect the differences to be large enough to induce large differences in cancer incidence, but I may be wrong. Anyway, the paper deals with SES and cancer incidence and this should be the core of the discussion. Even though the incidence rates are the highest in the South West, the lowest socioeconomic differences also occur in the South West. The authors should discuss this result. Do they have any explanation for this finding? Has it something to do with the level of socioeconomic deprivation in the regions?

5.3. Regional differences in case ascertainment is an important issue and may be developed in a separate paragraph. Does it occur only for melanoma? This should be discussed. Maybe the authors could add information on the accuracy of the case registration in the different registries in England.

Discretionary revisions

6. Introduction

- They mention survival and incidence, what about mortality?

7. Methods

7.1. They should add a map of England where they indicate the eight registries studied. The reader will then see where they are, and it will help a lot when reading the results and the discussion section. The geography of England is not familiar to everybody.

7.2. Could the authors add few words on the income domain of the Index of Multiple Deprivation. It is an important variable and should be described more precisely.

8. Results

8.1. First sentence: there is an important mistake. For lung and cervical cancer, incidence rates increase as SES decreases. There is a NEGATIVE association between SES and cancer incidence. Conversely, there is a positive association between SES and cancer incidence for breast cancer and malignant melanoma. Maybe the authors could write a sentence instead of using the expression “positive association”. It may avoid any misunderstanding.

8.2. Last paragraph: what about cervical cancer?

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**: 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.