

## Reviewer's report

**Title:** Population based case control study on risk of sarcoma and dioxin emissions from incinerators (Italy)

**Version:** 1 **Date:** 1 February 2007

**Reviewer:** Richard W. Clapp

### Reviewer's report:

#### General

This is a potentially useful article that will contribute to the understanding of environmental risks from incinerators. It needs considerable work before it is of publishable quality, however.

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

The exclusion of 9 cases, described on page 6, is not well-supported. If the cases moved to the area after 1969, they could still have had substantial exposure. Figure 1 indicates that the peak year for incinerator emissions were in the late 1970s. It would be of interest to know how the risk estimates changed with the 9 cases (and their controls) left in the dataset.

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

- In the first sentence of the abstract, the term "environmental doses" is used; the typical language is "environmental exposures," since dose implies a biological measure. This study really uses modeled exposure values for subject residences.
- The Conclusions statement in the abstract, at the bottom of p. 2, is too strong and should say "Our study supports the association between modeled dioxin exposure and sarcoma risk.
- There are such chemicals as polybenzofurans (mentioned on p. 3 and in the list of abbreviations), but the contaminant of concern with incinerators is polychlorinated dibenzofurans (PCDFs).
- The authors describe the study as "a registry based case-control study" on p. 3 but it is more accurately called a "population-based case-control study," with cases from a population-based cancer registry. The controls are from the general population files, as described on p. 4.
- "Mesotheliomas" is mis-spelled on p. 4.
- The word "inexistent" should be "non-existent" on p. 5.
- Gauss Boaga representations (p. 5) should be explained; this is not used widely.
- The text says thirty three incinerators were studied, yet Table 1 only lists 31. Some of these are called power stations and one is called "Aluminium" - are these really incinerators?
- The term "fentograms" should be "femtograms" throughout the text.
- Two cases excluded on p. 6, e.g., the "radio-induced case" and "von Rechlinghausen's disease" are mis-characterized or mis-spelled. Presumably the first is "radiation-induced," and the correct spelling of the second is usually spelled "von Recklinghausen's disease."
- The Results and Discussion section should be separated into "Results" and then beginning on the bottom of p. 8, "Discussion" beginning with "A few observations should be made. . ."
- On p. 8, the abbreviation LC is used, where it seems to be Confidence Intervals or CI that is being presented. In the list of abbreviations on p. 15, there is a definition of CL, which is called Confidential Limit - this should be either Confidence Limit or CI, Confidence Interval, and should be consistent throughout the text.
- The discussion goes on for five pages and includes some text about the SatScan statistic results (p. 10) which should have been introduced in the Methods and presented in the Results sections. These results refer to Figure 2, but it is unclear how the statistic is reflected on the map. This needs to be made more clear or else eliminated from the text altogether.
- On p. 12, the argument regarding older subjects and prior work experience is unclear. The text needs to be reconsidered.
- On p. 13, the critique of Tuomisto, et al. is incomplete and probably unnecessary. It could simply be stated that Tuomisto, et al. found no association in their study.
- On p. 13, the term non-HD lymphomas is used, when the current terminology is non-Hodgkin lymphoma.
- The Conclusions section is a single, confusing sentence. It seems to begin as a statement about the study and ends with a policy recommendation. It can be simplified and limited to the authors' summary of the study.

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Discretionary Revisions (which the author can choose to ignore)

There are numerous mis-spellings and punctuation errors in the text which should be reviewed and corrected.

**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:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.