Reviewer’s report

Title: State of the evidence 2017: An update on the connection between breast cancer and the environment

Version: 0 Date: 07 Mar 2017

Reviewer: Deborah Winn

Reviewer's report:

GENERAL COMMENTS

This is a clearly written review of an important topic that could make a very important contribution to the literature. The topic is broad, and the writers have done a very good job of addressing not only the conceptual framework, but have provided an extensive review of the literature. The authors use plain language very well to make difficult concepts more understandable.

However, the purpose and scope of the review was unclear, the methods of selecting articles were not provided, summaries (of long sections and the paper as a whole were not provided), and there was no discussion that could help the reader interpret the findings. More on these major issues are below.

The purpose and methods used to select articles to include.

Regarding the purpose of the paper (on page 3 Background), the authors write:

"In the 8 years since we last published a comprehensive review of the relevant literature, hundreds of new papers have been published supporting this link and the update we present here is fundamentally different in the quality and quantity of evidence present to support this relationship."

Also, in the abstract the authors write "the update is fundamentally different in the quality and quantity of evidence presented to support this relationship." The way it is written suggests that the authors are presenting evidence to support their position. These statements imply that they will be providing only the evidence that supports the link and not evidence that does not. I suggest they use more neutral language such as "the evidence on this topic is more extensive and of better quality than that available previously."

In addition, the abstract and page three also indicates that this article provides a comprehensive review since their last paper on this topic. However, the manuscript has no methods section and the scope of the review is unclear. How were the papers selected to review? From what date?
The longer sections should have section summaries, and the reader would be helped by having figures and tables to help them digest the information.

There are no figures or tables. Having some might help to make summary points. It's very hard to read this many pages of text without figures/tables.

Also, although there are some some nuances and qualifiers about some of the studies, for the most part the findings of studies are stated, but without any indication of the quality of the articles referenced. For example, in the human population studies were the risk estimates adjusted for other potential risk factors and could selection biases be ruled out?

The paper also needs a fuller summary of the evidence and a discussion that should address topics such as the following:

There is a one paragraph conclusion on page 117 lines 2652-2660. There should be a more well-developed summary of what the findings are.

Is this a review since the publication of the previous paper as suggested on page 3? If that is the case, it would help to state the major findings of the previous paper and make it clear in what way this review fundamentally differs from that one in quality and quantity as the authors suggest it does.

What are the limitations of their review, what are the strengths and weaknesses of the evidence?

Where do we need to go from here?

Line-by-line and other minor comments

Page 2, line 37. The last sentence of the abstract needs to make it clear that the disease is "breast cancer".

Page 3 Background, lines 50-52. To show that "toxicants contribute significantly to the … incidence of, the authors need to provide a couple of references or their previous report that show that toxicants independent of other risk factors contribute or that the toxicants lead to elevated levels or risk factors or earlier puberty, etc. that then lead to greater breast cancer risk.

Page 3 Background, line 51. What is meant by the phrase "unacceptably high" rate?

Page 3 line 56. Would be helpful to include here a description of how the paper is organized - e.g., statistics, framing concepts, literature review by major chemical type, conclusions.

Page 8 lines 161-168, in the Framing Concepts introduction they write that: "In this current paper, we will not offer comprehensive overviews of these topics, but refer the reader to the reviews cited above. Instead we will briefly introduce the main concepts with a couple of examples relevant to framing the following evidence linking exposures to environmental
chemicals toxicants with increased risk for development of breast cancer." "These topics" probably refers to the framing concepts on the previous page it is not stated clearly and should be clarified.

Page 105 line 2386. The confidence interval is missing decimal points.

**Level of interest**
Please indicate how interesting you found the manuscript:

An article of importance in its field

**Quality of written English**
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

No

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments
which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal