Reviewer's report

Title: Swimming pool attendance is related to asthma among atopic school children: A population-based study

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Reviewer: Per Nafstad

Reviewer's report:

The paper addresses a research question addressed by several earlier studies. The earlier efforts have shown that observational studies have limitations in removing uncertainties regarding whether or not swimming pool attendance "causes" increased risk of developing asthma or sub phenotypes of asthma. The paper is well written and easy to understand and it has a clear objective. The methods are adequately described and participation rate is impressive high. I have some questions/comments related to the result presentations The authors have perhaps a too optimistic view when discussing limitations and potential sources of bias.

Details

How large was the overlap between current asthma and physician diagnosed asthma?

If the overlap is extensive (which one could expect), it is not surprising that the risk estimates for these outcomes are quite equal. What extra information do risk estimates for both outcomes given an extensive overlap?

It should be possible to present the main risk estimates in an instructive way without the need of 3 separate figures, especially if number of outcomes could be reduced.

Confidence limits are wide indicating uncertainty. It would be interesting to see tests for statistical interaction as well as the authors' assessment of interaction since they conclude quite strongly that the effect is different in atopic and non-atopic children.

What is the argument for adjusting for damp housing in the regression analyses of the association between swimming pool attendance and asthma?

Page 12: "mean level of 21 mg/m3" of what?

Discussion:

Isn't it possible that swimming pool attendance could be linked to other unmeasured life style factors?

Population awareness about the relation between swimming pool exposure and respiratory problems could create dependency between exposure and outcome also in a positive direction.
Especially as it seems that the study population during the years has been heavily exposed to information about asthma by the researchers.

**Declaration of competing interests:**

I declare that I have no competing interests