Reviewer’s report

Title: Respiratory health effects of exposure to low levels of airborne endotoxin - a systematic review

Version: 0 Date: 07 Dec 2017

Reviewer: Grethe Elholm

Reviewer’s report:

Thank you for a generally well-written review.

I can appreciate that this is a review on the potentially negative effects of low endotoxin exposure. However, I think that the potentially beneficial health effects of this exposure deserves mentioning. This dual effect of endotoxin exposure may cloud the message of this review; on the other hand, it should not be forgotten.

It is important to elaborate on why you decided to use endotoxin exposure levels below <100 EU/m³ as cut-off point for low exposure. Perhaps refer to previous studies that suggested LOELs/NOELs below 100 EU/m³, and other relevant legislational exposure limits.

It is stated in abstract that a "significant exposure-response relationship between endotoxin and symptoms and FEV1 has been shown in several strong studies". However, another systematic review and meta-analysis was published April 2017 (The effect of organic dust exposure on long-term change in lung function: a systematic review and meta-analysis, BMJ, Bolund et al. 2017) which found inconsistent results. Perhaps it is too early to make such a bold statement in the abstract.

Minor comments

Line 50

You start out the background section by stating "Most people assume that air pollution is posing a threat to human health mainly in urban areas". I would agree that the general population perceives extreme urban pollution as "unhealthy", however probably only a few of them actually consider themselves to be exposed to seriously hazardous pollutants. In addition, most people probably do not understand or ponder the actual health effects of such exposures. We, the researchers, would obviously like everyone to care, and beginning the paragraph in this manner probably reflects more our wish than reality. Therefore, I think it should be tones down.

Line 168 - 170

This should be rephrased so that it is clear that 1 study from each of the last mentioned countries were included, instead of writing "and the others in...".
I suggest that Table 3 is moved to the supplementary material, and only referred to here.

You refer to Smit et al (ref 36) and mention "a significant association between length of employment and increase in lower respiratory symptoms". First of all this sentence needs to be made clearer since "an increase in lower respiratory symptoms" intuitively seems like a contradiction. However, more importantly I miss a discussion of this type of finding. Is it healthy worker selection, or maybe something else?

The results from the selected articles are described as having wide confidence intervals and often not significant. This leaves me wishing for an explanation of the few studies that do show significance, how do they differ from the others?

FYI Figure 3 seems to lack a heading.

The term "across shift" is used several times in this paragraph. Do you mean for example "showed larger decline across work shifts", assuming that shift refers to work shift.

It is not clear if you refer to an aggravating effect here.

Would it maybe be appropriate to discuss the Janus faced effect of endotoxin here? Though here there is only mention of the effect on cough right?!

Atopy and atopic disposition are loosely mentioned throughout the review, since it obviously has been mentioned in the included articles. However, somehow it has not been dwelled upon at all. Again it connects with the dual effect of endotoxin exposure.
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