

SAB review of EPA arsenic report
Richard Wilson
to:
Angela Nugent, Steve Lamm, James Hammitt
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Angela Nugent, PhD, DFO
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Chair, Science Advisory Board
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Washington, DC 20460

Dear Ms Nugent

Dr Steven Lamm has called my attention to the fact that the SAB is meeting on Monday in a teleconference to discuss arsenic. I request permission to call and make a few comments. I am disappointed that the EPA did not choose to directly inform scientists known to be actively involved with arsenic who have made comments on the subject in the past to EPA and SAB. This is part of a general weakness in EPA procedures to which I have called attention for 30 years.

I am unable to participate in person because of a whole day meeting in Harvard on "The EPA at 40". It saddens me that you have now provided me with more information with which to be somewhat critical of EPA at that Harvard meeting. I am still deeply concerned that the area in SW Taiwan (just N off Tainan, as the "sole" basis for an arsenic standard. If these were the only data on carcinogenic effects of arsenic, very few people would agree to a regulation at all. It saddens me that none of the SAB members addressed the crucial importance of whether the charge from EPA to SAB was adequate. In my view it was not.

There are four substantive points on the arsenic cancer risk assessment I would like to make here.

(1) At a single high dose level, the data from Chile are superior to the data from Tainan although they cannot address a dose-response.

(2) The Tainan data are ecological (as noted in the comment by Dr Jonathan Samet) and inherently therefore are incapable of use for a dose

response calculation, although superficially superior to the Chile data in this respect.

(3) Only statistical sampling errors are included in the EPA statistical calculation. This invalidates all but a general conclusion. No SAB member seems to have commented on this.

(4) EPA staff correctly criticized the Lamm et al. paper on bladder cancer in 133 US counties in which I participated and did the main statistical analysis.

One of the SAB members agreed with these criticisms. Indeed so do the authors of Lamm et al. who had explicitly noted the limitations. But EPA and SAB fail to note that the same limitations and criticisms apply with even greater force to the data, particularly at low levels, from the arsenic area in Southwest Taiwan (A) the number of cancers are far fewer in the SW Taiwan study than in the US study. (B) no attempt was made to look at the Taiwan data to examine the heterogeneity of the villages. Heterogeneity was discussed in Lamm et al., and this heterogeneity was explicitly noted as a major source of uncertainty. It is my belief that the upper limit calculated for bladder cancer in the US, while consistent with the (few) numbers in National Academy report of 10 years ago, EXCLUDES the current EPA calculations.

I note that Dr Lamm is making an attempt to discuss this homogeneity in the SW Taiwan area in detail. I am not a part of this. However, on a casual look it seems to confirm that the EPA (and by extension the SAB) use of data from low dose areas is plainly WRONG. In a recent international arsenic meeting in Tainan this May, I discussed this point with Dr CJ Chen. He understood, and seemed to agree with the statement of the issue, but prefers to work on other data which have a better chance of giving a definitive answer. Interestingly I noticed no one from EPA at that meeting, nor anyone from SAB. This in itself seems peculiar to me.

I note that there is disagreement among the authors of Lamm et al. about whether arsenic causes bladder cancer, or other cancers, at low doses. I have written about the logic of discussing low dose linearity in many places over the last 30 years. What saddens me is that the EPA and the SAB seem to pretend that weak data addresses the question when they do not. The whole field of low dose risks is thereby compromised.

I note that Dr Lamm and myself were active in public in 1991 pointing out the Taiwan data and the fact that they suggested a very serious situation. The EPA did not act for over 10 years. I was delighted when EPA staff actively joined in a set of arsenic conferences in San Diego in which I participated. It saddens me that their risk calculation with its attendant statement of uncertainty, is so sloppy. After 40 years the EPA should do better.

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Yours sincerely

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address for identification only no implication should be made of any
endorsement by Harvard University