

05-04-11 Preliminary Draft Comments from Clean Air Scientific Advisory Committee (CASAC) Lead Review Panel. These preliminary pre-meeting comments are from individual members of the Panel and do not represent CASAC consensus comments nor EPA policy. Do not cite or quote.

## **Preliminary Comments from Dr. Gail Wasserman**

### **Chapter 4 (Science Assessment)**

#### **1. The planned review**

- EPA staff are preparing an updated review, summarizing evidence on consequences of exposure. This review sets the ground for selection of articles to review, including newer (since 2006) studies, and older studies (if of continued importance).
- To do so, they have requested input from the public, and will review other EPA reports and databases.
- Chapter 4 specifies criteria for inclusion. These are generally excellent.

*Question/comment:* it is unclear if there is a formal weighting that will help evaluate the adequacy of the evidence base.

#### **2. Content of the planned review**

- In the planned review, there is particular interest in certain questions, including vulnerable populations, confounding, the timing and duration of exposure.
- There will be particular concern for studies at levels relevant to US population.
  - *Question/comment:* Is this misguided? Because current US levels are very low, this would restrict review to studies of very low exposures. On the other hand, study of a wider range might provide more information about mechanisms/consequences.
- EPA staff will review information on exposure sources (with concern for separating out air-, water- and soil-pathways), and on toxicokinetics.
- They plan to review information on health outcomes, integrating findings to evaluate strength and consistency as well as biological plausibility, with focus on lower exposures.
  - *Question/comment:* Again, is this misguided, for the same reasons noted above?
  - *Question/comment:* I believe that in most places, we should consider changing NEUROLOGICAL to NEUROPSYCHOLOGICAL. At levels at which traditional

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neurological examination would be negative, we would anticipate neuropsychological deficits (e.g., IQ).

- **Question/comment:** While as written, the neuropsychological content is restricted to IQ, although there is interesting work on other cognitive functions, such as Executive Function, which is of interest.
- It is anticipated that this review will consider the roles of co-exposures, confounding, and mechanisms of action, which will add to its thoroughness.
- The planned review will consider developmental periods of susceptibility.
  - **Question/comment:** So much of the neuropsychological work is based on very young children, in keeping with the high level of brain development at this time period. On the other hand, we increasingly understand that there are other periods of rapid brain growth (ie around adolescence). Particularly because it appears that certain neuropsychological functions (such as Executive Function) continue maturing into adolescence (paralleling growth in frontal/prefrontal structures), so that examining these only early on might miss deficits. Perhaps highlight the importance of other developmental periods?