

Attachment A

Agenda for July 11, 2008 CARB Teleconference

Regarding May 22, 2008 CARB Draft Staff Report
**"Methodology for Estimating Premature Deaths Associated with Long-term
Exposures to Fine Airborne Particulate Matter in California"**

James E. Enstrom, Ph.D., M.P.H.
University of California, Los Angeles
<http://www.cancer.ucla.edu/>

1) Mischaracterization of 2005 Enstrom Paper

The CARB Draft Staff Report completely mischaracterizes my 2005 paper (*Inhalation Toxicology* 17:803-816, 2005 <http://www.scientificintegrityinstitute.org/IT121505.pdf>). Numerous statements on page 22 are inaccurate. The methodology used in my study is completely consistent with the methodology used in the 2002 Pope study. For instance, my study controlled for smoking at entry and presented results for never smokers. Furthermore, fully adjusted relative risks hardly differed from age-adjusted relative risks. My study used the same 1979-1983 PM2.5 data that was used in the Pope studies and these underlying US EPA data were presented in a clear and well-defined manner. Although it is the largest and most detailed study ever published on PM2.5 and mortality in a California population, my study was not used by CARB staff to calculate the relationship between PM2.5 and mortality in California.

2) Omission of 2006 Enstrom Response to 2006 Brunekreef Criticism

Although the CARB Draft Staff Report cited the 2006 Brunekreef criticism of my 2005 paper, the Report completely omitted my 2006 response to Brunekreef (*Inhalation Toxicology* 18:509-514, 2006 <http://www.scientificintegrityinstitute.org/IT060106.pdf>). My 2006 response addressed in a detailed manner the criticism of my 2005 paper and needs to be fully considered by CARB.

3) Failure to Respond to April 22, 2008 Enstrom Public Comments to CARB With a Focus on the 2000 HEI Reanalysis Report by Krewski et al. (U.S. map on page 197)-

CARB Staff and the CARB Draft Staff Report have failed to address the important points made in four pages of public comments submitted to CARB on April 22, 2008 regarding the Goods Movement Emission Reduction Plan and the health effects of diesel emissions (http://www.arb.ca.gov/lists/erplan08/2-carb_enstrom_comments_on_gmerp_042208.pdf). In particular, the CARB Draft Staff Report fails to mention the California specific epidemiologic evidence in the 2000 HEI Reanalysis Report by Krewski et al. (<http://pubs.healtheffects.org/view.php?id=6>, Part II, page 197). The US map of "fine particles and mortality risk" on page 197 indicates no excess mortality risk in California due to PM2.5 among the ACS CPS II cohort during 1982-1989. This finding ~~that~~ is consistent with the results in my 2005 study, which is based on the California portion of ACS CPS I. All of the points in my public comments should be addressed, because they are relevant to CARB Draft Staff Report.

4) Suggestions for Future Research: Proposed Calculation of California-specific Relative Risks in ACS CPS II Cohort

Using same ACS CPS II database and proportional hazards methodology used in Pope et al. study (*JAMA* 2002;287:1132-1141 <http://jama.ama-assn.org/cgi/reprint/287/9/1132>), calculate all cause mortality relative risk (RR) and 95% confidence interval (CI) associated with a 10- $\mu\text{g}/\text{m}^3$ increase in PM2.5, similar to RRs shown in *JAMA* Table 2.

a) Calculate age-sex-adjusted RRs and fully adjusted RRs based on all 61 metropolitan areas for 1979-1983, 1999-2000, and average PM2.5 related to all causes of death during three time periods: September 1, 1982 through December 31, 1998, September 1, 1982 through December 31, 1989, and January 1, 1990 through December 31, 1998 [2 x 3 x 3 = 18 RRs]. For instance, fully adjusted RR (1979-1983 PM2.5, 1982-1998 deaths) = 1.04 (1.01-1.08).

b) Calculate age-sex-adjusted RRs and fully adjusted RRs based on the metropolitan areas in California for 1979-1983, 1999-2000, and average PM2.5 related to all causes of death for the three time periods: 1982-1998, 1982-1989, and 1990-1998 [2 x 3 x 3 = 18 RRs]. Specify the definition of the California metropolitan areas used in the *JAMA* paper and the number of CPS II subjects and deaths in each area used in the calculation of each RR.

c) Calculate age-sex-adjusted RRs and fully adjusted RRs based on the eleven California counties shown in Table A for 1979-1983, 1999-2001, and average PM2.5 related to all causes of death for the three time periods: 1982-1998, 1982-1989, and 1990-1998 [2 x 3 x 3 = 18 RRs]. Specify the number of CPS II subjects and deaths in each county used in the calculation of each RR.

Table A. Fine particulate matter levels, PM2.5 ($\mu\text{g}/\text{m}^3$), in 11 California counties from the 1979-1983 Inhalable Particulate Network (IPN) and 1999-2001 Aerometric Information Retrieval System (AIRS) of the EPA (Enstrom *Inhalation Toxicology* 17:803-816, 2005 <http://www.scientificintegrityinstitute.org/IT121505.pdf> and Enstrom *Inhalation Toxicology* 18:509-514, 2006 <http://www.scientificintegrityinstitute.org/IT060106.pdf>).

<u>California county</u>	<u>PM2.5 ($\mu\text{g}/\text{m}^3$)</u>		<u>Average</u>
	<u>1979-1983</u>	<u>1999-2001</u>	<u>1979-1983/1999-2001</u>
Santa Barbara	10.6	10.7	10.65
Contra Costa	13.9	14.0	13.95
Alameda	14.4	14.4	14.4
Butte	15.5	15.4	15.45
San Francisco	16.4	15.4	15.9
Santa Clara	17.8	17.0	17.4
Fresno	18.4	20.2	19.3
San Diego	18.9	15.2	17.05
Los Angeles	28.2	20.4	24.3
Kern	30.9	19.4	25.15
Riverside	42.0	21.1	31.55