

May 27, 2009

California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812
<http://www.arb.ca.gov/>

Re: May 28, 2009 CARB Meeting Agenda Topics 09-5-1 and 09-5-6

Dear Board Members:

I am writing regarding the May 28, 2009 CARB Meeting Agenda Topic 09-5-1: "Health Update: Reductions in Fine Particulate Matter (PM) and Improvements in Life Expectancy. Staff will highlight a study that examines the changes in life expectancy associated with changes in ambient levels of fine PM in 51 cities, including San Francisco, San Jose, Los Angeles, and San Diego. The investigators were able to show a significant association between PM reductions and improvements in life expectancy." (<http://www.arb.ca.gov/board/ma/2009/ma052809.htm>). Topic 09-5-1 has a direct bearing on the rationale for the Goods Movement Emission Reduction Program, which is discussed in Topic 09-5-6.

Based on the description given above, Topic 09-5-1 involves the January 22, 2009 paper "Fine-Particulate Air Pollution and Life Expectancy in the United States" by Drs. C Arden Pope III, Majid Ezzati, and Douglas W. Dockery (N Engl J Med 2009;360:376-386). You should be aware of my February 11, 2009 letter about this paper, which was not published by the N Engl J Med, as documented below. As stated in my letter, I did not find a relationship between reduction in PM_{2.5} concentrations during 1979-2001 and increase in life expectancy during 1980-1999 in 11 California counties. Pope et al. did not find a relationship in the four California cities in their study, Los Angeles, San Diego, San Francisco, and San Jose. These authors did not analyze all 11 California counties with PM_{2.5} measurements. Inconclusive epidemiologic evidence of this type should not be used to support onerous regulatory policy in California regarding PM_{2.5}, particularly regarding diesel particulate matter. Further details are provided in my December 10, 2008 public comments to CARB (http://www.arb.ca.gov/lists/truckbus08/897-carb_enstrom_comments_on_statewide_truck_regulations_121008.pdf).

Thank you very much for your consideration.

Sincerely yours,

James E. Enstrom, Ph.D., M.P.H.
Jonsson Comprehensive Cancer Center
University of California, Los Angeles
<http://www.cancer.ucla.edu/>
jenstrom@ucla.edu
(310) 825-2048

Subject: RE: NEJM Correspondence #: 09-0374
Date: Mon, 16 Mar 2009 14:19:01 -0400
From: "Letter" <letter@nejm.org>
To: <jenstrom@ucla.edu>

Dear Prof. Enstrom,

Your letter referring to the Pope article of January 22 has been received. Because of the limited availability of space we can publish only a fraction of the letters we receive. Although we will not be able to print yours, we have forwarded a copy to the authors in case they wish to reply directly to you.

Thank you for your interest in the Journal.

Sincerely yours,

Jeffrey M. Drazen, M.D.
Editor-in-Chief
New England Journal of Medicine

Subject: RE: Revised NEJM Letter to the Editor
Date: Thu, 12 Feb 2009 14:04:47 -0500
From: "Letter" <letter@nejm.org>
To: "James E. Enstrom" <jenstrom@ucla.edu>

Dear Dr. Enstrom,

Thank you for your email and voicemail. I will make sure your revised letter is given to the editor. You will be informed of the final editorial decision via email.

Sincerely,

Elise DeVoe
Editorial Assistant
New England Journal of Medicine
10 Shattuck Street
Boston, MA 02115
(617) 734-9800
Fax: (617) 739-9864
<http://www.nejm.org>

Date: Wed, 11 Feb 2009 14:23:05 -0800
To: NEJM Letters Editor <letter@nejm.org>
From: "James E. Enstrom" <jenstrom@ucla.edu>
Subject: Revised NEJM Letter to the Editor

February 11, 2009 2:20 PM PDT

Dear NEJM Letters Editor:

During the past hour I tried, but failed, to upload the attached revised version of the NEJM letter that I successfully submitted on February 10, 2009. Please let me know if you can consider my revised letter instead of my original letter.

Thank you very much for your consideration.

Best regards,

James E. Enstrom, Ph.D., M.P.H.
(310) 825-2048

From: NEJM Letter to the Editor <letter@nejm.org>
To: <jenstrom@ucla.edu>
Date: Wed, 11 Feb 2009 02:59:31 (GMT)
Subject: The New England Journal Of Medicine - Letter to the Editor Confirmation

Dear Prof. James Enstrom:

We have received submission of your letter.
If you wish to edit your letter before 2/11/2009 4:59:59 PM EST,
please use the following link:

<http://authors.nejm.org/letters/changeLetter.asp?confirmationId=EDE50A64>

Thank you.



[NEJM Letter Re PM2.5 & Life Expectancy Pope 021109.doc](#)

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New England Journal of Medicine
Letter to the Editor

The attempt to attribute increased life expectancy in the United States with reduction in fine particulate air pollution (PM_{2.5}) (1) is problematic because it is based on weak and inconsistent ecological relationships, lack of a definitive causal mechanism, and substantial PM_{2.5} measurement errors, as repeatedly noted since 1997 (2). Although some relationship may exist in parts of the United States, Figure 4 shows very poor consistency between increase in life expectancy (years) and reduction in PM_{2.5} concentrations (µg/m³) in the four California metropolitan-level observations: Los Angeles (4.1, 6.6), San Diego (2.8, 3.3), San Francisco (4.4, 3.8), and San Jose (4.2, 3.3). There is no relationship in 11 California counties based on my own assessment of reduction in PM_{2.5} concentrations (3) and increase in life expectancy (4). The data and regression analysis are shown in Table 1. This lack of a relationship in California is consistent with evidence from several other sources (5). Inconclusive epidemiologic evidence of this type should not be used to support onerous regulatory policy regarding PM_{2.5}, particularly in California.

Conflict of Interest

I have no conflict of interest with respect to the above letter, which contains well documented facts. Full details about my research career and funding are on my website: www.scientificintegrityinstitute.org.

References

1. Pope CA III, Ezzati M, Dockery DW. Fine-Particulate Air Pollution and Life Expectancy in the United States. *N Engl J Med* 2009;360:376-86.
2. Enstrom JE. Fine particulate air pollution and total mortality among elderly Californians, 1973-2002. *Inhalation Toxicology* 2005;17:803-816
(<http://www.ingentaconnect.com/content/apl/uiht/2005/00000017/00000014/art00003>).
3. Enstrom JE. Response to “A critique of ‘Fine particulate air pollution and total mortality among elderly Californians, 1973-2002’ by Bert Brunekreef, PhD, and Gerard Hoek, PhD.” *Inhalation Toxicology* 2006;18:509-514
(<http://www.ingentaconnect.com/content/apl/uiht/2006/00000018/00000007/art00007>).

4. Ezzati M, Friedman AB, Kulkarni SC, Murray CJL. The Reversal of Fortunes: Trends in County Mortality and Cross-County Mortality Disparities in the United States. PLoS Med 2008;5(4):e66. doi:10.1371/journal.pmed.0050066.

5. Enstrom JE. Public comments regarding proposed CARB Statewide Truck and Bus Regulations. December 10, 2008
http://www.arb.ca.gov/lists/truckbus08/897-carb_enstrom_comments_on_statewide_truck_regulations_121008.pdf.

Table 1: Decrease in PM_{2.5} concentrations ($\mu\text{g}/\text{m}^3$) from 1979-1983 to 1999-2001 (3) versus increase in life expectancy at birth (years) from 1980 to 1999 (4) in 11 California counties, with regression analysis results.

California counties	1979-1983 PM _{2.5}	1999-2001 PM _{2.5}	Reduction in PM _{2.5}	1980 LE at birth	1999 LE at birth	Increase in LE at birth
Alameda	14.4	14.4	0.0	74.17	78.11	3.94
Butte	15.5	15.4	0.1	75.13	76.50	1.37
Contra Costa	13.9	14.0	-0.1	75.43	78.81	3.38
Fresno	18.4	20.2	-1.8	74.66	77.11	2.45
Kern	30.9	19.4	11.5	72.81	75.68	2.87
Los Angeles	28.2	20.4	7.8	73.99	78.10	4.11
Riverside	42.0	21.1	20.9	74.13	77.33	3.20
San Diego	18.9	15.2	3.7	75.71	78.54	2.83
San Francisco	16.4	15.4	1.0	73.19	77.95	4.76
Santa Barbara	10.6	10.7	-0.1	76.32	79.77	3.45
Santa Clara	17.8	17.0	0.8	76.01	80.26	4.25

Regression analysis results:

mean increase in life expectancy at birth from 1980 to 1999 = 3.3295 years

regression coefficient \pm standard error =
 -0.0033 ± 0.4588 years per $10 \mu\text{g}/\text{m}^3$
 decline in PM_{2.5}