

Comments to NAS NRC DELS-BEST-14-05 Committee
Assessing Toxicologic Risks to Human Subjects Used in Controlled Exposure Studies
of Environmental Pollutants

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New Evidence on the Lack of Lethality of Fine Particulate Matter (PM_{2.5}), the Difficulty of Peer-Reviewing and Publishing This Evidence, and a Request to Fully Access This Evidence

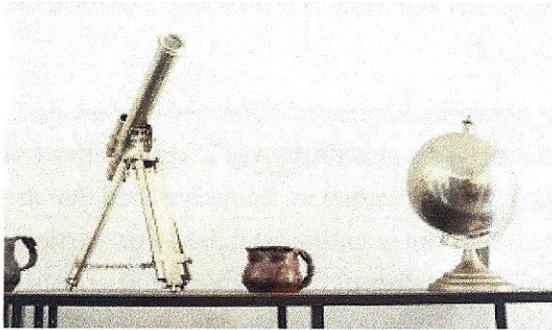
1. Since 2005 I have published, assembled, and presented strong epidemiologic evidence that there is no relationship between PM_{2.5} and total mortality in California. The latest version of this evidence is the attached table with 17 null or essentially null results by many investigators using six different California cohorts (<http://scientificintegrityinstitute.org/NoPMDeaths081516.pdf>).
2. In 2015 a very strong case was made by nine accomplished experts, including myself, that “Particulate Matter Does Not *Cause* Premature Deaths.” It is described in detail in the attached 2015 National Association of Scholars document (https://www.nas.org/articles/nas_letter).
3. During 2016 I have conducted major analyses that do not support the positive nationwide relationship between PM_{2.5} and total mortality found the 1982 American Cancer Society (ACS) Cancer Prevention Study II (CPS II) cohort during 1982-1989, as published in Pope 1995, HEI 2000, and HEI 2009. The null findings in my analyses indicate that the published positive findings are not robust and depend upon the selective use PM_{2.5} data and CPS II subjects.
4. The evidence described above, which is highly relevant to the toxicity and lethality of PM_{2.5} and the public health justification for the PM_{2.5} NAAQS, was immediately rejected for internal or external peer-review by *Science* in five separate submissions since June 2015, including two submissions in July 2016. My efforts continue to peer-review and publish the above evidence.
5. Based on a recent survey conducted by the National Association of Scholars, very few National Academy of Sciences (NAS) members expressed any concern about the suppression of scientific dissent in three key areas, including PM_{2.5} epidemiology, by former *Science* Editor-in-Chief and new NAS President Marcia K. McNutt (https://www.nas.org/articles/nas_letter).
6. I request that the NAS NRC Committee fully assess the evidence on PM_{2.5} described above and in the three major presentations today. I further request that the Committee properly include this evidence in its final assessment of the toxic risks to humans of PM_{2.5} and other pollutants.
7. Finally, in the interest of credibility and transparency, I request that the NAS publish the number of NAS member votes for and against the election of President McNutt. In addition to the total vote, the vote should be shown by state for the 15 states with the most NAS members.

Summary Table. Epidemiologic cohort studies of PM_{2.5} and total mortality in California, 2000-2016
Relative risk of death from all causes (RR and 95% CI) associated with increase of 10 µg/m³ in PM_{2.5}
<http://scientificintegrityinstitute.org/NoPMDeaths112215.pdf>

Krewski 2000 & 2010	CA CPS II Cohort	N=40,408	RR = 0.872 (0.805-0.944)	1982-1989
(N=[18,000 M + 22,408 F]; 4 MSAs; 1979-1983 PM _{2.5} ; 44 covariates)				
McDonnell 2000	CA AHSMOG Cohort	N~3,800	RR ~ 1.00 (0.95 – 1.05)	1977-1992
(N~[1,347 M + 2,422 F]; SC&SD&SF AB; M RR=1.09(0.98-1.21) & F RR~0.98(0.92-1.03))				
Jerrett 2005	CPS II Cohort in LA Basin	N=22,905	RR = 1.11 (0.99 - 1.25)	1982-2000
(N=22,905 M & F; 267 zip code areas; 1999-2000 PM _{2.5} ; 44 cov + max confounders)				
Enstrom 2005	CA CPS I Cohort	N=35,783	RR = 1.039 (1.010-1.069)	1973-1982
(N=[15,573 M + 20,210 F]; 11 counties; 1979-1983 PM _{2.5})				
Enstrom 2006	CA CPS I Cohort	N=35,783	RR = 1.061 (1.017-1.106)	1973-1982
(11 counties; 1979-1983 & 1999-2001 PM _{2.5})				
Zeger 2008	MCAPS Cohort “West”	N=3,100,000	RR = 0.989 (0.970-1.008)	2000-2005
(N=[1.5 M M + 1.6 M F]; Medicare enrollees in CA+OR+WA (CA=73%); 2000-2005 PM _{2.5})				
Jerrett 2010	CA CPS II Cohort	N=77,767	RR ~ 0.994 (0.965-1.025)	1982-2000
(N=[34,367 M + 43,400 F]; 54 counties; 2000 PM _{2.5} ; KRG ZIP; 20 ind cov+7 eco var; Slide 12)				
Krewski 2010 (2009)	CA CPS II Cohort			
(4 MSAs; 1979-1983 PM _{2.5} ; 44 cov)		N=40,408	RR = 0.960 (0.920-1.002)	1982-2000
(7 MSAs; 1999-2000 PM _{2.5} ; 44 cov)		N=50,930	RR = 0.968 (0.916-1.022)	1982-2000
Jerrett 2011	CA CPS II Cohort	N=73,609	RR = 0.994 (0.965-1.024)	1982-2000
(N=[32,509 M + 41,100 F]; 54 counties; 2000 PM _{2.5} ; KRG ZIP Model; 20 ind cov+7 eco var; Table 28)				
Jerrett 2011	CA CPS II Cohort	N=73,609	RR = 1.002 (0.992-1.012)	1982-2000
(N=[32,509 M + 41,100 F]; 54 counties; 2000 PM _{2.5} ; Nine Model Ave; 20 ic+7 ev; Fig 22 & Tab 27-32)				
Lipsett 2011	CA Teachers Cohort	N=73,489	RR = 1.01 (0.95 – 1.09)	2000-2005
(N=[73,489 F]; 2000-2005 PM _{2.5})				
Ostro 2011	CA Teachers Cohort	N=43,220	RR = 1.06 (0.96 – 1.16)	2002-2007
(N=[43,220 F]; 2002-2007 PM _{2.5})				
Jerrett 2013	CA CPS II Cohort	N=73,711	RR = 1.060 (1.003–1.120)	1982-2000
(N=[~32,550 M + ~41,161 F]; 54 counties; 2000 PM _{2.5} ; LUR Conurb Model; 42 ind cov+7 eco var+5 metro; Table 6)				
Jerrett 2013	CA CPS II Cohort	N=73,711	RR = 1.028 (0.957-1.104)	1982-2000
(same parameters and model as above, except including co-pollutants NO ₂ and Ozone; Table 5)				
Ostro 2015	CA Teachers Cohort	N=101,884	RR = 1.01 (0.98 -1.05)	2001-2007
(N=[101,881 F]; 2002-2007 PM _{2.5}) (all natural causes of death)				
Thurston 2016	CA NIH-AARP Cohort	N=160,209	RR = 1.02 (0.99 -1.04)	2000-2009
(N=[~95,965 M + ~64,245 F]; full baseline model: PM _{2.5} by zip code; Table 3) (all natural causes of death)				
Enstrom 2016 unpub	CA NIH-AARP Cohort	N=160,368	RR = 1.001 (0.949-1.055)	2000-2009
(N=[~96,059 M + ~64,309 F]; full baseline model: 2000 PM _{2.5} by county)				

Concerns about National Academy of Sciences and Scientific Dissent

Dec 15, 2015 | Peter Wood



Introductory note: NAS president Peter Wood sent the following letter by email on December 9, 2015 to California members of the National Academy of Sciences.

Dear Members of the National Academy of Sciences,

This is an NAS to NAS letter—which requires some “disambiguation.” I am president of the National Association of Scholars, founded in 1987, and whose organizers apparently didn’t give much thought to the space already occupied by those initials by the National Academy of Sciences, founded 124 years earlier. I’ll defer to the Academy’s seniority by reserving NAS in what follows for the body of scientists who incorporated during President Lincoln’s tenure. The National Association of Scholars is a broad-based group of academics that includes professors in the humanities and social sciences (I’m an anthropologist) as well as the natural sciences.

The occasion for this letter is Dr. Marcia K. McNutt, Editor-in-Chief of *Science*. We are concerned that she is the only official candidate to be the next NAS president. To be clear, the National Association of Scholars does not oppose Dr. McNutt’s candidacy. We simply believe

that members of an important national organization like NAS should have at least two candidates to consider when voting for your next president. Indeed, the American Association for the Advancement of Science (AAAS), which publishes *Science*, always has two candidates for president and its other elected positions. Other scientific organizations also have two candidates for their elected positions.

Also, we want to bring to your attention our serious concerns about the current state of discourse in the sciences. Dr. McNutt has played a significant role in three active controversies involving national regulatory policy that deserve attention in themselves and that are also part of a larger problem. The larger problem is how the scientific establishment, particularly *Science* and NAS, should evaluate and respond to serious dissent from legitimate scientists. This is an especially important consideration for NAS, which was established to provide “independent, objective advice on issues that affect people's lives worldwide.”

The three controversies are:

1. The status of the **linear no-threshold (LNT) dose-response model** for the biological effects of nuclear radiation. The prominence of the model stems from the June 29, 1956 *Science* paper, “Genetic Effects of Atomic Radiation,” authored by the NAS Committee on the Biological Effects of Atomic Radiation. This paper is now widely questioned and has been seriously critiqued in many peer-reviewed publications, including two detailed 2015 papers. These criticisms are being taken seriously around the world, as summarized in a December 2, 2015 *Wall Street Journal* commentary. In August 2015 four distinguished critics of LNT made a formal request to Dr. McNutt to examine the evidence of fundamental flaws in the 1956 paper and retract it. However, on August 11, 2015 Dr. McNutt rejected this request without even reviewing the detailed evidence. Furthermore, Dr. McNutt did not even consider recusing herself and having independent reviewers examine evidence that challenges the validity of both a *Science* paper and an NAS Committee Report.

This is a consequential matter that bears on a great deal of national public policy, as the LNT model has served as the basis for risk assessment and risk management of radiation and chemical carcinogens for decades, but now needs to be seriously reassessed. This reassessment could profoundly alter many regulations from the Nuclear Regulatory Commission, Environmental Protection Agency, and other government agencies. The relevant documents regarding the 1956 *Science* paper and Dr. McNutt can be examined at www.nas.org/images/documents/LNT.pdf.

2. Extensive evidence of scientific misconduct in the epidemiology of **fine particulate air pollution** (PM_{2.5}) and its relationship to mortality. Since 1997 EPA has claimed that lifetime inhalation of about a teaspoon of particles with diameter less than 2.5 microns *causes* premature death in the United States and it established a national regulation based on this claim. *Science* has provided extensive news coverage of this issue and its regulatory significance, but has never published any scientific criticism of this questionable claim, which is largely based on nontransparent research.

Earlier this year, nine accomplished scientists and academics submitted to *Science*

well-documented evidence of misconduct by several of the PM_{2.5} researchers relied upon by EPA. The evidence of misconduct was first submitted to Dr. McNutt in a detailed June 4, 2015 email letter, then in a detailed July 20, 2015 Policy Forum manuscript “Transparent Science is Necessary for EPA Regulations,” and finally in an August 17, 2015 Perspective manuscript “Particulate Matter Does Not Cause Premature Deaths.” Dr. McNutt and two *Science* editors immediately rejected the letter and the manuscripts and never conducted any internal or external review of the evidence. This a consequential matter because many multi-billion dollar EPA air pollution regulations, such as, the Clean Power Plan, are primarily justified by the claim that PM_{2.5} is killing Americans. The relevant documents regarding this controversy can be examined at <https://www.nas.org/images/documents/PM2.5.pdf>.

3. *Science* promotes the so-called **consensus model of climate change** and excludes any contrary views. This issue has become so polarized and polarizing that it is difficult to bring up, but at some point the scientific community will have to reckon with the dramatic discrepancies between current climate models and substantial parts of the empirical record. Recent evidence of *Science* bias on this issue is the June 26, 2015 article by Dr. Thomas R. Karl, “Possible artifacts of data biases in the recent global surface warming hiatus”; the July 3, 2015 McNutt editorial, “The beyond-two-degree inferno”; the November 13, 2015 McNutt editorial, “Climate warning, 50 years later”; and the November 25, 2015 AAAS News Release, “AAAS Leads Coalition to Protest Climate Science Inquiry.”

Dr. McNutt’s position is, of course, consistent with the official position of the AAAS. But the attempt to declare that the “pause” in global warming was an illusion has not been accepted by several respected and well-informed scientists. One would not know this, however, from reading *Science*, which has declined to publish any dissenting views. One can be a strong supporter of the consensus model and yet be disturbed by the role which *Science* has played in this controversy. Dr. McNutt and the journal have acted more like partisan activists than like responsible stewards of scientific standards confronted with contentious claims and ambiguous evidence. The relevant documents and commentary regarding the Karl paper and McNutt editorials can be examined at https://www.nas.org/images/documents/Climate_Change.pdf.

All three of these controversies have arisen on issues in which a strong degree of scientific consensus became intertwined with public policy and institutional self-interest. That intertwining can create selective blindness.

Dr. McNutt has in her career found herself faced more than once with the challenge of what to do when an entrenched orthodoxy meets a substantial scientific challenge. The challenge in each case could itself prove to be mistaken, but it met what most scientists would concede to be the threshold criteria to deserve a serious hearing. Yet in each case Dr. McNutt chose to reinforce the orthodoxy by shutting the door on the challenge.

The three areas that I sketched above, however, seem to have such prominence in public policy that they would warrant an even greater investment in time, care, and attention than would be normally the case. In that light, Dr. McNutt’s dismissive treatment of scientific criticisms is disturbing.

I bring these matters to your attention in the hope of accomplishing two things: raise awareness that the three issues represent threats to the integrity of science arising from the all-too-human tendency to turn ideas into orthodoxies; and suggest that it might be wise for NAS to nominate as a second candidate for president someone who has a reputation for scientific objectivity and fairness and who does not enforce orthodoxy.

I welcome your responses. The National Association of Scholars will present an open forum on these matters with a section reserved specifically for NAS members. Furthermore, I will put you in contact with NAS members who are concerned about Dr. McNutt becoming the next NAS president.

Thank you for your consideration.

Yours sincerely,

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