

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA

PHILADELPHIA, PENNA. 19129

FOUNDED IN 1850

February 13, 1967

Mr. Victor Sussman
Air Pollution Control Committee
P. O. Box 90
Harrisburg, Pennsylvania 17120

Dear Mr. Sussman:

After having received from Gary Brooten of the Evening Bulletin, some information on the testimony presented to the Air Pollution Control Commission in Harrisburg in regard to its proposed recommendation of a limit of 5 micrograms/m³ on lead concentrations as a 30-day average single point measurement, and the report on Dr. Kehoe's testimony, I took the liberty of talking with Dr. Kehoe himself when I saw him in San Francisco last week at the meetings of the Academy of Occupational Medicine.

Dr. Kehoe told me that his work on the ingestion of lead revealed a steady rate of increase in blood levels with increases in ingested lead. In contrast to this, he noted that blood levels in industrial exposures (which are intermittent) tend to increase to a certain point and then plateau. Dr. Kehoe attributes this to the fact that the periods of no exposure neutralize the periods of exposure so that the blood comes to an equilibrium.

Since Dr. Kehoe could not subject human volunteers to continuous exposure, he used exposures of given amounts of inhaled lead for 3 hours per day, later for 6 hours per day, and then for 12 hours per day. In each instance, for a given lead exposure, he found that the blood levels rose, then plateaued. He hypothesizes that he can extrapolate from intermittent to continuous exposures.

The material which he presented at Harrisburg was based on only TWO human volunteers exposed for 12 hours per day to 10 micrograms/m³. Dr. Kehoe found no change in blood levels nor in urinary output. He is now studying the response of two volunteers at 20 micrograms, but has no basis on which to make a judgement until these tests are completed. When I asked him how he arrived at the 18 microgram/m³ level which I was told he provided to the Commission as a "guess", he said that he used a respiratory model which had been investigated in "spots". Hatch and his associates had tagged lead so that it was radioactive and had tried to measure the degree of clearance from the lungs. A 10% residuum was the figure they obtained, but it was not final.

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Dr. Kehoe said that he had recommended a tentative standard for Pennsylvania since we really do not know what constitutes a safe level.

May I emphasize that it would be unwise to (1) use data based on only two human volunteers, and (2) extrapolate on the basis of theoretical models and considerations.

I also talked with Dr. John Goldsmith at Berkeley. By now you have received his letter to you dated February 9. Dr. Goldsmith and his staff have been working intensively on material to set atmospheric lead levels for California. He told me that, at atmospheric levels of 0.2 mcg/m^3 , the blood level runs 9 mcg/100gm. ; at 2 mcg. it rises to 20; at 18 mcg/m^3 , it is 40 mcg. , half the level which is definitely toxic.

In discussing the paper of Dr. C. H. Hine, Clinical Professor of Preventive (Occupational) Medicine and Toxicology, School of Medicine, University of California at San Francisco, on air pollution, I was proud to state that Pennsylvania may well be the first state to adopt atmospheric standards for lead. I hope sincerely that the Commission will not be deterred from its original conviction to establish a level for lead of 5 mcg/m^3 .

Standards may be revised. It is far wiser for the health of our citizens that they be revised upward rather than in the other direction.

Please let me know if I can be helpful.

Sincerely,



Katharine R. Sturgis, M.D.
Professor and Chairman
Department of Preventive Medicine

KRS/dat

cc: Mr. Malcolm W. Schoenly, Secretary
Air Pollution Control Commission
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