

May 24, 1955

Mr. Manfred Bowditch
Director of Health and Safety
Lead Industries Association
420 Lexington Avenue
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Dear Manfred:

I have examined the information supplied with your letter of May 19 concerning the Chinese infant, and although I have several comments to make, none of which would seem to be helpful.

I dislike very much to appear to be hypercritical, but I find no information of the one type that I consider to be absolutely required to confirm the significance of the absorption of lead in so unusual a case - namely, the results of an analysis (or analyses) of the blood of this child. There is no doubt, now, that one may be misled by the results of the analysis of the urine, and this is especially true in the case of the female infant. Moreover, there can be no serious doubt that the clinical diagnosis of lead encephalopathy may be made in error or that it may be missed, unless characteristic or unusual symptomatology can be linked to specific etiology through analytical proof that an hygienically significant quantity of lead has been absorbed. We have seen the diagnosis missed too many times by careful and experienced people to doubt the utility and necessity of the application of the criterion of the concentration of lead in the blood for purposes of differential diagnosis.

The analytical information in this situation is not very convincing to me. It is said that the mother's blood contains a "high normal" concentration of lead. Just what the level is is not stated, and just what is inferred from this is not evident. If it is normal, it has only negative clinical significance, since "high normal" in my book signifies that the value found is within the normal range, somewhere above the mean normal value. As such, it is a normal (physiologic) phenomenon, and it does not signify risk or danger of borderline import.

It is also said that the mother's milk contained no lead, and (sic) by spectrographic analysis. It is hardly possible to make a spectrogram of human milk that does not contain certain of the more sensitive lead lines, if one uses a satisfactory method of preparing and examining such a sample. I am forced to conclude, therefore, that someone lacking in information or experience carried

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out this examination.

It is also said, without stating the range of lead concentration in initial samples of the urine of the child, that Versene has induced an increase in the concentration of lead in the urine, repeatedly. I can only ask "why not," since this is the normal response to Versene.

I have no doubt of the experience and astuteness involved in the clinical work done for this child, but I still ask for the proof of the diagnosis, before I get all hot and bothered about some mysterious source of lead absorption, and I should be glad to offer our services and equipment for obtaining and analysing duplicate samples of the blood of the child, and for that matter, of the mother and father as well. May I say here, that there is no reason whatever for believing, and some evidence to support skepticism, that the milk of a mother with frank lead poisoning can induce lead poisoning in an infant. The concentration of lead in the milk, while always demonstrable, is more than likely to be low under all circumstances. This, therefore, is an unlikely source, and in a mother with a "high normal" blood level, a preposterous source, of significant lead absorption.

Now, on the other side of the coin, lead is so nearly ubiquitous in the normal environment, and so subject to increase in the artificial environment, that one need not be utterly frustrated at not finding its precise source in all instances. I have had several baffling experiences of this type. At least two, that come to mind rather dramatically, have involved adults one of whom was a housewife. The sources of the poisoning of several children have eluded us completely, despite the rather considerable efforts made to unearth them. The case of a nursing infant is a bit more difficult to understand, but even so, this is not always possible. I confess to a certain sense of frustration when we fail to find the source, principally because of the threat that remains undisclosed and thus uncontrolled, to the child that has become ill and to others in the same environment. However, this is not something so remarkable as to be a marvel, in view of the ubiquity of lead. Certainly this is not a unique situation, and especially should I be cautious in dramatizing it until and unless I had the proof of the diagnosis, which, so far as I am concerned, has not been furnished.

May I suggest to you, and if you can do so without offense, to Dr. Byers - since I mean only to be helpful and would shrink from giving offense - that it is of importance that the analytical methods and the diagnostic criteria which we and others have employed over a period of years should be used generally in the study of cases of this type. I fail to see how our colleagues in Boston can bring themselves to deal with their diagnostic and therapeutic problems without the benefit of the entirely reliable (within completely predictable limits of precision) means of determining the concentration of lead in the blood of patients, and without the physiological background that would enable them to interpret such results with an almost absolute degree of certainty. It is a source of considerable sadness to me to find that there are comments and implied questions in this correspondence, which ought not to be uttered, in view

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of the state of our present knowledge.

Sincerely yours,

Robert A. Kehoe, M. D.

RAK ef

P. S. I was unable to be at the A. S. A. meeting, and thus far I have not contributed to the activities of the Sub-Committee on the lead standards. I shall do my best to respond to your subsequent calls on me for help. Is any needed now, and if so, what?

R. A. K.