

March 5, 1940

Dr. M. H. Kronenberg
State of Illinois
Department of Public Health
Division of Industrial Hygiene
1800 Fillmore Street
Chicago, Illinois

Dear Doctor Kronenberg:

I am writing you at this time in relation to a case which came to my attention in part through Dr. Bruce I. Ryder of Henry, Illinois. The name of the man in question was [REDACTED] whose contact with your department occurred some time ago when certain blood examinations requested by Dr. Ryder were made and reported. The results reported to me were as follows: .47 reticulocytes, 15.6 stippled cells per 100,000 reds, lead in the urine 0.066 milligrams per liter. According to the information which I received from a letter written to Mr. [REDACTED] of which I have a copy, it was stated that "both tests indicate very strongly that your bowel disturbance is on a chronic lead poisoning basis and that you should be treated accordingly". It is not clear from the letter whether this statement came from your department or whether it was an interpretation of Dr. Ryder's. Nevertheless I consider the matter important enough that I am taking the liberty of writing to you, criticizing such an interpretation. I shall be quite frank in saying that if this interpretation came from your department, it is, in my opinion, wholly unjustified. If it did not come from your department, then I may say equally frankly that I believe you should not issue laboratory results without making such a guarded interpretation as will spare practicing physicians from the likelihood of arriving at false conclusions.

Such a flat statement as the above justifies a more complete presentation of my point of view. During the period of some fifteen years, as you probably know, we have been studying the various phenomena which are associated with the absorption of lead. We have been establishing normal levels for reticulocytes, stippling and urinary lead excretion. I believe it can be said with fairness that our methods are precise and that our work has been carried out with a great deal of care so as to obtain representative results. On this basis none of the figures

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obtained on Mr. [REDACTED] are in any way indicative of abnormal lead absorption. Individuals who are normal by every standard of history and physical findings which we can set, show reticulocytes in their circulating blood, the upper normal value being in excess of one per cent. Correspondingly normal individuals show stippling. The mean figure for a large number of individuals studied at our hands is approximately 320 per million, while the range extends well above 1000 per million. Expressing these figures in our customary manner, this means that the mean value for normal individuals is approximately 4 stippled erythrocytes for every fifty microscopic fields. Obviously in these terms 15.6 stippled cells per 100,000 reds is entirely within the normal limits.

As to normal lead excretion in the urine, our methods have revealed a mean normal figure of approximately 0.035 milligrams of lead per liter, while the normal range extends up to 0.08 milligrams per liter. Any value under 0.1 milligrams per liter is only doubtfully beyond the normal range and may not be used as a basis for the diagnosis of lead absorption. It may well be that your normal value is somewhat lower than ours, and since I am not familiar with the methods of analysis which you employ, I can not be too certain of my ground at this point. Nevertheless I think it fair to say that it is not possible to conclude that there has been abnormal lead exposure from a single analytical result of the order of magnitude reported in this case, regardless of the method of analysis.

I am being quite direct and to the point in my discussion of this case not for the purpose of being carpingly critical, but rather because the interpretation of laboratory findings in relation to lead absorption is becoming an increasingly troublesome matter. Generally speaking, much too much significance is placed on laboratory results. Moreover the laboratory methods have not been brought into sufficient uniformity either of technique or of interpretation. As a consequence errors in diagnosis are being made regularly and, unfortunately, the literature is being filled up with data which are inaccurate and which are improperly interpreted. This, I believe, is a serious situation. It therefore calls for the type of frank direct criticism, in my opinion, which I am making use of in this instance.

Obviously if the interpretation of the laboratory findings in this case was made by Dr. Ryder, I am in error in directing my criticism toward you. On the other hand I repeat that in my opinion it is incumbent upon the laboratory worker to prevent the misinterpretation of the results which he provides by carefully explaining their possible significance to the doctor to whom the report is directed.

regards, I am

With kindest personal

Sincerely yours,

Robert A. Kehoe, M.D.

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