

April 30, 1935

Dr. Francis D. Patterson
P. O. Box 4061
West Philadelphia Station
Philadelphia, Pa.

Dear Dr. Patterson:

I am very happy to give you any information which I can on the interpretation of stippled cells in the blood of applicants for employment in a lead plant.

It is now accepted by all but a few workers that a small number of stippled cells represents a normal or at least un-explainable finding in the blood. We are just making a study of our data over a period of years which shows that the number of stippled cells in apparently normal persons without industrial exposure to lead varies all the way from 0 to 5 or 6,000 per million of erythrocytes. The mean finding in some 700 persons comes to about 340 per million. Persons who absorb significant amounts of lead tend to give somewhat higher figures, but there is a definite overlapping of normal and abnormal findings with large variations among individuals in the groups. This makes it a little bit difficult to say what is normal and what is abnormal. I have come to the general point of view that the number of stippled cells found in exposed workmen bears little quantitative relationship to the severity of the exposure. However, in the individual case I am inclined to believe that a progressive increase in the number of stippled cells indicates a significant amount of lead absorption. Therefore I regard stippling counts as useful confirmatory evidence but I will not be willing to depend upon them for any other information.

The preliminary examination of applicants for position is complicated by the fact that the history of previous occupation is likely to be deceiving. Applicants knowing that previous significant exposure is likely to disqualify them, conceal the true story of their previous employment. This is quite a bugbear because if one accepts men who have been previously leaded, there is a greater likelihood, I believe, of difficulty from lead absorption. Therefore I should be inclined to use the preliminary blood tests along with other clinical evidences as a means of determining as well as possible something of the applicant's

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previous exposure to lead. A high stippled count might well be regarded as suggestive evidence of previous lead exposure which could be checked against the applicant's occupational history, and might be useful in obtaining the truth. Furthermore unusual high stippled counts might well be regarded as a basis for exclusion merely as a matter of self defense, since it is still the point of view of a considerable number of people that stippling is an indication of lead intoxication. Any type of illness developing in such an individual would be likely to be regarded as evidence of significant occupational exposure. On the other hand I would point out to you that we have records in our files on a fair number of men who have started out their work at the mixing plants in various refineries with a stippled count as high as 20 to 30, or even more, stippled cells per fifty fields, (this corresponds to about 16,000 to 24,000 per million). In the absence of other evidences of illness of any kind, I do not regard this as a disqualification since we have the record of the initial examination as evidence of the initial presence of stippling.

However, to be somewhat more specific in reply to your question, I am in the habit of regarding the occurrence of more than 10 stippled cells per fifty fields as suggestive evidence (but only suggestive) of lead absorption, and as justifying therefore a careful examination into the circumstances of exposure. This is a purely arbitrary stand and until the evidence is more thoroughly sifted, it is a somewhat unsatisfactorily founded point of view. However, it seems to work fairly well in practice.

I realize that this is a somewhat unsatisfactory answer to your question but it is unfortunately true that considering the large number of methods used, and considering the somewhat confused situation of our point of view regarding stippling, it is almost impossible at this time to say what are normal and what are abnormal findings.

With kindest personal regards,

Cordially yours,

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Robert A. Kehoe, M.D.

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