

March 13, 1961

George J. Boines, M.D.
413 N. Broom Street
Wilmington, Delaware

Dear Doctor Boines:

I am reporting herewith the results of the analyses of the urine and blood of your patient [REDACTED]. The interpretation of the results as recorded on the report is ample in itself, but I think I should comment a little further on this situation, with particular reference to the alleged exposure of this patient to lead.

It is conceivable that a chemist in a research or service laboratory in the petroleum industry might be subjected to a significant degree of exposure to tetraethyl lead in the course of his work of carrying out distillations and like procedures. This has never occurred, however, so far as the record shows, and investigations made from time to time in characteristic laboratories of this type have failed to reveal any evidence of any measurable occupational exposure to lead. It is not to be anticipated, therefore, that any such disease would occur. Certainly it would not, except under atrocious conditions of operation of the laboratory. (I am not being critical of your investigation in this instance, but am merely describing the situation that exists in this industry.)

With respect to the clinical aspects of tetraethyllead poisoning, where it actually exists, I wish to point out to you that the finding of hematological abnormalities is not even vaguely suggestive of exposure to or absorption of tetraethyllead. The metabolic behavior of this compound in the body is such that there are never any hematological changes in association with its absorption. Stippling, anemia, reticulocytosis, polycythemia, and an increase in the production of hemic and urinary porphyrins fit into the picture of inorganic lead poisoning but are completely absent in tetraethyllead poisoning. This disease always involves the central nervous system, never the blood or the blood forming tissues.

In view of the fact that the findings in your case are wholly negative, with respect to evidence of the absorption of lead, this information may, perhaps, be regarded as irrelevant, but it seemed to me that I should point out these facts.

I may suggest that the potential exposure to mercury of which you have spoken may have been significant. It is unlikely (if the exposure has been eliminated completely) that exposure to mercury which was terminated in June will be made apparent by analysis of the urine at this time (this is not the same problem as that of lead because of the relatively rapid

George J. Boines, M.D.

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loss of mercury from the body) but if there is any suspicion of a continuing source of exposure to mercury, the urine might well be examined for mercury. Incidentally, unless the method of analysis is very good indeed, mercury will not be found in samples of urine of small volume. I am not impressed, therefore, by the negative results which you report in the absence of knowledge of the analytical method employed in determining the presence and the quantity of mercury. This is a microchemical procedure which requires a high degree of precision for its proper conduct.

Cordially yours,

Robert A. Kehoe, M. D.

RAK:ss

Enclosure

cc: Lee H. Miller, M.D.

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THE KETTERING LABORATORY
COLLEGE OF MEDICINE
EDEN AND BETHESDA AVENUES
CINCINNATI 19, OHIO

March 13, 1961

To: Dr. George J. Boines
413 N. Broom Street
Wilmington 99, Delaware

For: Reimbursement of The Kettering Laboratory
for the analysis of the urine and blood of
[REDACTED] for the determination of lead.

2 Analyses at \$12.50 each \$25.00

The Kettering Laboratory is a totally self-supported research unit of the University of Cincinnati engaged in research in the fields of industrial hygiene and medicine. The Laboratory is not a medical service laboratory, and clinical diagnostic services, as such, are not performed. We do undertake to assist physicians with toxicologic problems or other special problems in this and related fields, as a courtesy, when adequate facilities are not available locally. We shall make every effort to be of assistance provided that we can obtain the information we require and if the work that is to be done will yield, in our opinion, information that will be helpful in establishing a diagnosis, in the management of a case, in teaching, or in contributing to a better understanding of physiologic or pathologic mechanisms.

NO SPECIMEN WILL BE ACCEPTED FOR ANALYSIS UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE BY THE ATTENDING OR OTHER RESPONSIBLE PHYSICIAN WITH A PHYSICIAN IN THE KETTERING LABORATORY. This is necessary for a number of reasons. First, unless proper specimens are collected with specified care, in specially processed containers, and in adequate amounts, they are likely to be contaminated or unsuitable for analysis. Second, we must be sure that we are aware of pertinent historical facts and clinical findings since we provide frequently interpretations of the results. Third, our staff members must frequently revise work schedules on sponsored research in order to carry out the analysis.

The Laboratory makes a charge for reimbursement of the actual cost of the service performed, since otherwise funds earmarked for research will be expended for medical service. Deviation from this policy is made when patients are indigent or when the cost of the service would cause undue economic hardship. Therefore, it is requested that the attending physician assist us by marking the appropriate line on the reverse side of this form.

Patient: [REDACTED] 206 W 35th St. Wilmington 2 Delaware
Name Address City Zone State
Race W Sex M Age 29 Indigent Private X Other

Requested by: Dr. George J. Boines 413 N. Broom St. Wilmington 99 Delaware
Name Address City Zone State

Send Report to: Doctor X Hospital Other

History: Include nature of exposure, actual time of exposure if known or surmised, and especially the last day or hour of exposure; character and time of onset of illness; course of illness and present status; previous pertinent medical history. Patient is a chemist working for the Gulf Research Developing Co. at Philadelphia. Working there from Aug. 12, 1957 to Feb. 21, 61. He was away from work June to Nov. 21, 1960, when he visited his family in Greece. He was constantly exposed to Lead in tetra ethyl gasoline analytical work, Sulfides, Hydrocarbons, Crude oils, and mercury fumes. The Mercury fumes exposure was from Feb. to June 1960 when it was discovered that mercury had been accidentally spilled in certain hidden areas in the lab. However urine specimen tested in some of the other persons in the lab were negative. Patient is currently asymptomatic; he had a cold about one month ago. During preemployment examination

Pertinent Laboratory Findings: Blood smears showed 22 stippled cells in 50 fields and on another examination by the hematologist blood smears showed 1-2% stippling. Hemogram showed 6,500,000 r.b.c.; 13.5 gms hgb; 90%; w.b.c 8,100; sgs. 48; lymph 4; Monos 4; Eos. 2; Baso. 2.; Reticulocytes 0.9%; L.E. preparation negative. Bone

Impression: marrow study : No diagnostic abnormality. Other studies non contribut

Impression: Thalassemia Minor with Polycythemia of microcytes. Possible Lead toxemia.

Treatment: Specify medications and dates of institution and completion of therapy. No therapy of any kind has been given. Because of the low platelets, and the stippling it is considered important to eliminate the possibility of lead intoxication since he was exposed to it.

Blood has been sent to U. of Pa. for starch gel electrophoresis.

Urine and blood collected in my presence & according to your suggestions were mailed today. Thank you very much for this. Sincerely,

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COPY

I am sending to you one kit containing two tubes for duplicate samples of blood and one spot sample of urine, together with instructions for collecting the samples. Please follow the instructions with meticulous care.

We must also have, as requested on the enclosed information sheet, the necessary information about your patient - be sure to describe the exposure, its duration and, above all, the last day of exposure. It is essential, for diagnostic purposes, that the patient should not be undergoing therapy with EDATHAMIL disodium calcium in any close time relationship to the analytical investigation. You should delay such therapy until after the samples have been taken, or if such therapy has been initiated, you should wait for at least two weeks, preferably three, before taking the samples.

We are not prepared to send containers in excess of immediate needs, and therefore, I am not filling your request for extra containers. We cannot afford to have them scattered about the country, and only one set is required for diagnostic purposes.

The charge made for these analyses is \$12.50 for the blood (we analyse two samples in parallel, and charge as though they were one), and \$12.50 for the urine. This is not a fee but merely the reimbursement of the actual cost to us of doing the job. This is not a diagnostic laboratory and we do not enter into this kind of work except as a courtesy to our colleagues or for purposes of our own information. Usually we are consulted about the clinical problem before undertaking any analyses, but I do not wish to delay your efforts and, therefore, I send the containers without advance information.

Please follow my instructions, for we will not perform the analyses unless the samples are satisfactory in every way.

Cordially yours,

Robert A. Kehoe, M.D.

RAK:SS

cc: Dr. Lee Miller

GEORGE J. BOINES, M. D.

413 N. BROOM STREET
WILMINGTON, DELAWARE

February 24, 1961

Dr. Robert Kehoe
The Kettering Laboratories
University of Cincinnati
Cincinnati, Ohio

Dear Doctor Kehoe:

I have an adult, white, male patient who has symptoms of lead intoxication. I would like to have three tubes for blood specimens and one dozen lead-free bottles for urine specimens. Please mail them to my post office Box 1853.

What does your laboratory charge for these examinations?

Any special instructions you have for our laboratory to follow in preparing these specimens would be greatly appreciated.

Thanking you very much, I am

Sincerely yours,



George J. Boines, M.D.

GJB/mb