

April 11, 1961

Dr. Leo Wade, Medical Director
Esso Standard Oil Company
15, West 51st Street
New York 19, New York

Dear Leo:

I could not take the time to reply at once to the query which you attached to a clipping from J.A.M.A. (Dr Davis' letter) and a note from Mr. Wilkening. Nor could I take the time to write to Dr. Davis. If I were to attempt to deal with all of the errors of judgment and the failures of information which are reported in relation to tetraethyllead, leaded gasoline, and related matters, I should never have time for anything else. I have been compelled to ignore most of such incidents, as I did when this was brought to my attention initially.

There are two fundamental errors in the interpretation of this patient's illness; the one relates to the potential source of his exposure to lead, while the other concerns the clinical pattern of tetraethyllead poisoning. I recognize the likelihood that many physicians will continue to make these errors, and will neglect to learn better, but the facts are clear nevertheless, and are available (after some search) in the literature.

1. Tetraethyllead is not absorbed through the skin out of gasoline in more than minute and hygienically insignificant traces. One can bathe in leaded gasoline, if his skin will permit him to do so, without absorbing more than traces of tetraethyllead. (The cases of tetraethyllead poisoning that have occurred in connection with grossly dangerous spillage (plus vaporization) of gasoline, have been due to respiratory absorption of the compound.) In bathing the upper half of the body with gasoline the quantities of tetraethyllead vaporized and breathed are bound to be insignificant. This man did not, therefore, absorb appreciable quantities of tetraethyllead under the conditions described. If this has the sound of absolutism or dogmatism, it is because the facts from experiment and experience, in this regard, are incontrovertible.

2. The main characteristic of the clinical picture described may not be impossible of occurrence, in connection with the absorption of tetraethyllead, but the composite picture of the disease and disability bore no resemblance to tetraethyllead poisoning. (a) The disease has never been seen without its most important characteristic, namely, mental disturbance in marked degree. (b) The absorption of tetraethyllead has never caused any hematological disturbance, and the reasons for this are concerned with its metabolism in the body. Fatal

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tetraethyllead intoxication (I have the detailed records of most of the cases that have occurred, over 100, aside from those which occurred in out-of-the-way places during the second world war), whether due to brief or prolonged exposure, is unaccompanied by the classical signs of poisoning by inorganic lead, including the changes in the blood.

3. The man may have absorbed abnormal quantities of lead from some source, but the finding of 0.47 mg. of lead per liter in a 24 hour sample of urine has no meaning, unless one knows how the sample was collected and how it was analysed. The writer's glib reference to a "lead-free container" is adequate evidence of his naivete, since this is not the important factor that results in the contamination of a sample of urine.

The response of the patient to therapy is not evidence at all in a situation of this type.

Finally, I am sure that this letter is not well directed to its target in going to you, but I have been saying this sort of thing for twenty-odd years, and the habit is strong, when I am prodded, to present the evidence.

Sincerely yours,

Robert A. Kehoe, M. D.

Dictated but not read.

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numbers in a double-blind experiment; and, Chi-square values are computed from frequencies, not percentages. One can also only agree with the importance of utter honesty in the lay-out and reporting of results. These are established rules for experimentation, or Chi-square analysis, or both.

Thank you for bringing Dr. Hawkins' paper to my attention.

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Lead Poisoning with Bladder Colic and Amblyopia

To the Editor:—A case of lead poisoning with unusual manifestations is considered worthy of record because of two unusual signs and symptoms seldom noted in previous reports or texts on the subject. The dominant one was extreme perineal and retro-pubic pressure and retropubic pain. The other symptom was severe amblyopia without evidences of any changes in the fundus or signs of optic neuritis.

The patient was a 43-year-old man who owned three gas stations and worked in one of them. His complaints were so severe that a cystoscopy and proctosigmoidoscopy were performed and revealed negative findings. The fundus and fields showed negative results. There was a blue line on the gums. The results of the remainder of the physical and neurologic examinations were negative. The hemoglobin level was 11.6 Gm., and the erythrocytes numbered 3,490,000 per cubic millimeter. The blood smear revealed many stippled red cells, and an examination of a thin, wet, heparinized blood droplet with a dark field condensor showed a fluorescence in over 87% of the red cells. These findings and the blue line on the gums made me certain that the patient had "bladder colic" and amblyopia due to chronic lead poisoning. Further questioning brought out that at the end of each day's work he washed the upper part of his body, including the upper extremities, with gasoline but always bathed with soap and water when he arrived home. We gave him a lead-free container. The 24-hour urine analysis for lead revealed 0.47 mg. of lead per liter, which is quite high.

Three daily intravenous injections of edathamil calcium-disodium in 5% glucose in water and an intramuscular injection on the fourth day of dimer-caprol (Bal) produced complete recovery. Besides a patient's occupation, the social and occupational habits should be thoroughly questioned. Lead poisoning is still the most serious, most frequent, and most insidious of all occupational poisons. It is a typical cumulative one.

PERK LEE DAVIS, M.D.
Paoli Medical Center
Paoli, Pa.

For Lee Wade

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sample run

2.

on blood results. It is well known that ^{blood} Pb values - in cases of TEL poisonings - may be disproportionately low. Because of the surprising findings in this case, however, I just hope that there was no contamination of the urine sample.
(my undelivered)
eg. "We gave him a lead-free container"

3. Kitzmiller (Univ. of Cincinnati) is of the opinion that there are no GI symptoms and no stippled cells in cases of TEL poisoning. Compare this with the statement: "The blood smear revealed many stippled red cells..." (Davis)

See.