

August 28, 1945

ROBERT J. KATTNER
HOSPITAL SERVICE DEPARTMENT

RUTHERFORD, N. J.

2700 7257 565 TERRACE AVE

Mr. Robert J. Kattner,
565 Terrace Avenue,
Cincinnati 20, Ohio.

Dear Mr. Kattner:

I am forwarding through University channels today a requisition for certain of the supplies the use of which we discussed on several occasions. I have requested that the official order for these supplies be forwarded to you rather than directly to your Company in order that I might bring to your attention the points that are necessary to consider.

As I reported to you, our observations demonstrate that the E-D Vacutainer tubes ought to be cleaned more thoroughly before being satisfactory for our purposes. On this account and in accordance with our suggestions to you I have included a notation in the requisition concerning the manner of cleaning. If this can be done in such a way as to give us prompt delivery, it will, of course, be quite advantageous to us. On the other hand, if this cannot be done at once, we are prepared to make use of the equipment by cleaning a certain number of tubes ourselves after which we will evacuate them and put them into use. If this is to be done in this fashion, we ~~wil~~^{ing} want the entire order of Vacutainer Tubes, but we would like to have about 200 of them promptly, the remainder to be delivered after proper cleaning. I suggest these two alternatives for the reason that we are quite anxious to begin the use of this equipment without delay. Our present method of obtaining samples is cumbersome and inconvenient, and we have endured it during the war period only because there seemed no way of getting around it. Our work of this type is of considerable volume and we want to resort to this convenient procedure without any further delay. For this reason I should appreciate your good offices in expediting and handling of this order in either one of the two ways suggested. I may say also that before actually putting these tubes into use under either arrangement, we shall satisfy ourselves as to their cleanliness and will report our results to you for such use as they may be to your organization.

Very truly yours,

Robert A. Kehoe, M. D.

IAK ef

Material: B.D. Vacutainers (20 ml. size)

Source: Becton, Dickinson, and Company, Rutherford, New Jersey

Required: Possible lead contamination in using the equipment for drawing blood in lead studies.

Results:

A. The rubber stoppers were analyzed for lead with the following results.

Stopper #1 -- 3.8 grams = 0.06 mg. lead

Stopper #2 -- 3.9 grams = 0.075 mg. lead

B. The glass containers were studied by taking some of the tubes, cleaning them with nitric acid and water and then storing distilled water and 1 per cent nitric acid in the stoppered tubes for various periods of time. Comparison tests using Pyrex containers were also made.

<u>Material</u>	<u>Treatment</u>	<u>Micrograms of Lead</u>		
		<u>48 hr.</u>	<u>72 hr.</u>	<u>1 week</u>
B-D container	Distilled water	0.2	0.3	0.5
B-D container	1% nitric acid	1.3	0.6	1.7
Pyrex tubes	Distilled water	---	0.4	0.5
Pyrex tubes	1% nitric acid	---	1.3	2.7

C. The next test was concerned with the cleanliness of the packaged tubes. For this test, 10 tubes were taken. The vacuum in each was broken and the tube was washed out with 10 ml. of 5 per cent nitric acid followed by two rinsings with 10 ml. portions of distilled water. The acid and water rinsings from each tube were combined and each mixture was analyzed for lead. A blank on the reagents alone was also run and this was subtracted from the results obtained for the individual tubes. The values obtained are recorded below.

Micrograms of Lead

0.6
0.5
0.3
0.5
0.3
0.4
0.3
0.4
0.2
0.2

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Average 0.37 micrograms

- D. The final test was concerned with a comparison of the findings for blood taken in the B-D Vacutainer against the findings for blood of the same person taken in the laboratory fashion.

B-D Vacutainer --- 0.045 mg. Pb/100 g. (spectrographically)

B-D Vacutainer --- 0.035 mg. Pb/100 g. (by dithizone)

These values are in the range of concentrations obtained over a long period of time for the particular subject.

It would appear from the results listed in Section C that there is room for improvement insofar as cleanliness (lead contamination) is concerned. It is recommended that the following cleansing procedure be used for test tubes to be used in lead studies.

1. Cleanse with chromic acid cleaning solution.
2. Rinse thoroughly with lead-free distilled water.
3. Rinse in 1:1 nitric acid.
4. Rinse thoroughly with lead-free distilled water.
5. Dry in such a manner that dust contamination is avoided. A drying oven would be best.

Reported: 8-20-45

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