

median of the blood lead distribution in children will then be compared to a variety of functions generated from the data on air and street-dirt lead values to ascertain if (or under what conditions) there is a correlation between aerosol lead and blood lead averages.

The frequency distribution will then be studied to see if there is any significant increase in numbers of children over 40 $\mu\text{g}\%$ and 60 $\mu\text{g}\%$ that can be attributed to aerosol leads.

The Mode of Operation

Air samples will be taken over time periods that will allow for a reasonable certainty that the values obtained are the average values that a population will be subjected to during the time period that will affect their blood lead levels. Glass fiber filters will be used in self-contained air pump cases that can strap onto telephone poles in the areas studied. Average particle size distribution will be obtained in each area utilizing an Anderson impactor.

Dirt samples will be obtained from the target areas, and the apparent interaction of the child populace with street dirt will be assessed by an observer on-the-spot during the time period when the blood lead distributions and air samples are being obtained.

Samples of foods indigenous to the areas will be obtained, the lead content determined, and the extent to which this lead content is due to aerosol lead, estimated from the area where the food arose.

Blood samples will be obtained in these areas simultaneously with the environmental monitoring from 150-250 children to obtain suitable distributions for data handling. The three sample periods will be spaced as much as possible to obtain different periods of street usage for the population.

Task II

To assess the effect of incremental added lead on blood lead which will give an added dimension to the problem we would propose to inject ten individual rats at relative levels of 10, 5, 2 and 1 of lead intake.

We propose to take five animals on a regime of 10 days at an intake level of 1, 10 days at 2, 10 days at 5 and 10 days at 10, measuring their blood lead on a daily basis. Five additional animals will be taken 10 days at 10, 10 at 5, 10 at 2, and 10 at 1, measuring their blood lead level daily. The input level vs blood lead level will be plotted for individuals, and averages, to obtain curves for the expected effect of incremental increases on blood lead.

It is expected that the curve will be highly non-linear in the higher regions, and that significant increases in blood lead will require massive increased inputs over normal.

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LIA-76211

The data obtained would be related to the environmental data to ascertain the level to which a biological system rejects an incremental dosage of lead, and predict the probably rejection of an added aerosol lead level in children.

Statement of Work - Task I and II

The work will be performed over a six month period - one month for planning, three months for field sampling, one month for analysis of data, and one month for reporting the work. Two urban areas will be analyzed three times for the following:

- Average air lead, (5 locations within area).
- Average particle size distributions (1 location).
- Average street dirt lead (15-30 locations).
- Blood lead distribution in area children (150-250 children).
- Average lead in foodstuffs (5-15 foodstuffs).
- Assessment of street usage and dirt contact.
- Assessment of high leads from lead (paint, plaster, water).

Ten rats will be carried for ten days at four separate lead levels, obtained for the individual and average response of blood lead levels to incremental increases in lead.

The data will be treated to ascertain the effect of aerosol lead on the blood lead average and to ascertain the incidence of over-average children. A monthly progress report will be submitted and a full six month report will be prepared with a complete disclosure of data, and conclusions.

The proposed budget for Task I is \$40,000, fixed price.

The proposed budget for Task II is \$8,000, fixed price.

