Blood lead level survey

Sir,

In response to concern about possible lead pollution due to heavy traffic on a narrow eastern part of the A2 in Greenwich (Rochester Way) a small survey of the blood lead levels in preschool children living on or near the route was undertaken in October 1978. This concern had not been alleviated by the knowledge that an estimation of lead in air at this point, based on detailed studies of kerbside pollution from motor vehicles in 5 cities—including London, was between 2 and 4 $\mu\text{g}/\text{m}^3$, probably in the lower half of this range. The GLC guideline for air quality is 3 $\mu\text{g}/\text{m}^3$ (lead in suspension) over a 3-month period (Greater London Council, 1975). Topographical and traffic analysis showed that this road carried 35 000 slow-moving vehicles a day, 30% of them using diesel fuel, and many of them being of the heavy goods type. The widths of the carriageway and street were 8 and 24 m respectively, the flanking houses being of two storeys, and the road direction being east to west with a one in 40 upwards gradient towards the east.

41 children were chosen from health visitors' records and eventually 35 of them attended a clinic for venepuncture. One child withdrew before the test, and the test on one other child was abandoned for technical reasons. Analyses on these 33 blood samples were carried out at the department of chemical pathology at Great Ormond Street Children's Hospital. Subsequently another child, absent on holiday, gave a sample of blood which was tested at the chemical pathology department of the Brook Hospital laboratory.

The overall geometric mean of these results was 16.3 $\mu\text{g}/100$ ml, on a near-normal distribution, the highest reading recorded being 26.9 $\mu\text{g}/100$ ml. The normal reference range of the EEC directive on biological screening for lead is 0.3–1.8 mmol/l (approximately 6 to 37 $\mu\text{g}/100$ ml) and by this standard the levels were considered to be satisfactory. It is of interest that this mean differs only slightly from the mean of 15 $\mu\text{g}/100$ ml used by the Environment Protection Agency in the United States for setting a national ambient air quality standard for lead (final results and proposed rule making, October 1978).

There are slight variations near the mean for the subgroups and these are set out in the Table, the actual numbers being given in parentheses for each group.

These results have been interpreted as natural variations without any pattern or relationship to age, site, or residence, and there is no suggestion of statistical significance about them. There is an overlap of the 95% confidence limits for another value between the various groups in the Table. The children had lived on Rochester Way long enough to have absorbed any lead from vehicle exhausts and for it to have been fully reflected in their blood lead readings. There was no evidence of ill health attributable to the ingestion of lead among the children examined by the medical officer at the school. It was concluded that, whatever undesirable effects of traffic there may be on Rochester Way, the inclusion among them of lead pollution was not supported.

Table Blood lead levels in 33 children

Mean result ($\mu\text{g}/100$ ml)	Average age		Average length of residence	
	Years	Months	Years	Months
<i>Children attending a nursery school on Rochester Way and living on Rochester Way (n = 2)</i>				
19.7	4	8	3	1
<i>Children attending a nursery school on Rochester Way and living off Rochester Way (n = 4)</i>				
17.2	4	11	4	5
<i>Children living on Rochester Way west of Well Hall roundabout (n = 11)</i>				
17.6	3	3	2	5
<i>Children living on Rochester Way east of Well Hall roundabout† (n = 11)</i>				
15.1	2	5	2	3
<i>Children living near Rochester Way (n = 5)*</i>				
17.8	2	7	2	5

*The child (aged 6 years) tested at the Brook Hospital laboratory, living near Rochester Way, had a blood level of 18.6 $\mu\text{g}/100$ ml.

†8 of these children lived on the narrow part of the road and their mean result was 15.1 $\mu\text{g}/100$ ml, their average age being 2 years 7 months with an average length of residence of 2 years 4 months.

Not far away, preschool children in another recent survey carried out near a lead smelter were found to have a mean level of 21 $\mu\text{g}/100$ ml (Millar, 1978).

It is important at this present time to be clear about the biological relationships with lead in the environment. Lead at low levels in blood is being associated with malfunctions which on the evidence are as likely to have other parallel and independent associations. At these levels blood lead variations would reflect environmental variations and all the differences could be significant, yet without dysfunction of any kind, or with dysfunctions otherwise explained. On the other hand, the practice of environmental evaluation and lead hazard abatement near and above the upper end of the EEC reference range is clearly indicated (Center for Disease Control, 1978).

References

- Center for Disease Control (1978). *Preventing Lead Poisoning in Young Children*. US Department of Health, Education, and Welfare: Atlanta.
- Greater London Council (1975). London air: guideline concentrations. Joint Report of the Planning Committee and Public Services Committee. Council Minutes 22 July 1975.
- Millar, I. B. (1978). Monitoring of lead in the environment. *Journal of Epidemiology and Community Health*, **32**, 111–116.

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Cefuroxime plasma and CSF levels in children with meningitis

Sir,

Kuzemko and Walker recently reported their experience with cefuroxime in meningitis (*Archives*, 1979, **54**, 235).