

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Epidemiologic Notes and Reports

Follow-up on Lead Poisoning — Texas

Since 1972, investigations of the effects of industrial lead emissions on El Paso, Texas, residents, in particular children living near an ore smelter close to the Mexican border, have been conducted by CDC and the El Paso City-County Health Department (1-3). This report summarizes data from the latest follow-up investigation undertaken in November 1977. Marked decreases were found in lead concentrations in children's blood specimens, and these decreases were paralleled by decreased concentrations in air, household dust, and soil samples.

The previous investigations in El Paso in 1972 and similar ones in Ciudad Juarez, Mexico, in 1974 (4) showed that more than 56% of children 1-19 years old residing within 1.6 km of the smelter had blood lead levels $\geq 40 \mu\text{g}/100 \text{ ml}$.^{*} Since then, engineering improvements undertaken at the smelter have substantially reduced lead emissions; for example, mean air lead concentrations at a site 4 km from the smelter decreased from $4.4 \mu\text{g}/\text{m}^3$ in 1970 to $1.3 \mu\text{g}/\text{m}^3$ in 1976.

To evaluate the impact of these environmental improvements on children's blood lead levels, 140 children 1-19 years old living within 2 km of the smelter were tested. These children represented 55 (82%) of the 67 households with children that lay within the survey area. Dust and soil lead concentrations in samples taken at these homes in 1977 showed marked decreases compared with the concentrations found in 1972 (mean concentrations: dust 22,191 ppm in 1972 vs 1,479 ppm in 1977; soil 1,791 ppm in 1972 vs 427 ppm in 1977) and were similar in magnitude to concentrations noted in 1972 in homes located 3.3-6.4 km from the smelter.

Similarly, a comparison of children's blood lead levels determined in 1977 with those obtained in 1972 showed that mean concentrations had dropped 35%. Likewise, the percentage of children with blood concentrations $\geq 40 \mu\text{g}/100 \text{ ml}$ dropped 18%, while those with concentrations $\geq 30 \mu\text{g}/100 \text{ ml}$ dropped 39% (Table 1).

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^{*}Blood lead levels $\geq 30 \mu\text{g}/100 \text{ ml}$ indicate excessive lead absorption (5).

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TABLE 1. Blood lead levels in children 1-19 years old, living 1-2 km from an ore smelter, El Paso, Texas, 1972 and 1977

	1972	1977
No. of children	96	137
Mean age (yrs)	8.9	9.3
Mean blood lead ($\mu\text{g}/100 \text{ ml}$)	31.22	20.14
No. (%) with blood lead $\geq 40 \mu\text{g}/100 \text{ ml}$	18 (19%)	2 (1%)
No. (%) with blood lead $\geq 30 \mu\text{g}/100 \text{ ml}$	47 (49%)	14 (10%)

Editorial Note: Despite the findings noted in this study, El Paso continues to have one of the highest air lead concentrations in the United States, and air lead levels at a number of sites there exceed EPA's proposed standard of $1.5 \mu\text{g}/\text{m}^3$ (6). In addition, preliminary air monitoring measurements from 1977 indicate that air lead concentrations in the city are currently on the increase.

The 10% prevalence of blood lead levels $\geq 30 \mu\text{g}/100 \text{ ml}$ found in the El Paso children living near the smelter is still unacceptably high. By comparison, lead screening programs in DHEW Region VI, which includes Texas, have shown that only 5% of screened children in targeted high-risk areas have lead levels $\geq 30 \mu\text{g}/100 \text{ ml}$ (7). Furthermore, the risk of increased lead absorption in children in Mexico, who live much closer to the smelter than the El Paso children evaluated, is unknown, but Mexican health authorities are planning to conduct follow-up studies later this year.

References

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