Objectives. To determine blood lead levels in urban populations of children (n=2,510) and women (n=874) in the early postpartum in certain districts of Lima and Callao, and to correlate those levels with particular exposures.

Material and Methods. Between July 1998 and January 1999, a cross-sectional study was conducted. The study population was selected using three sampling strategies in the government-operated school system and from public pediatric and maternity hospitals at Lima and Callao, Peru. Study personnel were trained to collect finger stick blood samples with a protocol that minimizes external lead contamination. Lead determinations in blood and environmental samples were performed at the study site using portable anodic striping voltameters. To determine the simultaneous effects of different predictors on blood lead levels, multivariate regression models were used to estimate adjusted mean differences.

Results. The mean blood lead level in the children studied was 9.9 g/dl, ranging from I g/dl to 64 g/dl with 29% of the children displaying values greater than 10 g/dl and 9.4% at levels greater than 20 g/dl. Among the women, the mean was 3.5 g/dl (SD=2.4 g/dl), and 2.4% (n=21) displayed levels greater than 10 g/dl. Important differences were observed between the sample locations, and the highest levels were documented in the port region near Callao. The mean level of blood lead in this group was 25.6 g/dl (SD=4.6 g/dl), while among the rest of the sample it was 7.1 g/dl (SD=5.1 g/dl). The presence of a mineral storage area signified a difference in exposure in excess of 13 g/dl for children living near the port area in contrast to the other children who were not as close to such fixed sources of lead exposure. For the participants in Lima, the risk of showing levels above 10 g/dl was associated with exposure to high vehicular traffic. Conclusions. In metropolitan Lima, we conclude that the mean blood lead levels of the populations studied were not alarming and that a positive health impact can be made by a reduction of lead in gasoline. With regard to the port area, the study demonstrates that the presence of mineral storage areas pose a detrimental risk factor for the health of the children living in this area.

Palabras clave: blood lead; child; environment; Peru