

## Profile of lead exposure to children from two socioenvironmental distinct regions of Rio de Janeiro's city

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**Background and Aims:** Lead is a ubiquitous metal in the environment for its natural occurrence and its wide industrial use to which children are particularly sensitive (Ahamed et al., 2005). This work is part of a population survey of chemical exposure, constituting a sub-project that has as target children 8 to 10 years. It is structured as a pilot project conducted in two public schools in the municipality of Rio de Janeiro, whose criterion of choice was to be located in regions with different socioenvironmental characteristics (level of urbanization, pollution sources). The aim of this study was to evaluate lead exposure in schoolchildren of both sexes.

**Methods:** Cross-sectional study with the study population comprised 270 students. Two questionnaires were applied: in one child and another on the parent / guardian. Anthropometric measurements were taken of the child and performed collection of biological samples (blood and hair nail). The analysis of biological material was performed by ICP-MS. Statistical analysis was performed using SPSS 17.0.

**Results:** The mean age of the population is  $19.9 \pm 0.797$  years. The average concentration of lead in capillary blood of the population studied was  $0.0035 \text{ mg / dL} \pm 0.0022$ , below the limit set by the Centers for Disease Control (CDC) of  $10 \text{ mg / dL}$ . There is a statistically significant difference between the schools studied by comparing the concentration of lead in children's blood, in quartiles of distribution. This difference can be explained by environmental pollution that are distinct among the schools studied.

**Conclusion:** These results suggest that children living in areas with high environmental pollution are more exposed to lead.

### References:

AHAMED *et al.* Environmental exposure to lead and its correlation with biochemical indices in children. *Science of the Total Environment*, 346: 48-55, 2005.