

## CHILD NEURODEVELOPMENT IN A BOLIVIAN MINING CITY

**María Ruiz-Castell**, *Centre for Research in Environmental Epidemiology (CREAL), Spain. Municipal Institute of Medical Research (IMIM-Hospital del Mar), Spain. Universitat Pompeu Fabra (UPF), Spain. IRD-Bolívie-Institut de Recherche pour le Développement, Bolivia*

**Pamela Paco**, *IRD-Bolívie-Institut de Recherche pour le Développement, Bolivia. SELADIS-Servicios de Laboratorio de Investigación en Salud. Universidad Mayor de San Andrés (UMSA), Bolivia*

**Flavia-Laura Barbieri**, *IRD-Bolívie-Institut de Recherche pour le Développement, Bolivia. SELADIS-Servicios de Laboratorio de Investigación en Salud. Universidad Mayor de San Andrés (UMSA), Bolivia*

**Jean-Louis Duprey**, *IRD-Bolívie-Institut de Recherche pour le Développement, Bolivia. LCA-Laboratorio de Calidad Ambiental, Universidad Mayor de San Andrés, Instituto de Ecología, Bolivia*

**Joan Forn**, *Centre for Research in Environmental Epidemiology (CREAL), Spain. Municipal Institute of Medical Research (IMIM-Hospital del Mar), Spain. Universitat Pompeu Fabra (UPF), Spain.*

**Anne-Elie Carsina**, *Centre for Research in Environmental Epidemiology (CREAL), Spain. Municipal Institute of Medical Research (IMIM-Hospital del Mar), Spain*

**Rémi Freydisier**, *CNRS-HSM Montpellier-MSE, France*

**Corinne Casiot**, *CNRS-HSM Montpellier-MSE, France*

**Jordi Sunyer**, *Centre for Research in Environmental Epidemiology (CREAL), Spain. Municipal Institute of Medical Research (IMIM-Hospital del Mar), Spain. Universitat Pompeu Fabra (UPF), Spain*

**Jacques Gardon**, *IRD-HSM Montpellier-MSE, France*

**Background and Aims:** This study evaluates the neurodevelopment of children living near highly contaminated mining industries during their first year of life.

**Methods:** Participants from the city of Oruro (Bolivia) were prospectively recruited during pregnancy and followed-up between May 2007 and November 2009. Questionnaires were used to obtain information regarding the pregnant women's socioeconomic status, as well as anamnesis. Neurodevelopment was tested on 246 children using the Bayley Scales of Infant Development (BSID) at 10.5 to 12.5 months of age. Trace elements (Pb, As, Cd, Sb, Cs, Zn, Fe, Cu, Se, Rb, Sr) exposure during prenatal life was evaluated by testing maternal blood concentrations before delivery.

**Results:** The blood lead concentration of pregnant women was low, considering the contaminated environmental context. The geometric mean was 1.85µg/dL (95% IC: 1.71; 2.00), a level almost comparable with those observed in non contaminated areas. The only element found to be relatively elevated was antimony, with 1.03µg/dL (95% IC: 0.94; 1.13). The Bayley Scales of Infant Development (BSID) did not reveal mental or psychomotor abnormalities associated to blood levels of trace metals during pregnancy. Almost all levels were lower than the control limits.

**Conclusion:** Our results suggest that women from this mining area were poorly exposed.