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.