

# Birth Cohort Study of Environmental Exposure and Childhood Development: Rio De Janeiro / Brazil

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## *Abstract*

This study aims to investigate alterations in childhood development associated to exposure to environmental pollutants, from pregnancy until the age of 4. Its core hypotheses are: 1) the exposure to environmental chemical pollutants determines fetus developmental alterations, birth adverse health effects, and child's neuromotor and cognitive development deficits; 2) these effects of environmental pollutants are modulated by interaction with the sociocultural environment and genetic patterns; and 3) the exposure to violence, as a chronic stressor, alters the susceptibility to the environmental chemical pollutants effects on children's health. **Methodology:** This is a prospective cohort study whose study population will be all children born at the Federal University of Rio de Janeiro Birthing Center (ME-UFRJ), from March 1<sup>st</sup>, 2019 to February 29<sup>th</sup>, 2020. All newborns will be followed for 48 months and their landmarks of physical, neurological, psychological, and cognitive development recorded. The study protocol includes interviews, physical exams, and collection of biological samples at the 7<sup>th</sup> month of pregnancy, birth, and postnatal period until the age of 4. The study will collect: 1) socioeconomic, cultural, leisure and living conditions of the parents 2) Maternal biological samples (blood, urine and hair) 3) Cord blood and urine of the newborn. The Birthing Center performs 2,000 to 2,500 deliveries/year. **Results:** From October 2017 until July 2018, a pilot study has been done. Of 209 pregnant women attended at ME-UFRJ during the period of 2 months, 142 (67,9%) accepted to participate. Until this date, there were 131 births (92.3%), and

cord blood was collected from 122 births (85.9%). Conclusion: This study may contribute to the increase of knowledge regarding the effects of environmental pollutants exposure, and its predisposing factors or conditions, on newborn and children's health in an urban area in Brazil.