

Dr Remy Slama
GSF-Research Center / Institute of Epidemiology
Ingolstaedter Landstr. 1
D-85764 Neuherberg
Germany
Email: slama@vjf.inserm.fr

Assessment of exposure to environmental toxicants in the Eden mother-child cohort

Rémy Slama* (Inserm U822, Le Kremlin-Bicêtre and GSF-National Research Center for Environment and Health, Neuherberg), Guy Huel (Inserm U780, Villejuif), Aline Bohet, Béatrice Ducot (Inserm U822), Isabella Annesi-Maesano (Inserm and UPMC Paris VI UMR-S 707, Paris), Monique Kaminski (Inserm U149, Villejuif), Marie-Aline Charles (Inserm U780, Villejuif) and the Eden study group.

Background and hypothesis: The EDEN mother-child cohort was set up to study the effects of fetal and early life events on child and development health. We present here the methodology used to assess exposure to environmental contaminants.

Methodology: Population: Women pregnant for less than 24 weeks have been recruited in two large maternity wards (Nancy and Poitiers, France). They will be followed-up with their child for at least five years.

Health outcomes: Intra-uterine growth has been assessed by 2 ultrasound measurements. Cognitive development and other health outcomes are assessed by questionnaires and through specific examinations at 1, 3 and 5 years.

Exposures: Outdoor air pollution will be estimated from GIS-based (Geographic Information System) approaches (distance-weighted traffic intensity, interpolation from a measurement campaign and dispersion modelling). A subsample of 280 non-smoking women has carried a passive air sampler during 7 days to assess exposure to specific volatile organic compounds (including benzene). Biological samples (hair, maternal blood, urine, placenta, cord's blood, colostrum, paternal serum, meconium...) have been stored. Cotinine is being assessed from maternal urine samples. Other compounds including chemical elements (manganese, selenium, lead and cadmium in maternal and cord blood, boron in placenta, mercury in hair) are being assessed.

Results: Recruitment took place between 2003 and 2006. A total of 2002 women have been recruited and 1891 children are being followed-up.

Implications and perspectives: The Eden cohort constitutes a promising tool to study the effect of prenatal exposures to environmental pollutants on health at birth and during childhood.