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# The MAPEC LIFE study: monitoring air pollution effects in children for supporting public health policy

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## Abstract

Child exposure to air pollution is a matter of concern due to the well-known health effects of airborne pollutants and the relevance of early damage in childhood on the risk of developing chronic degenerative diseases in adulthood. The study, funded by the EU LIFE+ programme 2012, will be carried out in five Italian towns: Turin, Brescia, Pisa, Perugia, Lecce. It aims to assess the relationship between the concentration of air pollutants and air mutagenicity and toxicity, as well as to evaluate the early effects of air pollution in 1000 children aged 6-8 years, using biomarkers of early DNA damage. Biological samples of exfoliated buccal cells will be collected in all children and tested for DNA damage using the comet assay and micronucleus test. Moreover *in-vitro* tests will be performed on organic extracts of ultra-fine particulate (PM 0.5) samples collected in summer and winter seasons. The same samples will be analysed for PAH and nitroPAH contents. Also exposure to other pollutants and children life-style factors will be investigated via a questionnaire filled in by their parents. Finally, the project will propose a global model of risk of early biological effects based on total exposures analysed, in order to support policy-making and community interventions to protect children from possible health effects of air pollutants.

*Keywords: air pollution, children health, DNA damage.*