

## **Urban and semi-rural populations air pollution-related oxidative stress and health problems during the MILAGRO-MCMA2006 campaign.**

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To analyze the contribution of the regional air pollutants from the Metropolitan Area of Mexico City in the health conditions of children (9-12 years old) and their parents simultaneously to the 2006 MILAGRO campaign

### Methods

This was a health and exposure assessment study of children 155 children 10 to 12 years old and 90 parents recruited in three different areas along the path of transportation of air pollutants from Mexico City to the neighbor states of Mexico and Hidalgo. A questionnaire to obtain information on personal characteristics, medical history, exposure to other substances was administered. Personal and micro-environmental monitoring of VOCs, CO, ozone, PM<sub>2.5</sub> and ultrafine particles were performed. The studied health impact were the free radical in phagocytes, lipid peroxidation in plasma, antioxidant enzymes in red blood cells, and prevalence of respiratory diseases in the studied population.

### Results

Preliminary results of the acute oxidative stress makers in children show a significant difference in the mieloperoxidase activity with smaller values at Mexico City (T0) and T2 (San Pedro). The paroxonase levels were also different among sites with higher values at T2 and Tecamac (T1). The oxidative stress markers analysis in adults show difference in plasma NO<sub>2</sub> concentrations with higher levels at T2, and higher ceruloplasmine levels at T0. The activity of antioxidant enzyme glutation peroxidase was

higher at T0 an T2. The spirometry study show FEV1 mean values above the expected values but the FEF25-75 values were below the expected values. These results probably express the oxidative stress product of the personal exposure to different air pollutants.