

## Schoolkids Expose Record Pollution

**Students carried detectors. Peaks twenty times higher than EU limits. EU pilot project in Milan on ultrafine particulates**

MILAN – The air at the bus stop is deadly: ten times higher than the danger level. On a motorbike in traffic, the pollution level is even worse. And if you light up a cigarette at home, the particulate count can shoot up to twenty times above the thresholds laid down by the World Health Organisation. The daily average concentration of airborne PM2.5 ultrafine particulates, the most dangerous kind because they penetrate deep into the lungs, should not exceed 25 micrograms per cubic metre. Last winter, three classes from Milan schools volunteered as part of the EC EuroLifeNet project to carry portable pollution detectors in a bag slung over their shoulder. The results provide a minute-by-minute profile of the air they were breathing. Pollution levels never dipped below the health protection threshold of 25 for so much as half an hour. In fact there were peaks of 200-300 and in some cases 500. Eyes have been opened, and with them a new field of study for scientists. But it is also a new source of concern for residents. Until today, public bodies based their calculations on average daily figures recorded by fixed counters but these are a very far cry from the air people actually breathe when they leave the house to go to work or school. Nor do they reflect what the experts call "personal exposure". Here's an example. On 17 November, the average PM2.5 in Milan was below 100 but the student at the Feltrinelli institute who was carrying a counter that day was breathing particulate levels in excess of 200 on his way to school.

"Claiming that pollution extends over the whole Po plain and is the same everywhere has been an excuse for doing nothing", says Paolo Crosignani, an oncologist and epidemiologist from Milan's institute for tumours.

Let's start with the figures. According to the EC, ultrafine particulates produced by motor car emissions and heating systems reduce life expectancy in the Po plain by three years. That is why the experiment, involving the Genitori Antismog (Parents Against Pollution) association and the Ispra research centre, started in Milan. A European infringement procedure for failing to comply with pollution thresholds has been looming over the Lombard capital for two years. An EC directive lays down that the limit should not be exceeded on more than 35 days in any one year but Milan's failure to do so is spectacular, with 151 above-limit days in 2005 and 149 in 2006. The procedure could lead to a guilty verdict, which would entail heavy fines. Now, after years in which the danger was played down, Milan will institute anti-pollution charges for cars entering the city centre from October, as the mayor, Letizia Moratti, said again yesterday. Milan's school-based experiment is also under way in Lisbon and various other cities around Europe. The Genitori Antismog association is optimistic: "We hope that public bodies will welcome the data provided by society and act in consequence". The challenge for the future is to assess the health impact of short-term exposure to very high peaks of pollution. "In the case of allergies, bronchitis and asthma", explains Giovanni Invernizzi, an immunologist at the institute's Tobacco Control Unit, "there is an immediate worsening of symptoms". Nor should we forget cigarette smoke. On 14 November, one student came home for lunch and someone lit a cigarette. In a few minutes, the particulate count had shot up to 550.

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