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Title: Traffic-related air pollution and lung function in children – The ESCAPE project

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Body: Background and objective: Cohort studies have reported positive associations between long-term exposure to traffic-related air pollution and the incidence and prevalence of asthma and related symptoms. It is unclear whether these effects are associated with impaired lung function. Methods: As part of the ESCAPE project we analyzed data from four ongoing European birth cohort studies (BAMSE, GINI/LISA, MAAS, and PIAMA) with measured lung function at age 6-8 years. Exposure to traffic-related air pollution [nitrogen dioxide (NO_2), particulate matter ($PM_{2.5}$, PM_{10} and PM_{coarse}), and black smoke] at past and current addresses was estimated by land-use regression models. Associations between lung function (FEV_1 and FVC) and exposure to air pollution were explored by cohort using multiple linear regression analysis. Effects were adjusted for potential confounders and expressed for an interquartile range increase in exposure. Results: Preliminary results from the PIAMA study indicate inverse associations between traffic-related air pollution and lung function at age 8 years. For all exposure parameters, exposure at the current home address was associated with small, but statistically significant reductions (95% confidence interval) in lung function ranging for FEV_1 from 0.71% (0.00-1.41) for PM_{10} to 1.68% (0.45-2.90) for $PM_{2.5}$. and for FVC from 1.53% (0.93-2.14) for PM_{coarse} to 3.78% (2.56-4.98) for $PM_{2.5}$. Results for the other cohorts are not yet available, but will be available at the time of the meeting. Conclusions: Long-term exposure to traffic-related

air pollution may be associated with reductions in lung function in school children.