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**Title:** Adult asthma incidence and long term exposure to air pollution in six European cohorts: The European study of cohorts for air pollution effects (ESCAPE)

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**Body:** It is still unclear if air pollutants play a role in asthma development in adults. The aim was to assess the impact of long-term exposure to air pollution on adult onset asthma in 6 European cohorts (ECRHS, EGEA, E3N, NSHD, SALIA, SAPALDIA) using standardized ESCAPE exposure estimates. Annual concentrations of NO2 and particulate matter (PM10 and PM2.5) at home addresses were estimated using land-use regression models. To assess incidence, asthma definition was developed being specific at

baseline and sensitive at follow-up. Logistic regression models were adjusted for age, sex, BMI, education and smoking. Cohort-specific results were meta-analysed. 23701 subjects with NO2 and 16662 subjects with PM exposure estimates were included. Asthma incident cases were 1257. Incidence rates varied between 2.9 and 8.3/1000/year in SAPALDIA and EGEA respectively. The meta-analyses did not show significant associations between air pollution and asthma incidence (OR:1.05 (95%CI:0.97,1.14) per 10µg/m3 of NO2 and 1.04 (95%CI:0.88,1.22) per 10µg/m3 PM10). EGEA was the only cohort showing a significant positive association (OR:1.36 (95%CI:1.07,1.72) per 10µg/m3 of NO2).

The point estimates were lower than the ones previously published and the meta-analysis did not show statistically significant associations between air pollution and adult onset-asthma. Funds: ESCAPE EC-FP7-GA 211250.