

LONG-TERM EXPOSURE TO AIR POLLUTION FROM TRAFFIC IN EUROPEAN CITIES IN RELATION TO PREGNANCY OUTCOME AS WELL AS AIRWAY DISEASE AND COGNITIVE FUNCTION IN CHILDREN: THE ESCAPE STUDY

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Background and Aims: Work package 3 of the European multicenter ESCAPE project focuses on quantitative assessment of the impact of ambient air pollution on adverse pregnancy outcomes (aim 1), development of asthma, sensitization, lung function and respiratory infections in children during the first twelve years of life (aim 2), and cognitive function development in children up to five years of age (aim 3). Biomarkers are used to assess some phenotypes, particularly with regard to allergy and sensitization.

Methods: A total of 18 birth cohorts are included from different parts of Europe, as well as Taiwan and Australia. All participating cohorts assessed the spatial variability of specific air pollution components within their communities based on the ESCAPE exposure protocol. City-specific analyses with subsequent combined analyses are performed as well as pooled analyses for some outcomes.

Results: A different set of cohorts is included for each specific aim. Thirteen cohorts contribute to aim 1 with 77,600 participants, 13 cohorts to aim 2 with 54,600 participants, and 6 cohorts to aim 3 with 18,500 participants. For aim 2 separate analyses are performed in the five oldest birth cohorts, including more than 18,000 children, and results will be presented at the ISEE conference.

Conclusions: The project adds to the existing knowledge on the impact of ambient air pollution on adverse pregnancy outcomes, childhood airway disease and cognitive function development. In particular, it is envisaged that the results will serve as a basis for estimation of exposure-response relationships and contribute to an understanding of the role of specific air pollution components.