

Publication

Approach to estimating participant pollutant exposures in the Multi-Ethnic Study of Atherosclerosis and Air Pollution (MESA Air)

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Most published epidemiology studies of long-term air pollution health effects have relied on central site monitoring to investigate regional-scale differences in exposure. Few cohort studies have had sufficient data to characterize localized variations in pollution, despite the fact that large gradients can exist over small spatial scales. Similarly, previous data have generally been limited to measurements of particle mass or several of the criteria gases. The Multi-Ethnic Study of Atherosclerosis and Air Pollution (MESA Air) is an innovative investigation undertaken to link subclinical and clinical cardiovascular health effects with individual-level estimates of personal exposure to ambient-origin pollution. This project improves on prior work by implementing an extensive exposure assessment program to characterize long-term average concentrations of ambient-generated PM_{2.5}, specific PM_{2.5} chemical components, and copollutants, with particular emphasis on capturing concentration gradients within cities. This paper describes exposure assessment in MESA Air, including questionnaires, community sampling, home monitoring, and personal sampling. Summary statistics describing the performance of the sampling methods are presented along with descriptive statistics of the air pollution concentrations by city

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