

ASSOCIATIONS BETWEEN ARIES AIR POLLUTION MEASUREMENTS AND ACUTE PRIMARY CARE VISITS FOR RESPIRATORY ILLNESSES—TEN-YEAR TIME SERIES

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Background and Aims: Previous 53-month analyses found several statistically significant air pollutants for acute childhood asthma primary care visits. Air pollution and primary care visit data are now available for 10 years. This analysis examines the effects of particulate matter and its components and gases on acute primary care visits for asthma and upper and lower respiratory infection (URI and LRI) over 116 months beginning 8/1/98. Presented results will cover 120 months.

Methods: Data sources are daily acute respiratory visits from a nonprofit managed care organization and air pollution measures from a centrally-located air monitoring site, both in Atlanta, GA, USA. Acute visits are appointments made on the same day the visit was completed. Pollutants included in this analysis are: PM_{2.5}, PM₁₀, Coarse PM, OC, EC, PM_{2.5} water-soluble (ws) metals, coarse ws metals; PM_{2.5} Zn, ws Cu, ws Fe, and ws Mn; and coarse PM ws Cu, ws Fe, and ws Mn. Poisson GLM was employed to determine the relationships between lagged pollutants (0-2, 3-5, and 6-8 day moving averages) and acute visits.

Results: Most pollutants produced insignificant results for each respiratory outcome. Significant findings included: PM₁₀ (lag 3-5) and EC (lag 6-8) with acute childhood asthma visits (RR=1.024 and 1.018, respectively), and PM_{2.5} ws metals (lag 3-5) and PM_{2.5} ws Fe (lag 3-5) for LRI (RR=1.033 and 1.039, respectively). There were no significant findings for adult asthma and URI.

Conclusions: This is one of the longest times series analyses for examining the relationships between primary care outcomes and ambient air pollutants. As with our 53-month analysis, EC and PM₁₀ are significant for childhood asthma. Additionally, presented results will compare ten-year results for two-pollutant, VOCs, and other models to 53-month results.