

TRAFFIC-RELATED AIR POLLUTION INCREASES THE RISK OF EMERGENCY DEPARTMENT PRESENTATION WITH ASTHMA AMONG YOUNG CHILDREN IN WESTERN AUSTRALIA

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Background and Aims: Previous studies have reported associations between air pollution and exacerbation of respiratory disease but very few have examined the influence on emergency department presentations (ED). The aim of this study was to determine whether changes in city-wide levels of traffic-related air pollution increases the risk of hospital ED presentations for asthma among children

Methods: The study group were 603 children and young adults aged less than 19 years who had presented at any public ED within Perth, Western Australia between 2002 and 2006. A time-stratified case-crossover design was applied using city-wide estimates of background air pollution from a local air monitoring network

Results: Previous day exposure to nitrogen dioxide and carbon monoxide resulted in the most significant risk of ED presentation for asthma among children aged less than 5 years. An interquartile range increase in nitrogen dioxide resulted in an odds ratio of 1.70 (1.08, 2.69). For carbon monoxide, an interquartile range increase in this pollutant resulted in an odds ratio of 1.40 (1.06, 1.84).

Conclusions: These results help quantify the extent to which very young children are vulnerable to the effects of air pollution, which are notably higher than those reported by previous studies.

References:

Pereira G, Cook A, De Vos AJBM, Holman D. A case-crossover analysis of traffic-related air pollution and emergency department presentations for asthma in Perth, Western Australia. *Medical Journal of Australia*. 2010;193(9):511-514.