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## Particulate Air Pollution and Hospital Emergency Room Visits for Asthma in Seattle

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### Abstract

Recent studies have associated short-term exposure to respirable particulate matter (PM<sub>10</sub>) exposure with peak flow decrements, increased symptoms of respiratory irritation, increased use of asthma medications, and increased hospitalization for asthma. Increased mortality from chronic respiratory disease has also been reported. To help confirm whether PM<sub>10</sub> exposure is a risk factor for the exacerbation of asthma, we compiled daily records of asthma emergency room visits from eight hospitals in the Seattle area. In Poisson regressions controlling for weather, season, time trends, age, hospital, and day of the week, the daily counts of emergency room visits for persons under age 65 were significantly associated with PM<sub>10</sub> exposure on the previous day. The mean of the previous 4 days' PM<sub>10</sub> was a better predictor ( $p < 0.005$ ). The relative risk for a 30  $\mu\text{g}/\text{m}^3$  increase in PM<sub>10</sub> was 1.12 (95% confidence interval 1.20 to 1.04). Daily PM<sub>10</sub> concentrations never exceeded 70% of the current ambient air quality standards during the period. The consistency of investigations of the health effects of PM<sub>10</sub> suggest that increased attention should be given to the control of particulate matter air pollution.

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