

Air pollution and the demand for hospital services: a review

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Time-series studies published since 1993 on the association between short-term changes in air quality and use of hospital services, including both inpatient and emergency room use, are reviewed. The use of nonparametric analysis, often incorporating generalized additive models (GAMs), has increased greatly since the early 1990s. There have also been three major multi-city studies, which together analyzed data from well over 100 cities in Europe and North America. Various air pollutants, especially ozone (O₃), particulate matter (PM), nitrogen dioxide (NO₂) and sulfur dioxide (SO₂), were generally found to be significantly associated with increased use of hospital services. Ozone tends to have stronger effects in the summer during periods of higher concentrations. Several studies revealed synergistic effects between pollutants such as PM and SO₂. Overall, short-term exposure to air pollutants is found to be an important predictor of increased hospital and emergency room use around the world.

ENVIRONMENT INTERNATIONAL, VOL. 30, ISSUE 8, doi:10.1016/j.envint.2004.01.004, 2004