

Do people respond to smog alerts? Evidence from changes in asthma-related hospital admissions before and after the introduction of smog alerts

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ABSTRACT

In 1993 Environment Canada, along with provinces and municipalities, introduced a Smog Advisory Program to regions of Canada. This paper examines changes in the relationship of asthma-related hospital admissions and concurrent pollution concentrations before and after the onset of a smog alert system. The fact that asthmatic children rapidly experience symptoms after poor air quality makes it a suitable measure to test possible behavioral responses. A model for asthma-related hospital admissions, using data from 1980 to 1999, was created using six independent weather and pollution variables. To test the effect of a smog advisory program, dummy variables were used with a standard F-test determining the joint significance of the dummy coefficients. Ground level ozone concentrations were found to have a negative effect on asthma-related hospital admissions – suggesting a natural avoidance to pollution. Nonetheless, asthma-related hospital admissions declined in the cities and time periods where there was a smog alert system. Carbon monoxide concentrations were found to have a large effect on asthma-related hospital admissions; however, the effect is nearly offset with the introduction of smog alerts. This decline was less apparent within the older age groups of children. The results suggest that changes in parental behavior do occur with the onset of a smog advisory system.