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**Australian Institute of  
Health and Welfare**

*Better information and statistics  
for better health and wellbeing*

# **Monitoring the impact of air pollution on asthma in Australia**

## **A methods paper**

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**Please note that there is the potential for minor revisions of data in this report. Please check the online version at <[www.aihw.gov.au](http://www.aihw.gov.au)> for any amendments.**

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# Summary

Air pollution can trigger asthma and, in severe cases, has been associated with hospitalisation and death. How much of a problem is air pollution though? What proportion of asthma exacerbations are due to air pollution each year? How much does this vary with extreme events such as bushfires and dust storms? These are important questions that have so far proved difficult to answer.

Many improvements have been made to the quality and quantity of air pollution data over recent decades. So far, however, analysis of the contribution of air pollution to health conditions like asthma in Australia has been restricted to individual studies and investigations.

This paper discusses the challenges associated with this type of monitoring, outlines the work that has so far been done in Australia in this area and presents a method for estimating the contribution of air pollution to asthma hospitalisations. The method has been applied to a particular case study – Melbourne in 2006 – to test its potential usefulness.

The adjusted results of the case study suggest that:

- about 3% of all asthma hospitalisations in Melbourne in 2006 were related to exposure to nitrogen dioxide
- about 4% of asthma hospitalisations of 0–14 year olds were related to particulates in the air.

The broader conclusion drawn is that the method used could provide a guide to monitoring the impact of air pollution on asthma exacerbations over time. The method requires refinement, however, and its application would be dependent on filling key gaps in the available research. If this method (or any similar method) is to play a role in the systematic monitoring of the health impacts of air pollution nationally, a targeted research programme is required that would provide:

- a national set of relative risk estimates that quantify the risks associated with exposure to key pollutants
- a more detailed understanding of the exposure–response relationship for each pollutant.