Air pollution can increase asthma risk in adults, even at low levels

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Credit: University of Melbourne

Living close to a busy road can be bad for your respiratory health if you are middle aged, new Australian research has found.

A study published in the *European Respiratory Journal* found Australians aged 45-50 who lived less than 200 metres from a major road had a 50 per cent higher risk of asthma, wheeze and lower lung function over a five-year period than those who lived more than 200 metres from a major road.

Researchers found that the increase in these health issues was despite Australia's relatively low safe nitrogen dioxide (NO_2) limit of 30 parts per billion per year*. The highest reading was just 23.

Academics at the University of Melbourne's Allergy and Lung Health Unit and the Centre for Air Quality and Health Research and Evaluation (CAR) led the study, which is one of few to investigate the long-term health effects of air pollution.

The project surveyed about 700 participants from the Tasmanian Longitudinal Health Study when they were aged 45 and 50. Although the Tasmanian Health Study started in Tasmania, participants are currently distributed in Tasmania, Victoria, New South Wales and Queensland.

It defined major roads using Australian transport hierarchy codes supplied by the Public Sector Mapping Agencies. State classifications vary slightly but usually include highways, freeways and arterial roads that link major metropolitan activity centres.

The lead author, Dr Gayan Bowatte of the University of Melbourne Allergy and Lung Health Unit, said Australia has relatively low air pollution levels compared with developing South East Asian countries. However, Dr Bowatte said the study found that even these are associated with increased risk of asthma and poor lung function in adults.

He said governments need to investigate ways of reducing emissions on these roads, particularly trucks using diesel. "Diesel is much more

harmful than petrol because of the composition of the fuel. When it burns, diesel produces more pollutants."

The study found the rapidly increasing prevalence of asthma after the second half of the 20th century strongly suggested environmental exposures played a major role.

"In particular, the role of traffic-related air pollution (TRAP) exposures in exacerbating or causing asthma has attracted substantial interest," the researchers wrote. "Our study adds to the existing body of evidence that even relatively low levels of TRAP exposure are associated with asthma and poor lung function in adults"

The study was funded by National Health and Medical Research Council (NHMRC) through its project grants scheme as well as CAR, an NHMRC Centre for Research Excellence.

*Australian Government Department of the Environment and Energy National Standards for Criteria Air Pollutants 1 in Australia.

More information: Gayan Bowatte et al. Traffic-related air pollution exposure over a 5-year period is associated with increased risk of asthma and poor lung function in middle age, *European Respiratory Journal* (2017). DOI: 10.1183/13993003.02357-2016

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