

Polluted city neighborhoods are bad news for asthmatic children

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Children with asthma who grow up in a New York City neighborhood where air pollution is prevalent need emergency medical treatment more often than asthmatics in less polluted areas. This is according to researchers from Columbia University in the US in a new study published in the Springer Nature-branded journal *Pediatric Research*. Lead author, Stephanie Lovinsky-Desir, warns however that neighborhoods where asthma cases in children are less common should not be excluded from efforts to improve air quality. This is because children that live in neighborhoods where asthma is less common may be more vulnerable to the effects of air pollution.

For this study, 190 participants aged seven and eight were recruited between 2008 and 2011. All participants were part of the New York City Neighborhood Asthma and Allergy Study and had previously been diagnosed as having [asthma](#). They all grew up in middle-income families in neighborhoods in the Bronx, Brooklyn, Queens, and Manhattan.

The participants were grouped as belonging to neighborhoods with high numbers of asthma cases or neighborhoods with low instances of asthma. There was no significant difference between the household incomes and access to health care (private insurance) enjoyed by the families of the participants. However, those growing up in areas where asthma was more common tended to live in apartment buildings or on higher floors. They were also more likely to live in crowded environments and be raised by single mothers.

Lovinsky-Desir and her colleagues found that children living in neighborhoods where asthma was more common needed emergency care more often and tended to suffer more from exercise-induced wheezing. Also, the concentrations of ambient pollutants in these neighborhoods were higher. Over the course of a year, concentrations of known air pollutants such as nitrogen dioxide, small airborne particles and elemental carbon were much higher in these neighbourhoods than in those with fewer asthma cases.

An interesting finding was that children living in neighborhoods where asthma was less common were effected most by pollution, even though pollution levels were higher in the more common asthma neighborhoods.

"In neighborhoods with less poverty, children exposed to [air pollution](#) were more likely to be taken for emergency asthma treatment. However, in [neighborhoods](#) with more poverty, it's likely that other things in the environment, such as stress and violence, have a stronger effect on urgent asthma treatment than air [pollution](#)," explains Lovinsky-Desir.

More information: Stephanie Lovinsky-Desir et al, Air pollution, urgent asthma medical visits and the modifying effect of neighborhood asthma prevalence, *Pediatric Research* (2018). [DOI: 10.1038/s41390-018-0189-3](#)

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