**Correspondence:**

**Urban planning and respiratory health - green spaces may reduce asthma admissions**

Ireneous N Soyiri1\*, Ian Alcock2

1Usher Institute of Population Health Sciences & Informatics, Centre for Medical Informatics, University of Edinburgh, United Kingdom; 2European Centre for Environment and Human Health, University of Exeter Medical School, United Kingdom.

\*Email: [isoyiri@ed.ac.uk](mailto:isoyiri@ed.ac.uk)

The recent Spotlight article on “*Urban planning and respiratory health*” by Aaron van Dorn highlights the important issue urban environments and public health.1 Anthropogenic factors are the leading cause of growing environmental pollution levels globally and policy makers increasingly look to urban planning strategies to alleviate the harmful effects of exposures.2

Van Dorn highlighted that several conflicting factors are involved in the relationship between urban vegetation and the risk of respiratory health conditions such as asthma. For example, whilst trees absorb particulate and gaseous air pollutants, the effect of dense urban trees can be to increase rather than to reduce local pollutant concentrations by preventing dispersion from wind. Furthermore, urban vegetation may produce allergenic pollen, which can exacerbate asthma, but is also associated with reductions in risk factors such as stress and obesity, for example through the promotion of exercise.

In view of the multiple pathways mentioned by van Dorn, a recent ecological investigation of 660,000 asthma hospitalisations among the 41 million residents of urban areas of England aimed to clarify the net effects of residential area exposure to trees and greenspace by comparing hospitalisation rates across 26,000 small urban areas.3 This study showed that both types of vegetation were, on the average, associated with lower area rates of population standardised asthma emergency. Accounting for interactions between vegetation and background air pollutant concentrations (PM2.5; NO2; SO2) showed that trees were associated with greater reductions in hospitalisation where pollutant levels were higher, and had no significant effect where pollutant concentrations were very low, whereas the effect of greenspace conditional on pollutant concentration was in the opposite direction.3

National planning guidance in the UK already recognises the role of vegetationin reducing air pollution;4 nonetheless, as research in this area advances, policy makers can develop more nuanced planning regulation as part of a strategy to promote respiratory health for urban populations, for example by requiring tree planting as part of urban development in highly polluted residential areas.

**References**

1. van Dorn A. Urban planning and respiratory health. The Lancet Respiratory Medicine 2017;5(10):781-82.

2. The Lancet Planetary Health. Our polluted world: the need for a global pollution strategy. The Lancet Planetary Health 2017;1(6):e209.

3. Alcock I, White M, Cherrie M, et al. Land cover and air pollution are associated with asthma hospitalisations: A cross-sectional study. Environment International 2017;109:29-41.

4. Department for Communities and Local Government. Natural environments: (Green infrastructure). Supplementary guidance to the national planning policy framework: January 2016. Paragraph 030 Reference ID: 8-030-20160211. Retrieved from <https://www.gov.uk/guidance/natural-environment>