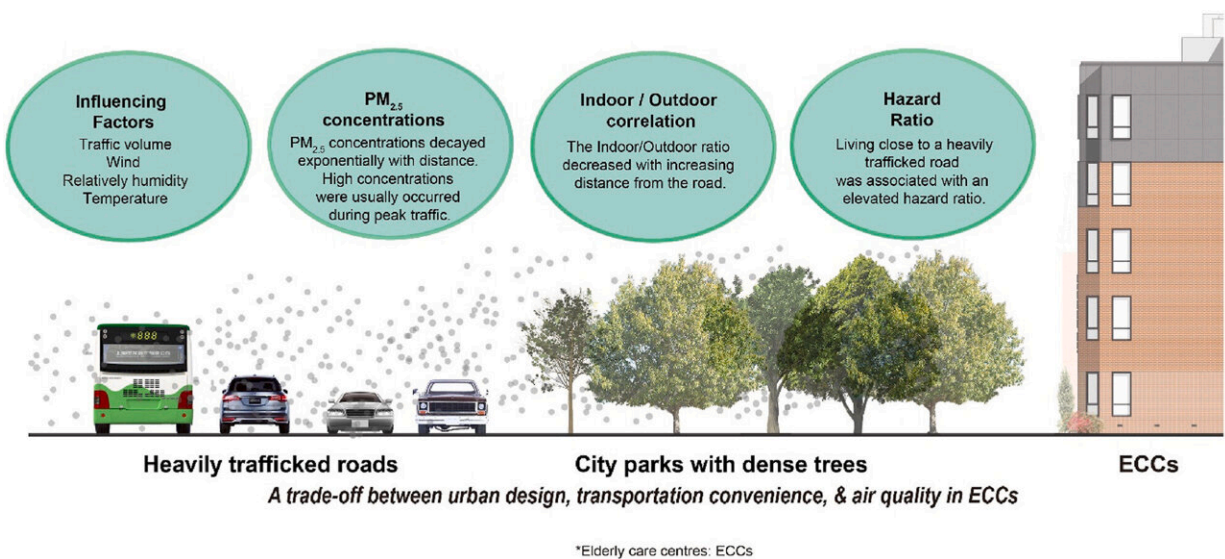


Site new care homes near trees and away from busy roads to protect residents' lungs, say researchers

June 12 2024



Graphical abstract. Credit: *Atmospheric Environment* (2024). DOI: 10.1016/j.atmosenv.2024.120607

To shield older residents from dangerous air pollution, new care homes should be built as far from heavy traffic as possible, according to a new study from the University of Surrey. The study is [published](#) in the

journal *Atmospheric Environment*.

Researchers also found that trees planted between the homes and the road could significantly mitigate the impact of air [pollution](#).

Professor Prashant Kumar, Director of Surrey's Global Center for Clean Air Research (GCARE), said, "Older adults in care settings can be especially vulnerable to poor quality air. Our study confirms that building care homes next to busy roads without adequate tree planting can significantly increase their exposure to deadly fine particle pollution.

"We hope planners will be able to use our findings to make sure care homes are built in safer locations—striking the right balance between the convenience of urban living and better air quality."

Researchers studied three care homes in the Chinese city of Nanjing. They measured fine particle pollution (PM_{2.5}) at various locations in and around the care homes.

They found that the amount of pollution inside the care home decreased exponentially, the further it was from the road.

Huaiwen Wu, a researcher at GCARE, said, "Our study gives so many useful insights into where to build new care homes.

"For instance, there was a [significant relationship](#) between outdoor and indoor pollution. This tells us that bedrooms should be kept on the far side of the building where possible."

Professor Shi-Jie Cao, Visiting Professor at GCARE and Professor at the Southeast University, China, said, "We also saw how pollution was

highest during rush hour. Concentrations were higher during spells of lighter winds, and during colder seasons when more people are heating their homes.

"As such, [care homes](#) near busy roads could keep their windows closed more during those periods—then open them afterwards to mitigate the accumulation of emissions."

More information: Huai-Wen Wu et al, The role of roadside green infrastructure in improving air quality in and around elderly care centres in Nanjing, China, *Atmospheric Environment* (2024). [DOI: 10.1016/j.atmosenv.2024.120607](#)

Provided by University of Surrey

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