

# Research finds air pollution in Ireland associated with strokes

August 11 2020

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Scientists have found that air pollution in the winter is associated with more hospitalisations for all strokes in Dublin.

The study, led by researchers from RCSI University of Medicine and Health Sciences, is published in the [current edition of \*Cerebrovascular\*](#)

*Diseases.*

During winter months in Ireland, particularly in Dublin, higher levels of fine particles, coarse particles, sulphur dioxide and [nitrogen dioxide](#) are found in the air. The sources of these are [solid fuel](#) burning, such as coal, peat, and wood, as well as [road traffic](#)—especially [diesel engines](#).

After accounting for other variables, such as temperature, humidity, day of the week and time, the researchers found that there was a statistically significant rise in the number of hospitalisations for strokes in Dublin zero to two days after a rise in air pollution.

For higher levels of nitrogen dioxide and [sulphur dioxide](#), the researchers found both had an associated 3.5% higher risk of stroke. Higher levels of coarse particles correlated with a 3.2% higher risk, and finer particles correlated with a 2.4% higher risk.

The study marks the first time there has been a link demonstrated between short-term air pollution and stroke in Ireland.

"Every year, more than 10,000 people in Ireland have a stroke. Our research adds evidence that there needs to be a national ban on solid fuel burning to help in our efforts to reduce this number," said Dr. Colm Byrne, the study's lead author and clinical lecturer in the RCSI Department of Geriatric and Stroke Medicine.

There was no significant association for all air pollutants found in the smaller urban area of Cork, but meta-analysis showed a significant association between hospitalisations for strokes and higher levels nitrogen dioxide and fine particles in the air.

"Because Ireland has relatively low air pollution when compared internationally, this highlights the need to introduce additional policy

changes to reduce [air pollution](#) in all countries," said Professor David Williams, professor of stroke medicine at RCSI.

**More information:** Colm Patrick Byrne et al, Short-Term Air Pollution as a Risk for Stroke Admission: A Time-Series Analysis, *Cerebrovascular Diseases* (2020). [DOI: 10.1159/000510080](https://doi.org/10.1159/000510080)

Provided by RCSI

Citation: Research finds air pollution in Ireland associated with strokes (2020, August 11)  
retrieved 8 May 2023 from <https://medicalxpress.com/news/2020-08-air-pollution-ireland.html>

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