

Pollution exposure may affect lung cancer in women who have never smoked

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Recent air pollution exposure in the form of particles smaller than 2.5 micrometers (PM_{2.5}) exposure may significantly impact lung cancer in women who have never smoked, with notable differences in stage IV

diagnoses among EGFR+ patients, according to research presented at the International Association for the Study of Lung Cancer (IASLC) [2024 World Conference on Lung Cancer](#).

The International Agency for Research on Cancer (IARC) categorized outdoor air pollution and its key component, particulate matter PM_{2.5}, as Group 1 carcinogens in 2013, indicating that they cause [lung cancer](#). Associations between tobacco use and lung cancer account for a majority of lung cancers.

Still, researchers and public health experts have not been able to identify an association that explains why individuals who do not smoke or have never smoked are diagnosed with lung cancer.

"The timing and duration of PM_{2.5} exposure that are most relevant for the development of lung cancer and lung cancer risk have not been well characterized. The purpose of our study is to compare the associations between recent versus long-term cumulative PM_{2.5} exposure in men and women who had never smoked and lung cancer EGFR mutation status," said Dr. Yixian Chen, a researcher at British Columbia Cancer Research Institute, Vancouver, Canada.

The [research](#) team collected data from newly diagnosed lung cancer [patients](#) who never smoked that included information on their residential history from birth to the date of diagnosis.

Dr. Chen and the team then geocoded each residential address and analyzed high-resolution concentration estimates of PM_{2.5} exposure from [satellite data](#), chemical transport models, and ground measurements within roughly 10 x 10 kilometer areas corresponding to the time the individual lived at each address. The team obtained annual exposure data going back to 1996 when accurate air pollution information became available globally.

A total of 255 patients with known EGFR mutation status were included in the analysis. Significant associations were observed between EGFR mutation and cancer stage among women ($p=0.197$ in men, p

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