

Poor environmental quality linked to elevated cancer rates

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Cancer cell during cell division. Credit: National Institutes of Health

Experts warn that recent legislative proposals could jeopardize research on the links between cancer and the environment.

A new study reveals an association between cumulative [exposure](#) to harmful environmental factors and cancer incidence across the United States, with prostate and breast cancer especially demonstrating strong links with poor environmental [quality](#). Published early online in *Cancer*, a peer-reviewed journal of the American Cancer Society, the findings may help to reduce the burden of cancer by allowing officials to identify vulnerable communities in need of attention.

To investigate the effects of overall environmental quality across multiple domains—including air, water, and land quality; sociodemographic environment; and built environment—Jyotsna S. Jagai, MS, MPH, PhD, of the University of Illinois, Chicago, and her colleagues linked the Environmental Quality Index, a county-level measure of cumulative environmental exposures, with cancer incidence rates from the Surveillance, Epidemiology, and End Results Program State Cancer Profiles.

The average annual county-level age-adjusted incidence rate for all types of cancer was 451 cases per 100,000 people. Counties with poor environmental quality demonstrated a higher incidence of cancer cases—on average 39 more cases per 100,000 people—than counties with high environmental quality over the study period. Increased rates were seen for both males and females, and prostate and breast cancer demonstrated the strongest positive associations with poor environmental quality.

"Our study is the first we are aware of to address the impact of cumulative environmental exposures on [cancer incidence](#)," said Dr. Jagai. "This work helps support the idea that all of the exposures we experience affect our health, and underscores the potential for social and environmental improvements to positively impact health outcomes.

Dr. Jagai noted that research has traditionally focused on individual

environmental exposures, which is important for understanding specific mechanisms that can cause disease; however, cancer development is dependent on the totality of exposures people face, including social stressors. "Therefore, we must consider the overall environment that one is exposed to in order to understand the potential risk for cancer development," she said.

An accompanying editorial notes that the study is an excellent example of the value of geospatial data in cancer control research. "These data are fundamental to documenting which communities are most vulnerable in terms of high cancer rates, and which geographically determined factors may be driving community-level disparities," the authors wrote. They also stressed that recent legislative proposals that seek to suppress the federal collection of geospatial data, such as the Local Zoning Decisions Protection Act of 2017, which was introduced in January 2017 and seeks to prohibit the use of Federal funds for the collection of [geospatial data](#) on racial and community disparities, could severely and negatively impact this type of research and policy efforts guided by these types of data.

Likewise, the authors warned that H.R.861, a bill introduced in February 2017 to terminate the Environmental Protection Agency, the source of the environmental data used in this study, will have severe repercussions on the scientific community's ability to produce research on the factors that contribute to disease in vulnerable communities. "These data are essential to [cancer](#) control and the public's health," the authors note.

More information: Jyotsna S. Jagai et al, County-level cumulative environmental quality associated with cancer incidence, *Cancer* (2017). [DOI: 10.1002/cncr.30709](https://doi.org/10.1002/cncr.30709)

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