Cancer mortality rates correlate to geography as well as known behavioral risk factors

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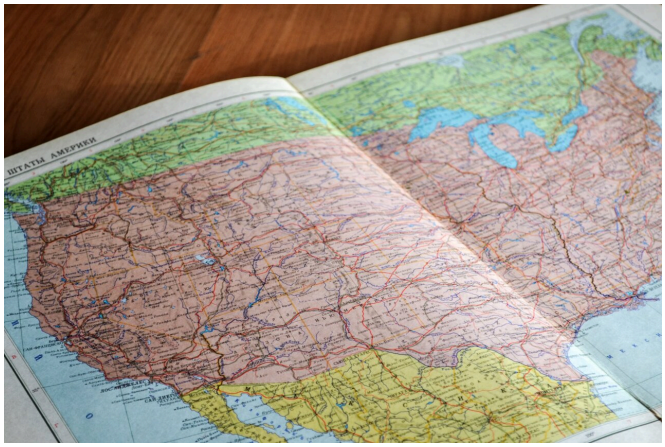

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Researchers at Case Western Reserve University have found that risk factors historically linked to cancer mortality vary regionally across the United States (lower 48 states)—such that they believe those differences should be considered in developing tailored public-health interventions.

For example, western states have the lowest rates of cancer deaths per 100,000 residents. Among those who do die from any type of cancer, risk factors such as obesity, sedentary lifestyle and diabetes outweigh smoking and drinking as principal behavioral risk factors.

Meanwhile, in southern states, where deaths from cancer per 100,000 residents are the highest, smoking is the leading behavioral risk factor linked to cancer mortality.

The researchers focused on a broad range of risk factors known to both contribute to and help prevent cancer deaths, including health behaviors and socioeconomic characteristics, demographic and environmental factors, comorbidity prevalence, cancer screenings and receipt of treatment and survivorship care.

"This innovative approach to data analysis—using existing behavioral risk-factor data and a novel location-focused machine-learning method—shows the power of more refined data analysis with practical applications in addressing cancer care and prevention," said the study's lead author Weichuan Dong, a health services researcher with Population Cancer Analytics Shared Resource at the Case Comprehensive Cancer Center.

The paper, "Variation in and Factors Associated with U.S. County-Level Cancer Mortality, 2008-2019," ran in *JAMA Network Open* on Sept. 9.

This geospatial cross-sectional study used county-level data from the National Center for Health Statistics for individuals who died of cancer from 2008 to 2019. Risk-factor data was obtained from County Health Rankings & Roadmaps, the Health Resources and Services Administration and the Centers for Disease Control and Prevention. The study included 7.2 million people (median age, 70-74 years; 3.4 million women [47.5%]) who died from cancer in 3,108 contiguous U.S. counties.

"Following up on this research, it would be wise to take a closer look at environmental factors, including data about water quality, agricultural pesticides and air pollution," Dong said. "That layering of data will draw a clear picture of the ranking of risk factors linked to cancer mortality, such that local communities can address them with effective interventions. Additionally, the data show that the receipt of Supplemental Nutrition Assistance Program benefits (SNAP or food stamps) is a strong predictor of cancer mortality in

many parts across the US, which points to the need for future investigations into the health status of the population receiving SNAP benefits."

More information: Weichuan Dong et al, Variation in and Factors Associated with U.S. County-Level Cancer Mortality, 2008-2019, *JAMA Network Open* (2022). DOI: 10.1001/jamanetworkopen.2022.30925

Provided by Case Western Reserve University

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