Mapping Cancer Deaths by US Congressional District Shows Wide Variation

Study provides basis for targeted cancer control efforts

August 10, 2015– Cancer death rates vary nearly two-fold when mapped by U.S. congressional district, with rates generally lowest in Mountain states and highest in Appalachia and areas of the South, according to a new analysis by American Cancer Society researchers. The report appears early online in CA: A Cancer Journal for Clinicians.

While cancer mortality data are readily available for states and counties, they are not available specifically for congressional districts. Knowing where cancer burden hits hardest is critical in advocating for and achieving effective cancer prevention and control programs.

Researchers led by Rebecca L. Siegel, MPH, director of surveillance information for the American Cancer Society, calculated average annual cancer death rates from 2002 to 2011 for each of the 435 congressional districts using mortality data from the National Center for Health Statistics and population estimates from the US Census Bureau. They mapped age-standardized death rates for all cancer sites combined, as well as for lung, colorectal, breast, and prostate cancers.

They found overall cancer mortality rates among men range from 159 per 100,000 in Utah's 3rd congressional district to 300 per 100,000 in eastern Kentucky's 5th congressional district. Among women, the lowest overall cancer mortality rate is 112 per 100,000 in Utah's 1st congressional district while the highest is 196 per 100,000, again in Kentucky's 5th congressional district.

For lung and colorectal cancer, death rates are generally again lowest in Mountain states and highest in Appalachia and areas of the South, with the lowest death rates in those cancers consistently noted in Utah congressional districts.

For breast and prostate cancers, the highest rates are scattered throughout the South, but the geographic pattern is less clear, with the lowest rates in congressional districts in Hawaii, southern Texas, and Florida.

While cancer mortality is usually reported by state, the analysis found considerable variation within state boundaries in Texas, Georgia, and Florida for both men and women; within-state variation was more common for women than for men.

Patterns also vary by race/ethnicity. For example, among non-Hispanic whites, prostate cancer death rates are highest in the West and north central United States. But among African Americans, highest prostate cancer death rates are in the Deep South. Hispanics have the lowest cancer mortality rates except for colorectal cancer in Wyoming, eastern Colorado, and northern New Mexico.

"The substantial variation in overall cancer death rates by congressional district is driven primarily by economic, racial, and urban-rural disparities in access to care and risk factor prevalence," Siegel said. "Investing in cancer prevention and treatment programs could help curtail the disparity in death rates as well as the current explosion in cancer costs. The enormous variation in the risk of cancer death mapped out in our study reflects the large influence of behavioral and environmental factors, many of which are modifiable. We hope this study provides a basis for targeted policies to mitigate the deficiencies in cancer control that exist in these specific states and localities, as well as to improve cancer control nationwide."

Other authors on the study were: Liora Sahar PhD, Kenneth M. Portier PhD, Elizabeth M. Ward PhD, and Ahmedin Jemal DVM, PhD, all of the American Cancer Society.

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Graphic: Overall cancer death rates for the 435 congressional districts: females.

Graphic: Overall cancer death rates for the 435 congressional districts: males.
