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**Related material:** Also available at the For the Media [website](http://media.jamanetwork.com), the editorial, “Understanding County-Level, Cause-Specific Mortality,” by Cheryl R. Clark, M.D., Sc.D., of Brigham and Women's Hospital and Harvard Medical School, Boston, and David R. Williams, Ph.D., M.P.H., of the Harvard T.H. Chan School of Public Health, Boston.

**To place an electronic embedded link to this study in your story** This link will be live at the embargo time: <http://jamanetwork.com/journals/jama/fullarticle/10.1001/jama.2016.13645>

**Study Finds Large Differences in Mortality Rates between U.S. Counties**

In an analysis of U.S. cause-specific county-level mortality rates from 1980 through 2014, there were large between-county differences for every cause of death, although geographic patterns varied substantially by cause of death, according to a study appearing in the December 13 issue of *JAMA*.

Among counties within the United States, relatively little is known about geographic patterns and inequalities in mortality by underlying cause of death. Information about variation in cause-specific mortality could provide important insights into geographic inequalities and divergent trends in life expectancy.

Christopher J. L. Murray, M.D., D.Phil., of the Institute for Health Metrics and Evaluation, University of Washington, Seattle, and colleagues used death registration data from the National Vital Statistics System to estimate annual county-level mortality rates for 21 causes of death. These estimates were raked (scaled along multiple dimensions) to ensure consistency between causes and with existing national-level estimates. Geographic patterns in the age-standardized mortality rates in 2014 and in the change in the age-standardized mortality rates between 1980 and 2014 for the 10 highest-burden causes were determined.

A total of 80,412,524 deaths were recorded from January 1, 1980, through December 31, 2014, in the United States. Of these, 19.4 million deaths were assigned garbage codes (implausible or insufficiently specific cause of death codes). Mortality rates were analyzed for 3,110 counties or groups of counties. Large between-county disparities were evident for every cause, with the gap in age-standardized mortality rates between counties in the 90th and 10th percentiles varying from 14 deaths per 100,000 population (cirrhosis and chronic liver diseases) to 147 deaths per 100,000 population (cardiovascular diseases). Geographic regions with elevated mortality rates differed among causes: for example, cardiovascular disease mortality tended to be highest along the southern half of the Mississippi River, while mortality rates from self-harm and interpersonal violence were elevated in southwestern counties, and mortality rates from chronic respiratory disease were highest in counties in eastern Kentucky and western West Virginia.

Counties also varied widely in terms of the change in cause-specific mortality rates between 1980 and 2014. For most causes (e.g., neoplasms, neurological disorders, and self-harm and interpersonal violence), both increases and decreases in county-level mortality rates were observed.

“Geographic patterns differed significantly across causes, underscoring the importance of considering cause-specific mortality in addition to measures of all-cause mortality such as life expectancy. For some causes (e.g., cardiovascular diseases), counties in the south and Appalachia had elevated mortality, while counties in western states had mortality much lower than average, a pattern that, broadly speaking, has also been documented in maps of life expectancy as well as maps of risk factors such as smoking, physical inactivity, and obesity. However, other causes had very different geographic patterns. Moreover, for some causes (e.g., mental and substance use disorders), there were striking clusters of counties with very high mortality rates. Geographic patterns in changes over time were similarly variable among causes,” the authors write.

“There are a number of potential uses for these estimates: state and county health departments could use county-level mortality estimates to identify pressing local needs and to tailor policies and programs accordingly; physicians could use these estimates to better understand the health concerns of the populations they serve; researchers could identify counties that have done unexpectedly well or poorly with regard to a particular cause of death and that warrant additional study to identify factors driving these trends; and communities can use these estimates as evidence when advocating for change. Further, for causes of death for which effective treatments are available, variation in mortality rates can highlight where access to treatment or quality of care is a pressing problem.”

(doi:10.1001/jama.2016.13645; the study is available pre-embargo at the For the Media [website](http://media.jamanetwork.com))

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