State of Washington

Variations in Life Expectancy and Mortality Rates by State Legislative Districts, 2012–14

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Background and purpose

Variations in health by geographic region are commonly reported, with such reports commonly using counties as the geographic unit of analysis. However, within Washington state, counties vary widely by population size, and this can hamper comparative assessments: In the more populous counties, such as King, Pierce and Snohomish, the various communities contained within each county (e.g., rich, poor, healthy and not) become muddled together, and the differences among these subcounty communities are subsequently masked. For less populous counties, such as Columbia, Garfield and Wahkiakum, the number of people is so small that the rates become highly unstable, often with wide confidence intervals, making them difficult to use for comparative purposes. Moreover, while county boundaries were not initially drawn in a random fashion, the rationales for those boundaries are often arcane and idiosyncratic, and are not necessarily reflective of the communities today.

Legislative districts, in contrast, are all similar in population size and yet large enough to generate relatively stable rates. Since 1991, these district boundaries have been updated every 10 years by a nonpartisan commission with the goal of making sure that "to the extent possible, boundaries of cities, counties, neighborhoods and communities that have common interests are respected, and their division minimized[1]." Each district also has three elected officials, one in the state Senate and two in the state House of Representatives, who have an interest in the health and well-being of the constituents represented. For these reasons, we have chosen state legislative districts as our unit of analysis in this report on assessing geographic variations in health.

Health measures assessed

In this assessment, we report the 10 leading causes of death in Washington state, using age-adjusted rates for deaths from 2012 to 2014 combined. Ninety-five percent confidence intervals were also generated for these rates, and districts whose confidence intervals do not overlap with the state's confidence intervals rates were considered to have rates either significantly higher than or lower than the state's rates.

In rank order, from highest to lowest, the 10 leading causes of death between 2012 and 2014 were cancer, heart disease, Alzheimer's disease, chronic obstructive pulmonary disease (COPD), unintentional injury, stroke, diabetes, suicide, chronic liver disease, and influenza and pneumonia combined. For some of these leading causes, we assessed subcategories of the disease or cause. Hence for cancer, we included separate assessments of lung cancer, breast cancer, prostate cancer and colorectal cancer. Similarly with heart disease, we assessed the subset, coronary heart disease (CAD). For unintentional injuries, we included an assessment of unintentional poisoning and motor vehicle crashes. And finally, for suicide, we separately assessed firearm suicides. In all these instances, the subcategories assessed were a major component of the broader disease category or condition in which they were contained.

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[1] Washington State Redistricting Commission http://www.redistricting.wa.gov/faq.asp

In this assessment, we have also included life expectancy by legislative district. This summary measure takes into account the age-specific death rates in each district and uses those rates in determining the average life expectancy within each district if those age-specific rates remained constant. This measure is not intended to be predictive of any one individual's actual life expectancy.

Age-adjusted rates for all causes of death were also assessed by district. As with life expectancy, this measure provides the broadest indicator of potential disparity by legislative district.

Finally, we included two derived measures: one on smoking-attributable causes of deaths and another on deaths that potentially could have been preventable had there been access to appropriate health care services. This latter category is commonly referred to as health care amenable deaths. The rates for these, too, are age-adjusted, and the specific definitions and proportions of ICD-10 causes of death used in these two measures — as well as the ICD-10 codes used in all the other measures — can be found in the Appendix.

A one-page summary and a matrix of each measure assessed by legislative district precede this report's main body, showing their ranking (higher, no different or lower) relative to the state.

Summary of Findings

Four districts — the 3rd, 19th, 29th and 30th — had 11 or more of the 22 measures that were significantly higher or, in the case of life expectancy, shorter than the statewide measures. For all four districts, these included the two major summary measures — life expectancy and all deaths; the two derived measures — smoking attributable deaths and health care amenable deaths; plus all cancers and lung cancer, all heart disease, chronic obstructive pulmonary disease (COPD) and diabetes. The 19th district had the most measures that were higher or shorter than the state, 19. The 3rd was second with 14 poor measures. The 29th had 13. Lastly, the 30th had 11.

In addition to those measures listed abo e, the 19th also had higher rates for CAD; all unintentional injuries as well as unintentional poisonings and motor vehicle crashes (MVC); stroke; all suicides and firearm suicides; chronic liver disease; and influenza and pneumonia. The 3rd, too, also had higher rates for all unintentional injuries plus unintentional poisonings; stroke; all suicides; and chronic liver disease. The 29th had higher rates for CAD; Alzheimer's; stroke; and all suicides. And the 30th also had a higher rate for CAD.

In contrast, the 41st district had 17 measures that were better than the state's. The 48th had 16. The 43rd and the 45th each had 13, and the 46th had 12. Measures for these five districts were better than the state's for life expectancy; all deaths; smoking-attributable deaths; health care amenable deaths; all cancers; lung cancer; heart disease; COPD; and stroke.

The 41st district also had significantly lower rates than the state's for CAD; Alzheimer's; all unintentional injuries plus unintentional poisonings and MVC; diabetes; all suicides; and chronic liver disease. Rates in the 48th were lower than the state's for CAD; all unintentional injuries and unintentional poisonings; all suicides and firearm suicide; chronic liver disease; and influenza and pneumonia.

The 43rd also had lower rates for CAD; Alzheimer's; MVC; and firearm suicide. The 45th also had lower rates for all unintentional injuries and unintentional poisonings; chronic liver disease; and influenza and pneumonia. Lastly, the 46th had lower rates for CAD; all unintentional injuries and unintentional poisonings; all suicides and firearm suicides; chronic liver disease; and influenza and pneumonia.

Summary of measures

Legend:
- Higher rate or shorter life expectancy than state
- No different from state
- Lower rate or longer life expectancy than state