

# Using County Health Rankings to Assess Population Health

By Jeri L. Bigbee, Sandra Evans, Judith Nagel, Diane L. Kenski

The recently released 2010 County Health Rankings represent a useful tool for public health professionals in addressing local population health issues. These rankings, which were developed by researchers at the University of Wisconsin Population Health Institute in collaboration with the Robert Wood Johnson Foundation, are based on a model of population health improvement in which measures of health outcomes are used to describe the current health status of most counties in the US. Each county receives two

primary ranks—one for health outcomes and one for health factors, with highest ranks judged as “healthiest.”

The outcome rankings are based on an equal weighting of mortality and morbidity measures. The mortality rank is based on a measure of premature death (the years of potential life lost prior to age 75). The morbidity rank is based on measures of self-reported fair or poor health, poor physical health days,

poor mental health days, and the percent of births with low birth weight.

The summary health factors rankings are based on weighted scores of four types of factors: behavioral, clinical, social and economic, and environmental. Health behavior indicators measure smoking, diet and exercise, alcohol use, and sexual behavior. Clinical care indicators measure access to care and quality of care, but does not include nursing workforce data. Social and economic factors measure education, employment, income, family and social support, and community safety. The physical environment includes measures of environmental quality and the built environment.

A recently completed pilot study in Idaho

illustrates how the county health rankings can be used in community-based health planning and research. This study analyzed existing data to address two research questions:

1. What is the relationship between county health ranking and population density in Idaho?
2. What is the relationship between county health ranking and nurse-to-population ratios in Idaho?

These research questions are relevant in light of the health disparities and chronic nursing shortages that affect rural communities. Neither population density nor provider-to-population ratios were consistently related to population health indices in previous studies that used state or national level data. Using counties as the unit of analysis provides a much finer assessment of local community dynamics and is particularly important in reflecting rural and frontier communities whose unique dynamics are often lost when only state-level data are used.

Our study examined population density and nurse-to-population data in relation to population health indices using counties as the unit of analysis in Idaho. County nurse-to-population ratios for 2010 were computed from the current number of registered nurses and advanced practice nurses (provided by the Idaho Board of Nursing) residing in each county in the state, along with the 2008 Census estimates for each county. Nine of the counties were urban, 16 were rural, and 17 were frontier. The sample included a total of 121,161 RNs and 792 advanced practice nurses (APNs).

## Our Findings

Our results indicated that population density was not significantly related to either overall county health outcome ranking or health factor ranking, which was consistent with some previous research, but contradicts other studies that found lower levels of health among rural residents (see this issue’s online bibliography). This may be explained by the wide diversity of rural communities, particularly in a state like Idaho in which counties vary widely in income levels and population characteristics. For example, Blaine County, a frontier county in which Sun Valley is located, ranked highly. Population density was

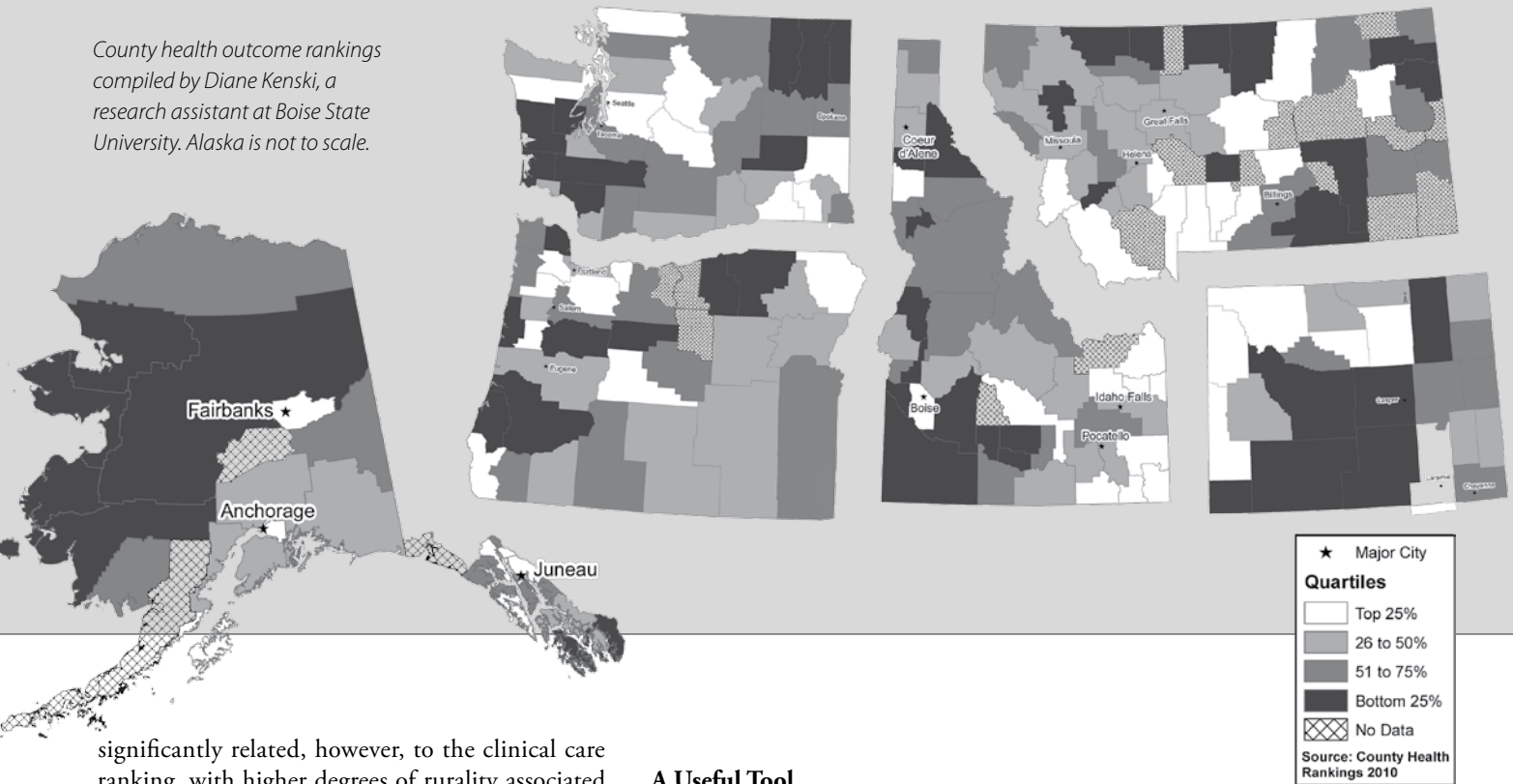


Above, nursing students Jason Oakes and Kathy Baker visit a retirement home. Photo courtesy Boise State University.

# County Health Rankings in Our Region

The project assesses the overall health of most counties in all 50 states and will be updated in 2011 and 2012. The rankings compare the counties in each state, but don't make cross-state comparisons. Still, they could stimulate local action toward policies, programs, and other decisions aimed at improving health.

*County health outcome rankings compiled by Diane Kenski, a research assistant at Boise State University. Alaska is not to scale.*



significantly related, however, to the clinical care ranking, with higher degrees of rurality associated with poorer clinical care rankings, which was not surprising given the limited health care resources in rural and frontier communities.

Similarly, when we looked at the county-based nursing data, the RN-to-population ratio was not significantly related to overall county health outcome or factor rankings. However, higher nurse-to-population ratios were associated with higher county rankings for clinical care. This finding again was not surprising since the clinical care ranking category reflects health care resources in which nurses are major providers of care. The APN-to-population ratio was not significantly related to the county health outcomes ranking, but correlated with the overall county health factors ranking and the social economic factors ranking. This indicated that higher APN-to-population ratios were associated with healthier county rankings for health factors overall and social and economic factors in particular. This approach to workforce evaluation in relation to county health dynamics could be used with other health and human services disciplines.

## A Useful Tool

This pilot study showed how useful the recently released county health rankings can be in addressing public health and health workforce issues at the local level. The correlational findings must be interpreted cautiously, however, since the relationships between population density, provider-to-population ratios, and population health outcomes are complex. The use of county-level data, however, provides advantages, particularly when studying rural and frontier states such as Idaho. Further multivariate research with multiple states could examine population density and provider-to-population ratios in relation to population health over time, while controlling for other influencing variables.

This analysis of underlying factors would be highly useful in both public health promotion and workforce planning. Overall, this study demonstrated the value of the County Health Rankings as a useful data source for public health research and community-based assessment, planning, and evaluation. ■

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