

Racial disparities in health outcomes and factors that affect health: Findings from the
2011 County Health Rankings

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Introduction

A recent investigation of American health disparities concluded that strong socioeconomic and racial/ethnic patterns are evident in adult and child health indicators, with the lowest income groups and least educated experiencing the least healthy outcomes (Braveman et al, 2010). However, the authors also found education and income gradients in health disparities that vary among racial and ethnic groups and suggest that public health surveillance activities should examine socioeconomic and racial disparities jointly and separately. Different policy and programmatic interventions may be needed to address health issues considering existing economic, demographic, and policy environments.

The 2011 County Health Rankings (CHR), produced by the University of Wisconsin's Population Health Institute, provides a yardstick to measure community health and a range of factors that influence health using data for a relatively fine geographic level: the county (CHR, 2011). The CHR model was designed to show that where people live, learn, work, and play are directly related to health. In addition to medical care, the local built environment, policies, programs, and social structures play a part in determining health across the lifespan.

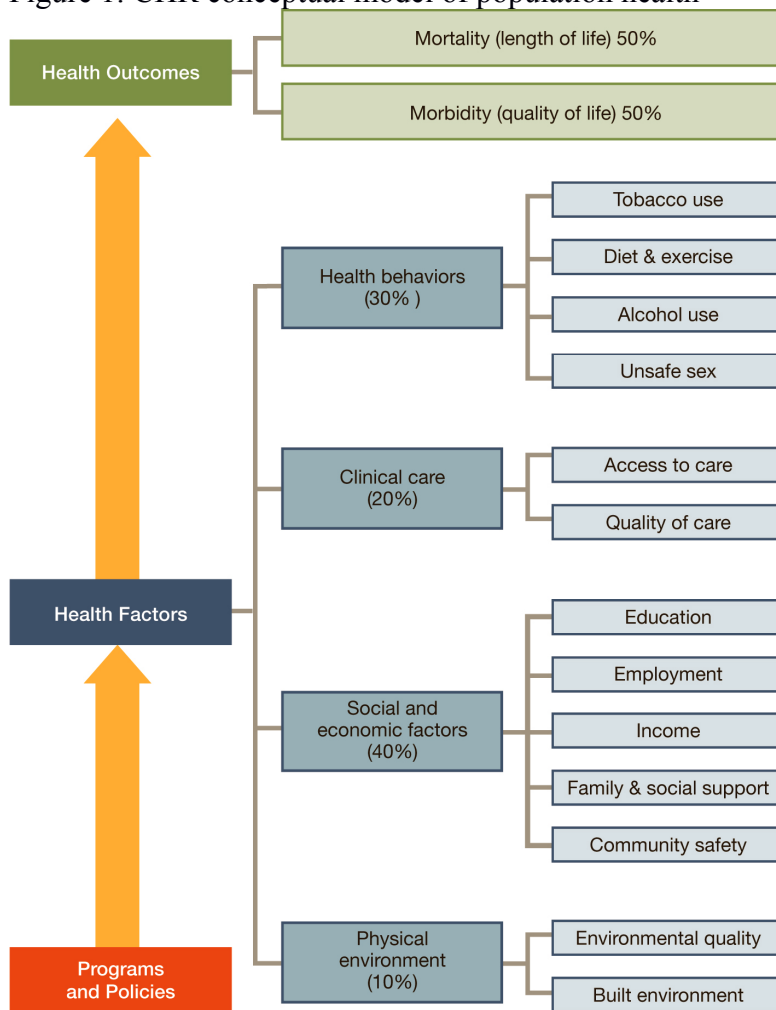
The CHR was intended to encourage stakeholders to improve health within their communities by identifying important local public health issues, addressing them with evidence-based programs, and gauging improvements over time with standard health measures. Summary composite rankings that are based on a variety of direct and indirect health indicators are easy to understand measures of health outcomes and factors that affect health. Given the wide range of health indicators included in the model, the CHR is an ideal resource to explore a range of health disparities. This study uses county-level data to describe differences in health outcome and factor ranks by the racial composition of American counties.

Methodology

Data

The CHR used county-level data from a range of national agencies to rank communities on health outcomes that included mortality and morbidity and factors that affect health (referred to subsequently as 'health factors') including health behaviors, clinical care, socioeconomic factors, and the physical environment (Figure 1). Details on the ranking methodology and extended details about the data included the model are available on the CHR website (CHR, 2011).

Figure 1: CHR conceptual model of population health



County Health Rankings model ©2010 UWPHI

Health factors were divided into focus areas including tobacco, diet and exercise, alcohol use, high risk sexual behavior, access to health care, quality of health care, education, employment, income, family and social support, community safety, air quality, and the built environment. The major sources of data were the National Center for Health Statistics; the Behavioral Risk Factor Surveillance System; the CDC’s Division of Diabetes Translation; the CDC’s National Center for Hepatitis, HIV, STDs, and Tuberculosis Prevention; the Census Bureau’s Small Area Health Insurance Estimates; the Health Resources and Services Administration’s Area Resource File (ARF); Dartmouth Atlas of Health Care; National Center for Education Statistics (NCES); American Cancer Society (ACS); the Bureau of Labor Statistics’ Local Area Unemployment Statistics; the Census Bureau’s Small Area Income and Poverty Estimates (SAIPE), Uniform Crime Reporting, EPA; the Census Bureau’s Zip Code Business Patterns; and the Census Bureau’s County Business Patterns.

A small number of counties (n=125) could not be ranked according to County Health Ranking protocol due to missing or unreliable data. These counties were excluded from this study. Ten states (Arizona, Connecticut, Delaware, Hawaii, Maine, Massachusetts,

Nevada, New Hampshire, Rhode Island, and Vermont) have fewer than 20 counties. Due to the focus on highest and lowest ranked counties in later analysis, counties in these 10 states were excluded from analysis. A total of 2,912 counties met the criteria for data quality and sufficient number of counties for analysis.

In keeping with the conceptual framework of the County Health Rankings project, counties were treated as equal units during analysis, although population size and composition varies considerably between and within counties. Counties were sorted by the percentage of the population that was white within each state according to 2009 Census Bureau estimates. The 10 counties with the highest and lowest percentage of white residents within each state were identified. The percentage of the population that was white ranged from 8.9% to 97.5% among the 10 counties with the lowest percentage of white residents. Among the counties with the highest percentage of white residents, the white population ranged from 74.5% to 99.8% of the total population.

Results

Ranking Disparities

Considering the main public health quality indicator produced by the County Health Rankings, counties with a higher proportion of whites were nearly twice as likely as counties with the lowest proportion of whites to be ranked among the top ten healthiest counties (13% vs 7%, respectively)(Table 1). Counties with the lowest proportion of whites were over 5 times as likely as counties with the highest proportion of whites to be among the least healthy ranked counties (22% vs 4%, respectively).

Table 1: Distribution of highest and lowest health outcome and factor ranks by racial status based on percentage of population that is white.

	Highest Ranked 10 Counties On Health Outcomes	Lowest Ranked 10 Counties On Health Outcomes	Highest Ranked 10 Counties On Health Factors	Lowest Ranked 10 Counties On Health Factors
%White				
Lowest 10 in each state	7% (26/400)	22% (89/400)	9% (35/400)	27% (108/400)
Highest 10 in each state	13% (50/400)	4% (17/400)	10% (10/400)	4% (15/400)

Ranking Components Disparities

The apparent racial disparities observed in ranks among counties can be decomposed into components used to determine the ranks. Mean values of the 28 measures used to determine each county's rank are presented in Table 2.

Table 2: White and Non-White Disparities in CHR measures, 2011

	Lowest 10 Counties % white	Highest 10 Counties % white	Ratio of lowest to highest
CHR-Health Outcomes			
<i>Mortality</i>			
Premature death (Years of potential life lost < 75 yrs)	9,391	8,011	1.17
<i>Morbidity</i>			
Fair or Poor Health (%)	17	16	1.06
Physical unhealthy days (average in a month)	4	4	0.98
Mental unhealthy days (average in a month)	3	3	1.01
Low birthweight (%)	9	8	1.20
CHR-Health Factors			
<i>Health Behaviors</i>			
Adult smoking (%)	22	21	1.05
Adult obesity (%)	30	28	1.09
Excessive drinking (%)	16	14	1.09
Motor vehicle crash death rate (per 100,000)	25	27	0.92
Sexually transmitted infections (chlamydia rate per 100,000)	576	150	3.84
Teen birth rate (per 1,000 females aged 15-19)	54	41	1.31
<i>Clinical Care</i>			
Uninsured Adults (%)	19	21	0.91
Primary care providers (providers per 100,000 population)	104	82	1.27
Preventable hospital stays (per 100,000)	82	86	0.96
Diabetic screening (% of Medicare enrollees that are screened)	79	82	0.96
Mammography screening (%)	61	64	0.96
<i>Social and Economic Factors</i>			
High School graduation rates (%)	74	82	0.91
Some college (% of adults aged 25+)	54	52	1.03
Unemployment (%)	9	9	1.06
Children in poverty (%)	25	20	1.23
Inadequate social support (%)	22	18	1.19
Single parent households (%)	38	25	1.51
Violent crime (per 100,000)	541	229	2.37
Homicide rate (per 100,000)	8	3	2.61
<i>Environmental Factors</i>			
Air pollution-particulate matter days (average in a year)	3	2	1.63
Air pollution-ozone days (average in a year)	3	2	2.15
Access to healthy foods (% with access)	60	53	1.15
Access to recreational facilities (% with access)	8	8	0.94

Counties with the lowest proportion of whites exhibit a number of disadvantages compared to the counties with the highest proportion of whites, including 17% higher premature mortality, 6% higher self-reported health, 20% higher low birth weight rates. Among health factors, counties with the lowest proportion of white report 5% higher smoking rates, 9% higher obesity and excessive drinking, 3.8 rate ratio for chlamydia, 31

% higher teen birth rate, 9% lower high school graduation rates, 23% more children in poverty, 51% more single parent households, more than double rate for homicides/violent crime, 63% higher particulate air pollution, and over twice as many ozone pollution days in a month.

Despite these disadvantages, counties with the lowest proportion of whites were characterized by a number of advantages: 8% lower motor vehicle mortality rates, 9% less uninsured, 27% higher primary care physician to population ratio, 3% higher partial college completion, 15% better access to healthy foods.

In order to describe geographic patterns in intrastate racial differences in composite health outcomes ranks, each state's counties are displayed with the highest and lowest proportion of white residents highlighted. Additionally, counties ranked among the healthiest in each state were highlighted in green and counties ranked among the least healthy were highlighted in red.

Figure 2: Map of high and low ranked counties, by racial group, County Health Rankings, 2011

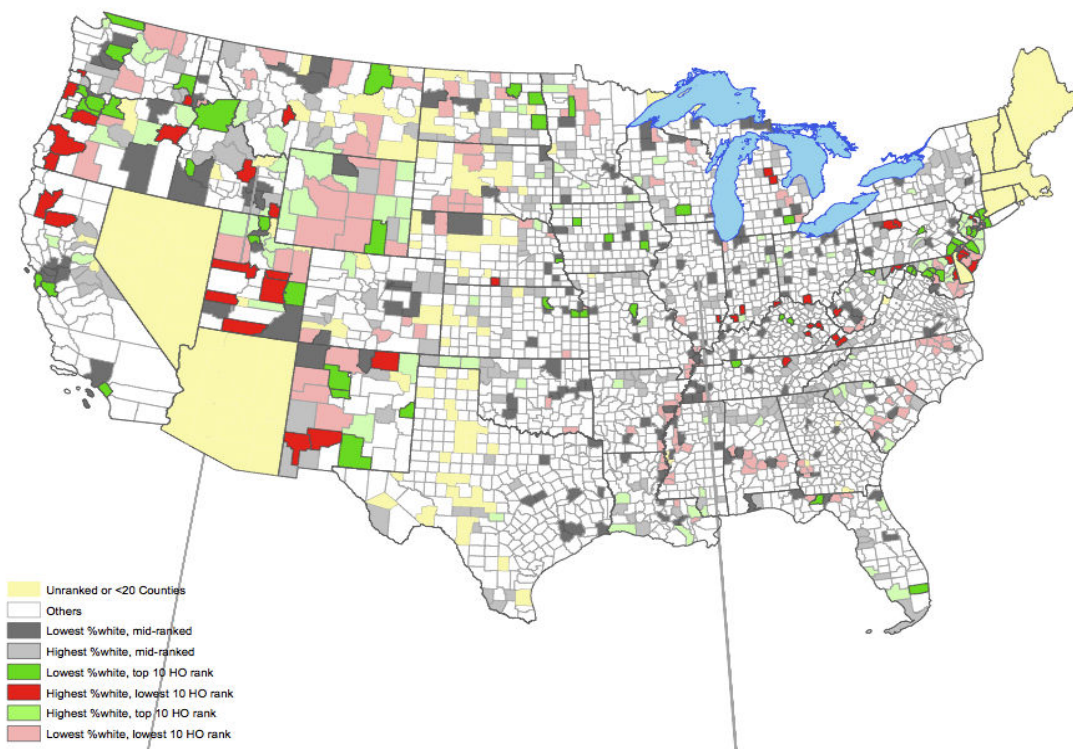


Figure 2 shows the geographic distribution of racial disparities in health outcome ranks. Many of the highlighted counties show long standing and well described health disparities. For instance, the concentration of lower ranked counties with higher minority populations along the Mississippi river in particular, but also throughout several other

southern states are commonly identified area of severe disparities and unmet health needs. Similarly, the lower ranked counties among areas with very high proportions of white residents in the Appalachian mountains and some western states with small minority populations (e.g. Utah) have been well identified.

Mapping county health disparities identifies several areas where counties with larger minority populations ranked very highly. These areas include the northeast states with several counties in New Jersey, Maryland, New York, and Pennsylvania, several counties in New Mexico, the Pacific Northwest, and counties in California around San Francisco and Los Angeles with highly ranked and relatively diverse populations.

Discussion

Racial disparities in health have been examined thoroughly by population health studies. The CHR framework allows a different look at the intersection of health outcomes and traditionally examined factors that affect health such as behavior and access to medical care, but also provides contextual details about socioeconomic status and physical environment characteristics that have more recently emerged as important determinants of health. The findings presented confirm that systematic racial disparities exist across the country, but the disadvantages in health experienced by areas with large racial minorities vary by measure. Furthermore, several parts of the country, concentrated in several highly economically productive coastal areas, break from historical patterns of racial disparities and feature relatively diverse populations that are experiencing better than average health as measured by higher health composite ranks.

Study Limitations

This study is subject to several limitations. First, there are very few counties with a majority non-white population. Only 129 counties had a population with less than 50% white residents according to 2009 Census records, representing less than 5% of all ranked counties. Comparisons of counties identified by proportion of white residents gives some indication about how racial concentration may be linked to health outcomes, but likely mask starker disparities that exist at finer geographic levels such as Zip code or Census tract. Unfortunately, sub-county data are not available for many measures used to determine the County Health Rankings, so investigation of finer geographic areas is better left to locally focused studies.

A second limitation is that the study does not take into account Hispanic or any other ethnic identity typically collected with the most modern Census protocol. Relatively few states have many counties with a high proportion of Hispanic or other ethnic group in multiple counties. Furthermore, previous research shows that health outcomes among Hispanics vary by citizenship status, duration of living in America, and country of birth. Future research could focus on describing health disparities and related characteristics of counties with particularly high Hispanic or other ethnic group representation with special attention to heterogeneity among these communities, but ethnic group analysis is outside the scope of this study.

A third potential limitation of this study is the intentional avoidance of attributing causal order to the health outcomes and factors. Considerable research has been conducted to sort out the question of whether health produces wealth or wealth produces health. However, the rich framework of the County Health Rankings makes no attempt to address these issues, rather leaving decisions about how to improve community welfare to local stakeholders.

Conclusion

Socioeconomic gradients in health, and specifically the failure of certain parts of the population to achieve the health outcomes of the most advantaged groups, are well-studied, but strategies to reduce them are more difficult to identify. A number of national and state health initiatives, most prominently the federal *Healthy People 2020*, seek to eliminate or at least shrink health disparities, but recognize these patterns as difficult to change. The County Health Rankings provide summary health ranks that serve as broad indicators of health disparities in many different aspects of health outcomes, access to health care, and the physical and policy environment. Measuring these disparities is an important step toward reducing their presence and impact on the well-being of the population, but the detailed nature of the County Health Rankings allows local public health officials and community leaders to tailor their policies, objectives, and services to the needs of their neighbors. A combination of national public health initiatives such as *Healthy People 2020* and targeted local action should yield improved health outcomes in the future, but surveillance of local health disparities with tools such as the County Health Rankings is an important part of the process.

References

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