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Geographic Health Disparities in Kentucky: Starting a Conversation About Local Solutions

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Geographic Health Disparities in Kentucky: Starting a Conversation About Local Solutions

Abstract

A recently released map of Kentucky demonstrates how life expectancy varies across the state's 120 counties. The map vividly shows a decline in life expectancy as one travels east from the "Golden Triangle" in central urban Kentucky to the mountains of Appalachia. The lowest life expectancies are largely in the far southeastern portion of the state, where residents of the Central Highlands have confronted adverse social determinants of health for generations. Indeed, companion maps released by the Center on Society and Health, which plot median household income, poverty, and educational attainment at the census tract level, show the stark socioeconomic disadvantage in this distressed Appalachian region. The maps are intended as "conversation starters" to stimulate public discourse about the factors that shape health outcomes and to mobilize community concern and policy action to address health disparities in Appalachia. Meaningful change at the local level will be essential to transform the social and economic factors responsible for the region's health.

Keywords

life expectancy, social determinants of health, health disparities, map visualization

Cover Page Footnote

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INTRODUCTION

Major initiatives such as the Robert Wood Johnson Foundation (RWJF)'s County Health Rankings and Roadmaps initiative[1] demonstrate that epidemiologic data deeply familiar to epidemiologists and public health leaders can be repackaged in engaging formats that can capture public attention, media coverage, and the interest of policymakers.[2] These "conversation starters" stimulate dialogue about factors that shape health and motivate action in ways that dense scientific reports cannot. They can provide the impetus for communities to begin exploring evidence-based solutions, conduct health needs assessments, set priorities, and investigate actionable policy.[3]

Maps have become a powerful visual tool for conveying gripping messages about data. The early success of its "DC Metro Map,"[4] which plotted differences in life expectancy across subway stops in the nation's capital, prompted the RWJF to commission the Virginia Commonwealth University Center on Society and Health to produce additional maps to portray disparities in life expectancy in 20 cities and rural locations across the country.[4] The maps plot life expectancy by ZIP code, county, or community and are developed in consultation with local public health leadership to draw attention to the situation in specific counties or neighborhoods. The release of the maps is accompanied by media coverage and op-eds that highlight local efforts to improve public health. Rural Kentucky was selected as one of the 20 map locations due to mounting concerns about the health challenges facing Appalachia.

CREATION OF THE MAPS

Population and death counts were obtained from CDC WONDER.[5] Death data for 2002–2011 were aggregated into 19 sets of 5-year age groups by decedent's county. The 10-year average for number of years was computed to match the single year of population data used. Newborn life expectancy was computed using abridged life tables and the Chiang methodology.[6] Some death counts were unavailable due to data suppression rules. The death and population counts for age groups with suppressed death counts were replaced with imputed values based on the age group's death and population counts at the state level during the same time period. Robertson County was excluded because death counts for multiple age groups were suppressed. Maps of median household income, poverty, and the percentage of adults aged ≥25 years with no more than a high school education were derived from 2009 5-year data from the American Community Survey.

KENTUCKY MAPS TELL THE STORY

Life expectancy in Kentucky averaged 76 years but varied significantly by county (Figure 1). The highest life expectancy (79 years) was in Oldham County, which is near Louisville and occupied largely by Louisville commuters. Life expectancy was lowest in southeastern Kentucky, in the heart of the Eastern Kentucky coal fields (Figure 2). The shortest life expectancies (70 years) were in Breathitt, Perry, and Wolfe counties. Central Kentucky is home to the "Golden Triangle," which stretches from Lexington to the three northern counties adjacent to Cincinnati. Figure 2 vividly illustrates the downward progression in life-expectancy that distinguishes the Golden Triangle from Appalachia. Life expectancy is 78 years in urban Fayette County (home to Lexington) and decreases steadily as one travels down the Mountain Parkway to Wolfe County, a rural, impoverished Appalachian county with a life expectancy of 70 years. Adverse socioeconomic conditions follow a similar geographic footprint. The same areas have

low rates of education beyond high school (Figure 3), low income (Figure 4), and high poverty rates (Figure 5).

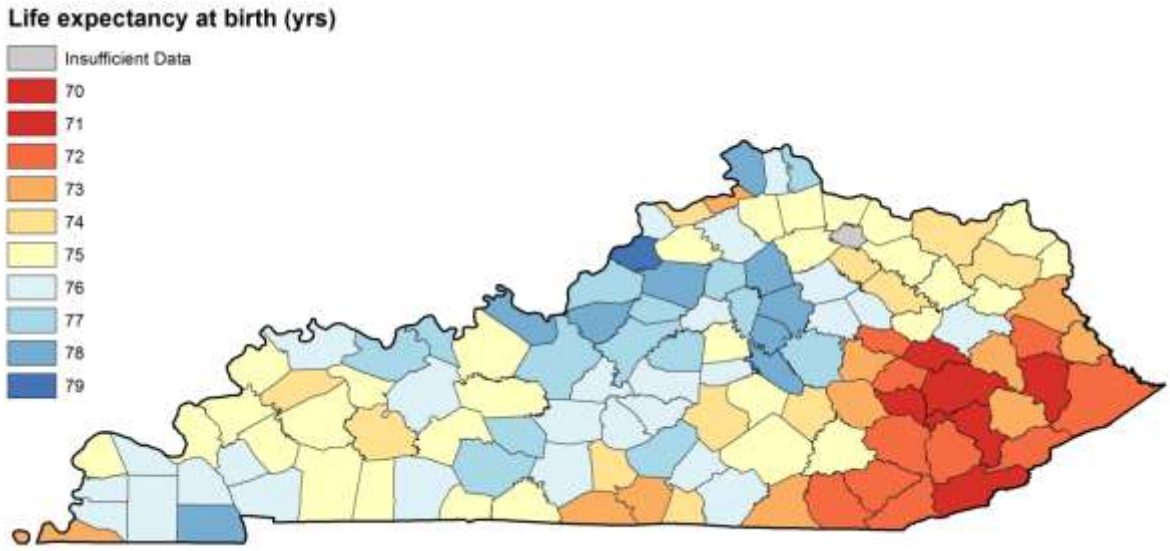

Figure 1. Life expectancy at birth by county, Kentucky 2002–2011
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DISCUSSION

Superficial explanations for health disparities miss the opportunity to target meaningful solutions. For example, it is tempting to blame the poor health of Appalachian residents of Kentucky on their poor health habits (e.g., smoking, poor diet, physical inactivity, drug abuse), which are among the worst in the Commonwealth and the nation.[1] However, health care accounts for only 10%–20% of health outcomes[7]; health behaviors are driven not only by personal choice but also by the environment, including conditions that either promote or endanger health. Health is also shaped by socioeconomic conditions—not only household finances but also the economic wellbeing of the community.

All these factors are stacked against the residents of Appalachia. Indeed, the Central Highlands—an area that also encompasses neighboring counties in West Virginia and Virginia—are a microcosm of a socioecologic framework for poor health. The abject poverty facing the Kentucky mountaineer has persisted for generations, exacerbated by the loss of coal mining jobs that once fueled the region's economy. The jobs of the future require an education that many local residents cannot obtain. Weak local economies and tax bases limit investments in schools, the built environment, and other infrastructure. Dilapidated mobile homes are the most common form of housing. Stress and hopelessness instill coping behaviors, which for some include smoking or the use of alcohol or drugs (e.g., opioids) to ease the pain, leading to addiction, disability, and premature death.

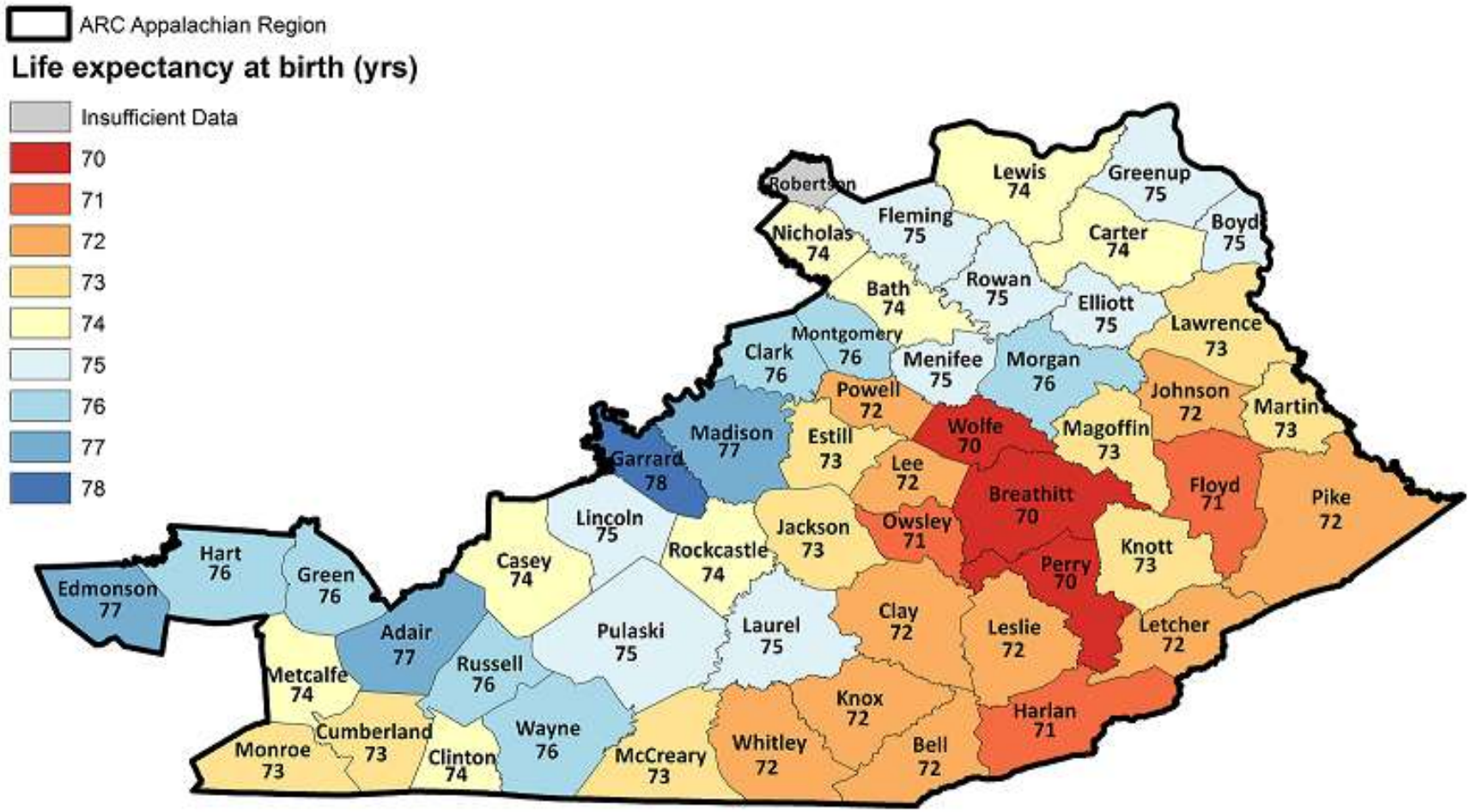

Figure 2. Life expectancy at birth by county, Appalachian Regional Commission area, Kentucky 2002–2011

Used with permission: The Center on Society and Health at Virginia Commonwealth University

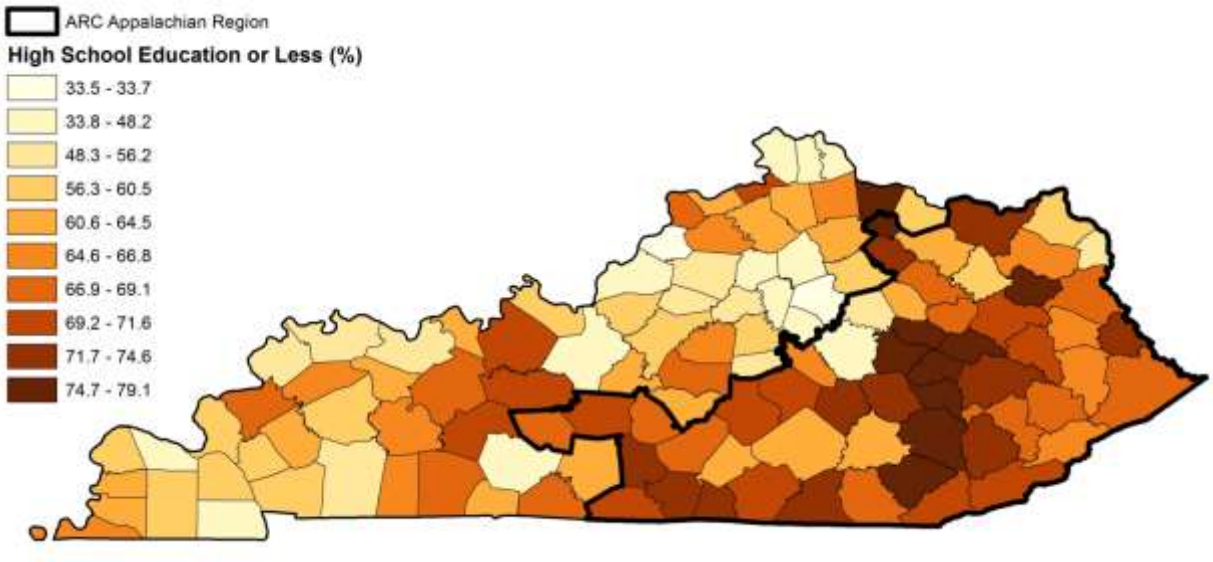

Figure 3. Percentage of population over 25 years with a high school education or less by county, Kentucky, 2005–2009

Used with permission: The Center on Society and Health at Virginia Commonwealth University

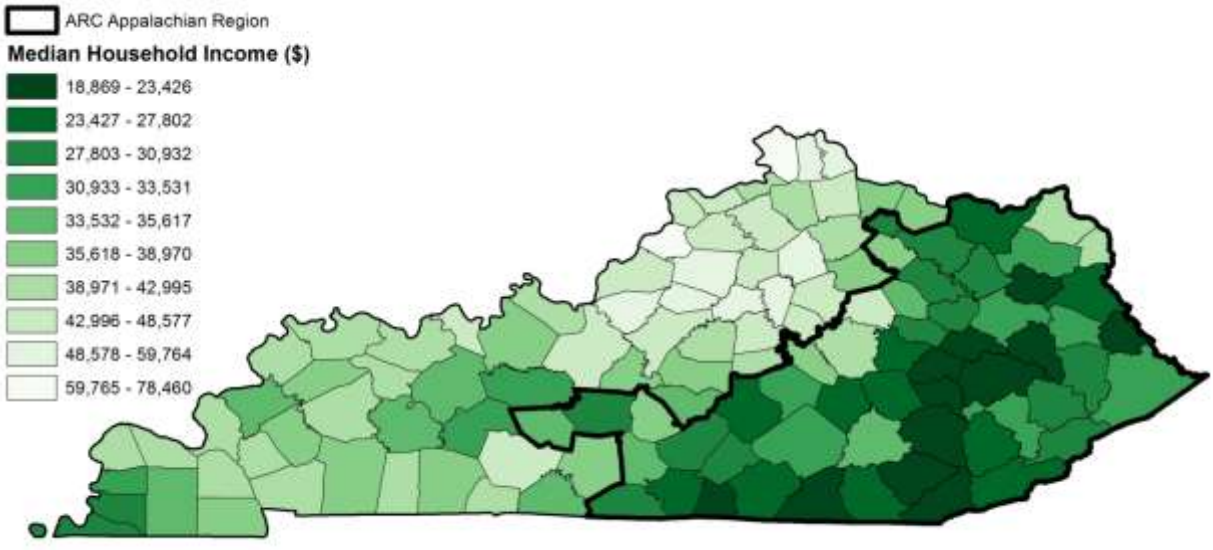

Figure 4. Median household income by county, Kentucky 2005–2009

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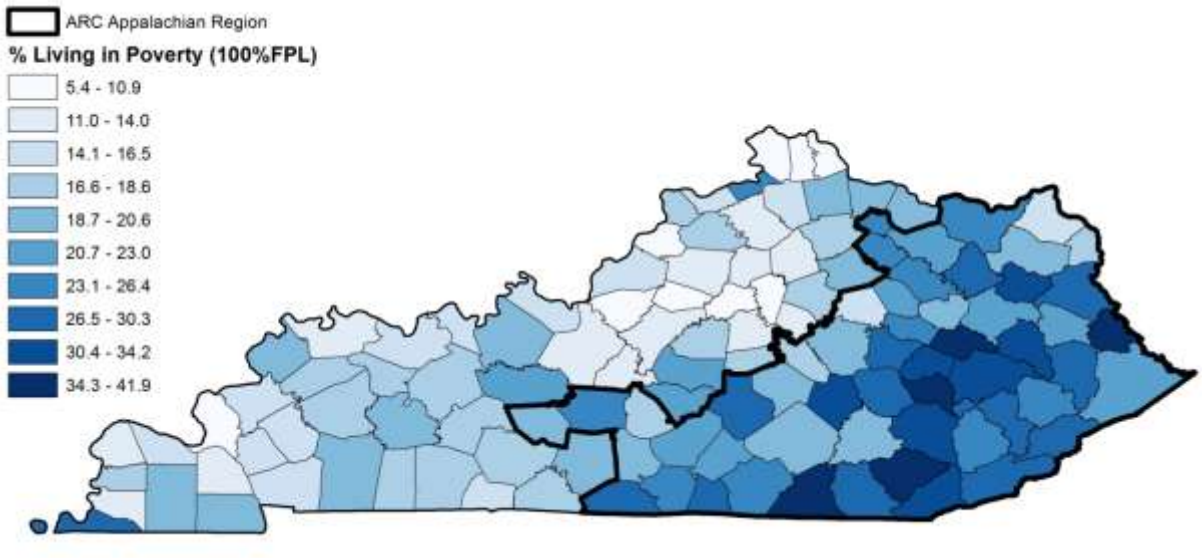

Figure 5. Percentage of population living at or below 100% federal poverty level by county, Kentucky, 2005–2009
Used with permission: The Center on Society and Health at Virginia Commonwealth University

The maps portrayed here deliver no answers but poignantly pose an obvious question: What must be done so that newborns in eastern Kentucky can live as long as those born in the "Golden Triangle" or the Louisville suburbs? The maps serve as a wake-up call to galvanize the community and its elected officials. For too long, the tendency has been to look outside the hills for solutions. Although groups such as the Appalachia Regional Commission can help address the area's challenges, this should not be the starting point. Problems in the community are best solved in the community. Residents and stakeholders in Appalachian communities should first come together in coalitions and collaboratives and marshal local resources to address the threats to health and socioeconomic wellbeing. Although public health departments and the medical community play a key role, critical forces for change include the education system, local government, and the faith community. Together, these groups can conduct community assessments, develop health improvement plans, and establish the infrastructure to allow for successful efforts to address community problems.

Progress has begun. For example, in 2013 the governor of Kentucky and U.S. Congressman Hal Rogers, who represents eastern Kentucky and chairs the U.S. House Appropriations Committee, established an organization for change called Shaping Our Appalachian Region. The maps shown here were released at the organization's June 2016 meeting, which showcased innovations in health, business (e.g., new industries), and social policy that, propelled by mountain wisdom and commitment, can transform the future of the Appalachian economy.[8] Kentucky has also made remarkable progress in arranging health insurance coverage for its citizens.

There is a long way to go. Public–private partnerships are needed in Appalachia to improve the education of children and to give their parents, whose willingness to work hard was demonstrated in the coal mines, new options for meaningful employment that offers healthier working conditions, good wages, and a hopeful future that replaces drugs and alcohol with optimism. The monotonous map of Kentucky, which always shows the problems of Appalachia

and not its wonder, has grown tiresome. The leadership of those from the mountain, aided by all of the Commonwealth, is essential for the map to change.

REFERENCES

1. County Health Rankings and Roadmaps. What Works for Health. http://www.countyhealthrankings.org/roadmaps/what-works-for-health

2. Woolf SH, Purnell JQ, Simon SM, Zimmerman EB, Camberos GJ, Haley A, Fields RP. Translating evidence into population health improvement: strategies and barriers. Annu Rev Public Health 2015 Mar 18;36:463–82. PMID: 25581146 DOI: 10.1146/annurev-publhealth-082214-110901.

3. Lamberth CD and Scutchfield, FD. Chapter 13 Community Health Assessment, Planning and Implementation in Erwin PC and Brownson RC, eds Scutchfield and Keck Principles of Public Health Practice 4th Ed. Boston: Cengage Learning, Boston MA, 2017. In Press.

4. Center on Society and Health. Mapping life expectancy. http://societyhealth.vcu.edu/work/the-projects/mapping-life-expectancy.html

5. Centers for Disease Control and Prevention. Wide-ranging ONline Data for Epidemiologic Research (CDC WONDER). http://wonder.cdc.gov/

6. Chiang CL. The life table and its construction. In: Introduction to stochastic processes in biostatistics. New York: John Wiley & Sons, 1968: 189–214. ISBN-10: 0882752006; ISBN-13: 978-0882752006.

7. Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: relationships between determinant factors and health outcomes. Am J Prev Med 2016 Feb;50(2):129–35. PMID: 26526164; DOI:10.1016/j.amepre.2015.08.024.

8. Shaping our Appalachian Region. SOAR innovation summit 2016. http://www.soar-ky.org/