Lifestyle

KEY FINDINGS | Physical Inactivity

- In the Appalachian Region, 28.4 percent of people report being physically inactive, a figure higher than the 23.1 percent reported for the United States as a whole.
- Physical inactivity in the Appalachian subregions range from 26.2 percent in Northern Appalachia to 33.8 percent in Central Appalachia, all of which are above the national average.
- There is an urban-rural divide in physical inactivity. In the Appalachian Region's rural counties, 31.8 percent of residents report being physically inactive, a figure much higher than the 25.2 percent reported in the Region's large metro areas.
- In the Appalachian Region's distressed counties, 33.9 percent of residents report being physically inactive, compared to 28.0 percent of residents in the Region's non-distressed counties.

Background

Physical inactivity measures the percentage of adults age 20 and over that report engaging in no leisure-time physical activity in a typical week. The data for this measure come from County Health Rankings and are based on 2012 data from CDC's Behavioral Risk Factor Surveillance System survey.

Physical inactivity is a risk factor for developing a number of chronic conditions discussed elsewhere in this report, including heart disease, obesity, diabetes, and stroke, many of which may ultimately lead to premature mortality (Centers for Disease Control and Prevention, Physical Activity, 2016). Regular physical activity, including activities as simple as walking, can help prevent weight gain and reduce the likelihood of developing diseases such as hypertension, diabetes, heart disease, and even cancer. Regular physical activity also improves physical fitness, mental health, and cognitive function (Kenny, 2015).

There are many strategies to increase physical activity levels in communities. Examples include increasing physical activity in schools, creating safe and accessible places to be active, providing transportation alternatives that make walking and biking more accessible, and increasing workplace wellness opportunities (Centers for Disease Control and Prevention, Physical Activity, 2016). A survey of older Appalachian adults concluded that strategies that build self-efficacy may be most effective in increasing physical activity (Zizzi, et al., 2006). Self-efficacy involves designing interventions around what the individuals currently do, and finding strategies to increase physical activity in a manner that the individuals feel confident they can achieve. For example, if local high schools provide residents with the opportunity to walk around the track in the evenings and on weekends, this gives the residents a course of action for improving their fitness levels more so than generic advice such as, "You need to walk more." Likewise, embracing important elements of local culture (e.g., dancing) and incorporating them into the physical activity plan may be more realistic than suggesting that everyone should ride a bicycle.

One limitation of this measure is that the question focuses specifically on leisure-time activity and does not include work-related physical activity (County Health Rankings, Physical Inactivity, 2016). Many occupations require a great deal of physical activity, and this indicator also does not capture household chores and maintenance. However, despite any shortcomings, the measure remains commonly used when studying the physical activity levels of a population.

Overview: Physical Inactivity in the Appalachian Region

With 28.4 percent of people reporting being physically inactive, Appalachia is less physically active than the nation as a whole, where this figure stands at 23.1 percent. Among the subregions, Northern Appalachia (26.2 percent) and Southern Appalachia (27.6 percent) are the best-performing, although their percentages are still higher than the national average. The three central Appalachian subregions all report physical inactivity above 30 percent: Central Appalachia (33.8 percent), North Central Appalachia (31.1 percent), and South Central Appalachia (30.1 percent).

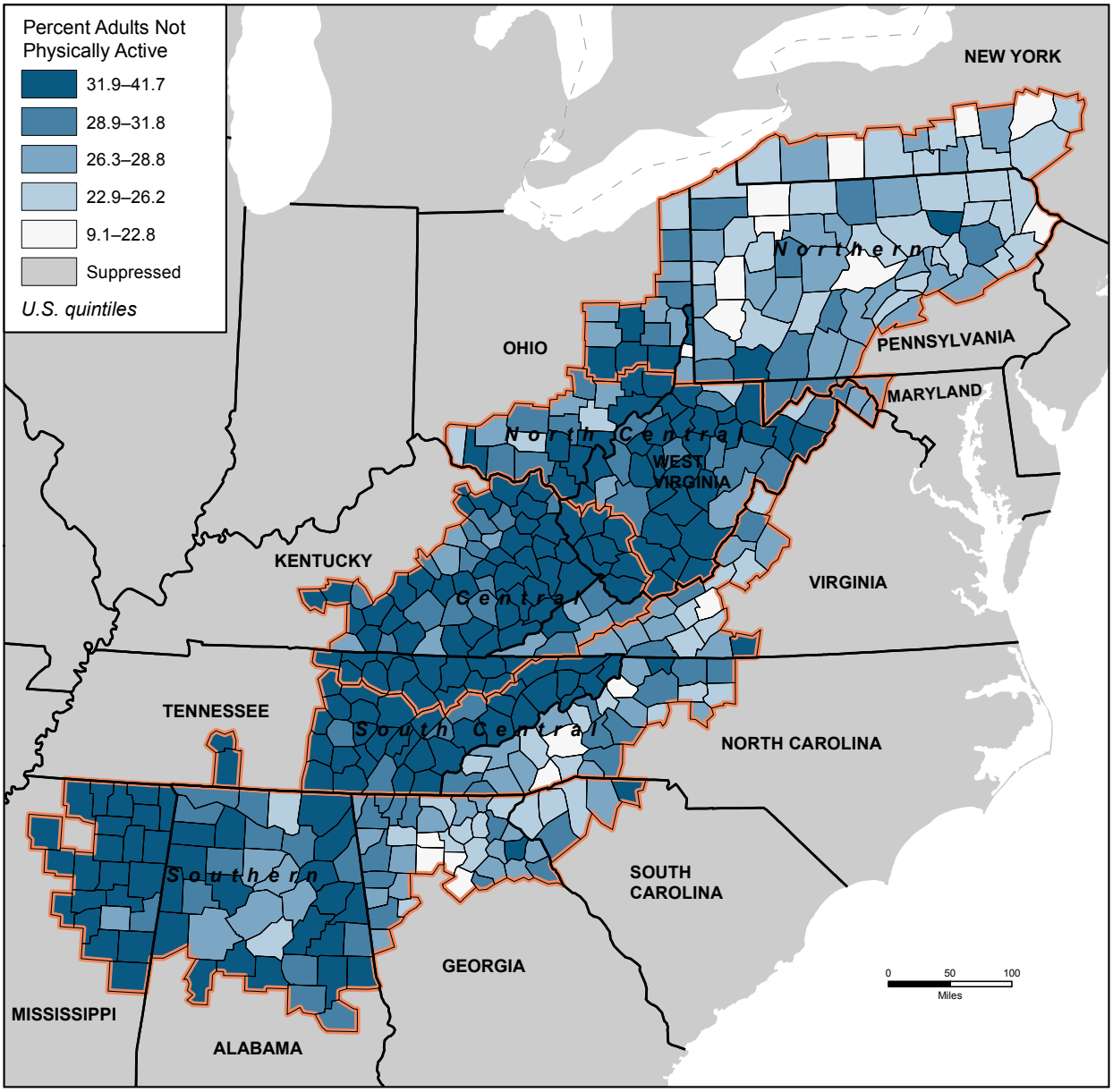
There is an urban-rural divide in physical inactivity, with 31.8 percent of the Region's residents living in rural areas reporting physical inactivity, a figure much higher than the 25.2 percent in the Region's large metro areas. The economic status of Appalachian counties is also an indicator of leisure-time physical inactivity—33.9 percent of residents in the Appalachian Region's distressed counties report physical inactivity, compared to 28.0 percent for those living the Region's non-distressed counties.

Although Southern Appalachia is the second best-performing among the Region's five subregions, Appalachian Mississippi is the worst-performing among the Appalachian portions of states. The percentage of adults reporting being physically inactive here is 35.1 percent, well above the national, regional, and subregional figures. However, non-Appalachian Mississippi also reports high physical inactivity among adults, at 33.0 percent of the adult population. Appalachian Tennessee (34.2 percent) and Appalachian Kentucky (32.8 percent) report the next highest percentages of physical inactivity; both numbers are much higher than the figures found in non-Appalachian Tennessee (30.6 percent) and non-Appalachian Kentucky (27.1 percent). No Appalachian portion of any state outperforms the non-Appalachian portion in this measure.

Figure 101 shows the variation in the percentage of adults reporting physical inactivity across the Appalachian Region. Darker colors indicate higher percentages of adults reporting physical inactivity. Outside of Northern Appalachia and some pockets in the southeastern parts of the Region, physical inactivity in many counties throughout Appalachia rank in the two worst-performing national quintiles.

Figure 102 aggregates the data for a variety of geographies useful for comparison: the Region compared to both the U.S. as a whole and the non-Appalachian portion of the country, subregions throughout Appalachia, levels of rurality in Appalachia, and economic status in Appalachia. State-level aggregation is done at three levels: the entire state, and then both the Appalachian and non-Appalachian portions of each state.

Figure 101: Map of Percentage of Adults Physically Inactive in the Appalachian Region, 2012



Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

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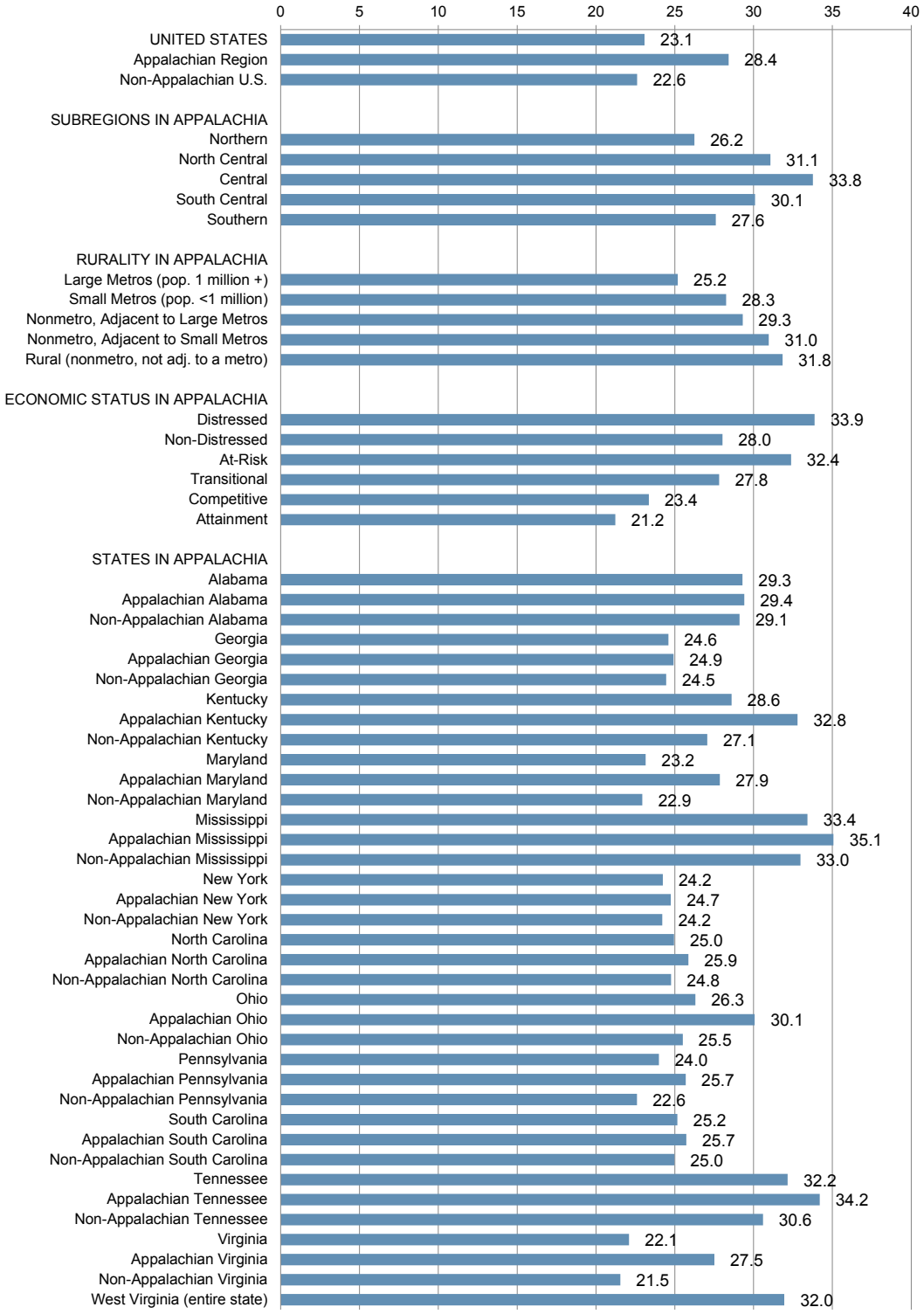
Figure 102: Chart of Percentage of Adults Physically Inactive, 2012

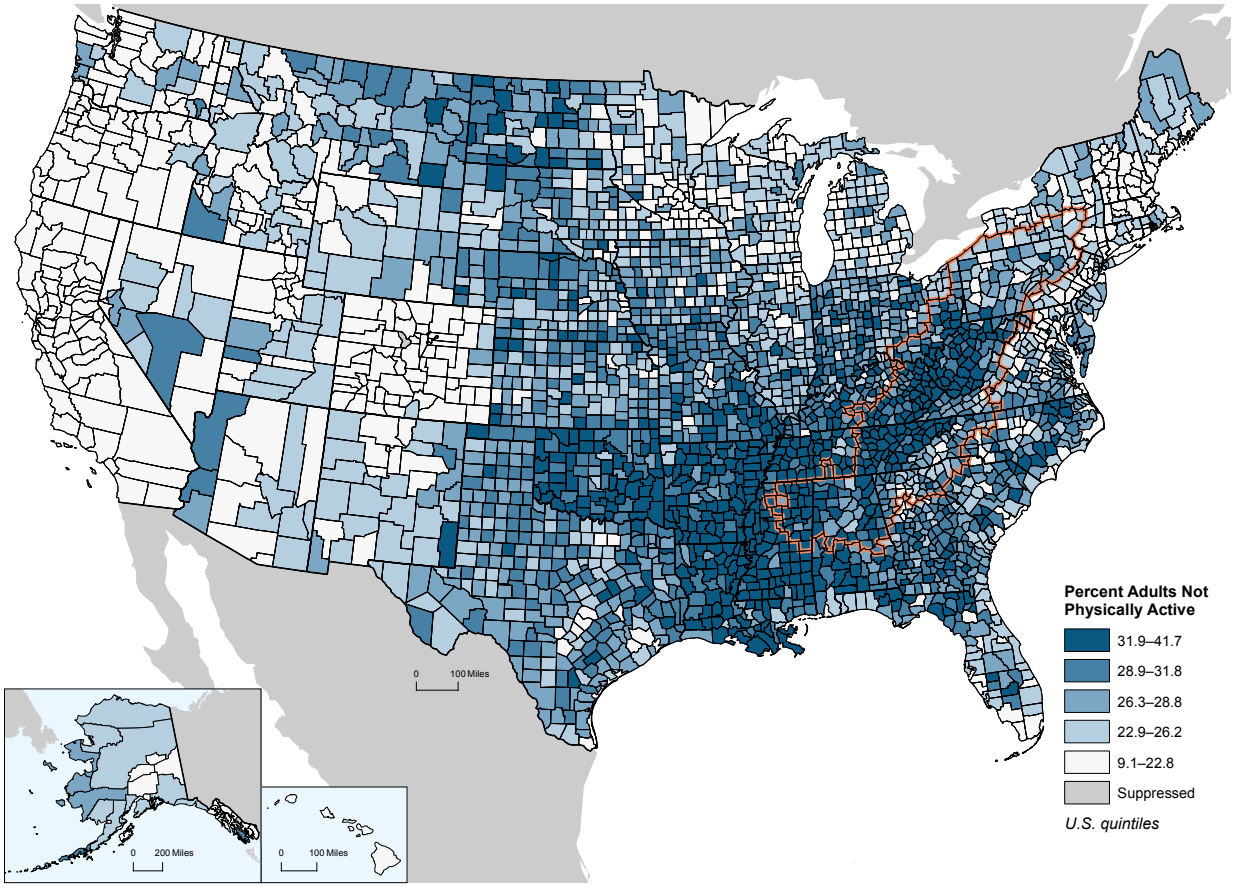


Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Overview: Physical Inactivity in the United States

Figure 103 shows the variation in physical inactivity across the United States. The high percentages of adults in Appalachia reporting physical inactivity extend into parts of the Southeast, as well as into the Mississippi Delta Region. Much of the Midwest and Upper Midwest report high percentages, with many counties in the two worst-performing quintiles stretching from Texas in the South to the Dakotas and Montana in the North. The northeastern and western portions of the country are the best-performing regions and have low percentages of adults reporting physical inactivity. Nearly every county in California, Oregon, and Colorado ranks in the top-performing national quintile.

Figure 103: Map of Percentage of Adults Physically Inactive in the United States, 2012

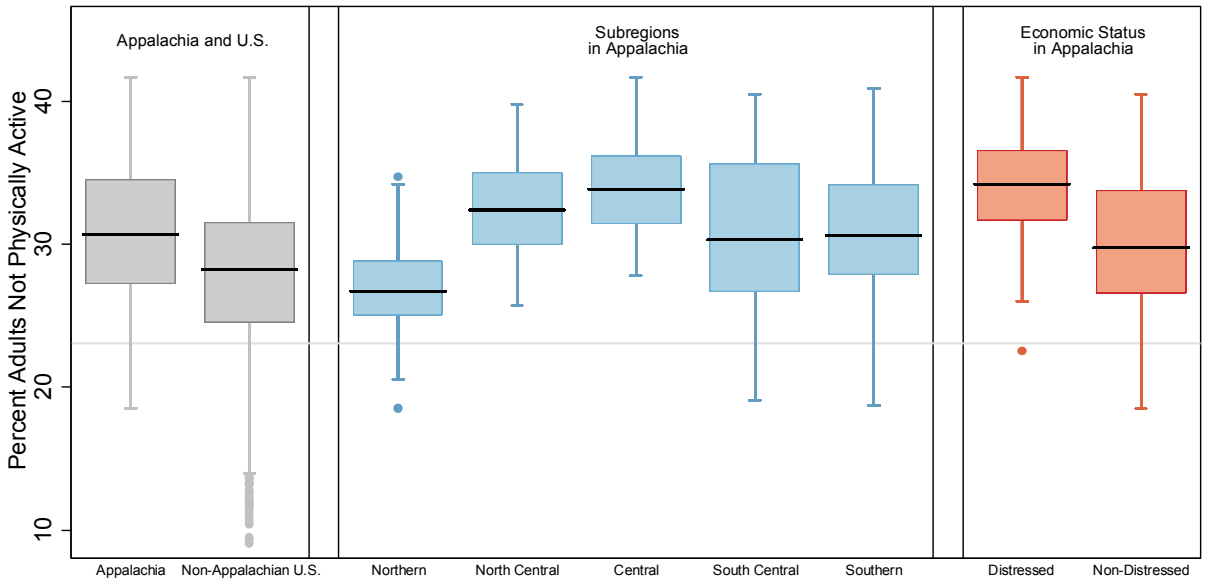


Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Distribution of Physical Inactivity

Figure 104 shows the distribution of the percentage of physically inactive adults by geography and economic status. The shaded boxes show the middle 50 percent of values for each group, with dots representing unusually high or low values. The gray line stretching across the width of the graph indicates the national average, and the black lines inside the shaded boxes indicate the median for each respective group. Of all 3,113 counties in the nation, only one has a missing value for this indicator. For this measure, higher values are associated with worse health.

Figure 104: Box Plot of Percentage of Adults Physically Inactive by Geography and Economic Status, 2012



Grey line denotes national average. 1 of 3113 counties have a missing value for this indicator.
For this indicator, higher values are associated with worse health.

Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

The distribution of physical inactivity among national quintiles for Appalachian counties is shown in Table 37. Of the 420 counties in the Region, 179 (43 percent) rank in the worst-performing national quintile, while 18 (4 percent) rank in the best-performing national quintile.

Table 37: Distribution of Percentage of Adults Physically Inactive among National Quintiles for Appalachian Counties

Indicator	Best Quintile		2nd Best Quintile		Middle Quintile		2nd Worst Quintile		Worst Quintile	
	#	*Pct.*	#	*Pct.*	#	*Pct.*	#	*Pct.*	#	*Pct.*
Physical inactivity	18	*4%*	60	*14%*	79	*19%*	84	*20%*	179	*43%*

Data source for authors' calculations shown above: Appalachian_Health_Disparities_Data.xlsx. The number of counties across all five quintiles for this indicator may not sum to 420 due to missing or suppressed values.

KEY FINDINGS | Adult Smoking Prevalence

- Nearly 20 percent of all adults in the Appalachian Region report being cigarette smokers, a figure higher than the 16.3 percent at the national level.
- Smoking is an especially pronounced problem in Central Appalachia, where 25.2 percent of adults report being smokers.
- There is an urban-rural divide in smoking prevalence throughout the Appalachian Region. In the Region's rural counties, 22.5 percent of adults report being cigarette smokers, compared to just 17.3 percent of those living in large metro areas.
- In the Appalachian Region's distressed counties, 24.7 percent of adults are cigarette smokers, compared to 19.4 percent of residents in the Region's non-distressed counties.

Background

Adult smoking prevalence measures the percentage of adults age 18 and over that report that they currently smoke cigarettes. The figures for this measure come from County Health Rankings and are based on 2014 data from CDC's Behavioral Risk Factor Surveillance System survey.

Cigarette smoking negatively affects the entire body, causes a number of diseases, and reduces the overall health of smokers (Centers for Disease Control and Prevention, Health Effects of Cigarette Smoking, 2017). Smoking is a risk factor for a number of illnesses, such as COPD, heart disease, cancer, and stroke, many of which are profiled elsewhere in this report (Centers for Disease Control and Prevention, Fast Facts, 2017). Smoking also impacts pregnancy and infant health, bone health, the management of diabetes, and oral health (Centers for Disease Control and Prevention, Health Effects of Cigarette Smoking, 2017). Quitting smoking reduces the risk of heart disease and heart attack, stroke, cancer, and COPD, and reduces the symptoms of respiratory conditions (Centers for Disease Control and Prevention, Quitting Smoking, 2017).

Nationally, smoking prevalence follows similar socioeconomic patterns found elsewhere: percentages are highest among people with lower levels of education, those living in poverty, as well as among minorities (Centers for Disease Control and Prevention, Smoking 2016). Due to the characteristics of Appalachian communities, smoking cessation programs may be less effective in Appalachia if they do not recognize the local culture, available resources, and environment (Kruger, et al., 2012). For example, Kruger et al. identify lack of transportation to smoking cessation programs and childcare options as barriers to participating in these kinds of programs in the Appalachian Region.

Overview: Adult Smoking Prevalence in the Appalachian Region

With 19.8 percent of adult residents in the Appalachian Region self-identifying as smokers, smoking is more prevalent throughout the Region than the nation as a whole, where this number is 16.3 percent. Southern Appalachia has the lowest prevalence among the subregions, with 17.8 percent of its residents identifying as smokers, a number still higher than the national figure. Smoking is especially pronounced in both Central (25.2 percent) and North Central Appalachia (22.8 percent). In Central Appalachia, every county has an adult smoking prevalence at least three percentage points higher than the national average; for many counties, it is much higher still.

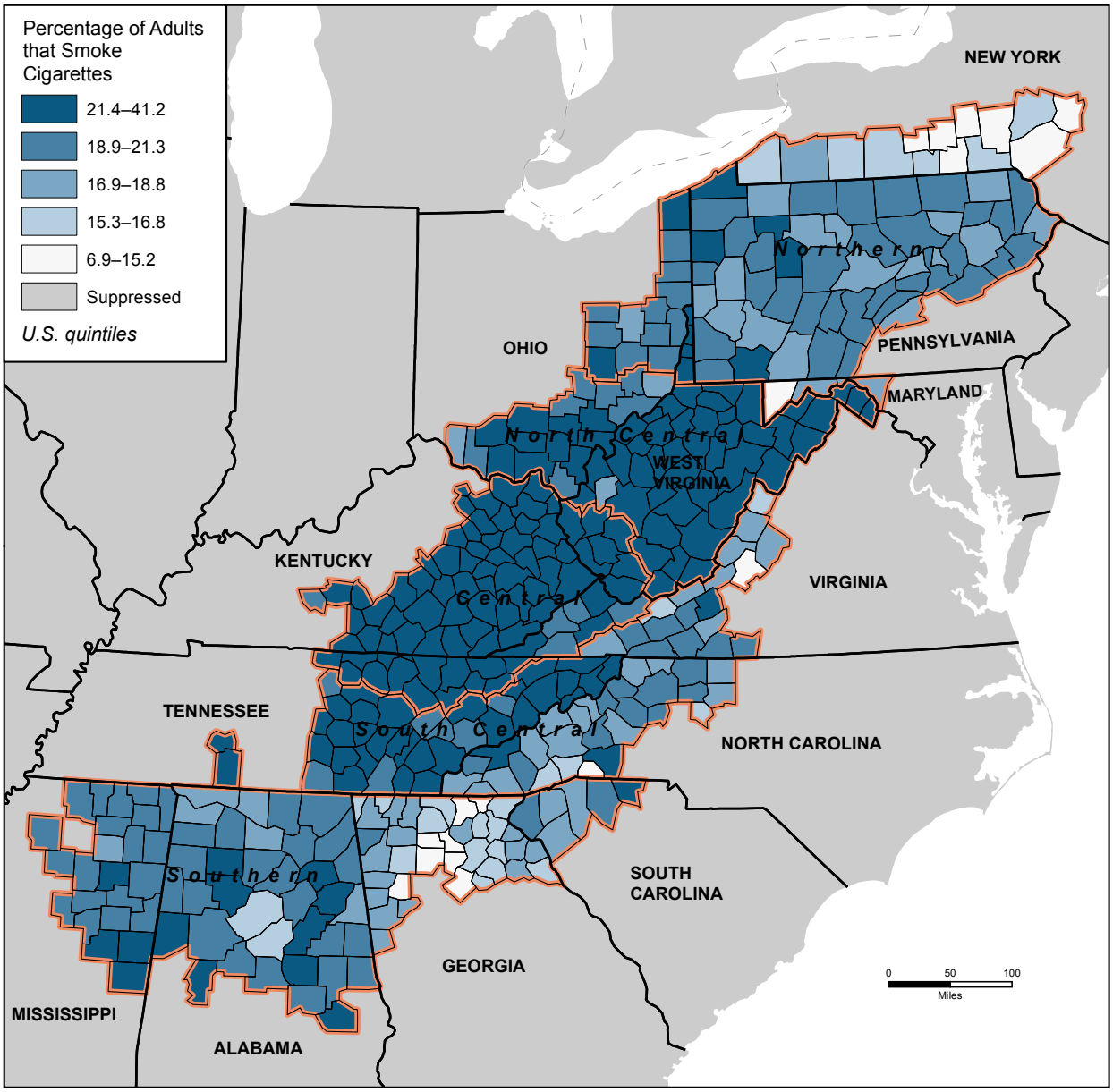
As one moves from large metro areas to rural areas throughout the Region, the prevalence of smoking gradually increases, with 17.3 percent of Appalachian residents living in large metro areas self-identifying as smokers versus 22.5 percent in rural areas. There is also a divide based on the economic status of a county: the Appalachian Region's distressed counties (24.7 percent) report a much higher percentage of smokers than the Region's non-distressed counties (19.4 percent).

Appalachian Kentucky stands out among the thirteen states—25.9 percent of adults report being smokers—and all but one of its counties rank in the worst-performing national quintile. This figure is higher than both West Virginia (23.9 percent) and Appalachian Tennessee (22.5 percent), the next two highest percentages in the Region. Appalachian Georgia (15.4 percent) and Appalachian New York (15.8 percent) both have lower smoking prevalence than the nation as a whole.

Figure 105 shows the variation in smoking prevalence across the Appalachian Region. Darker blue indicates a higher percentage of a county's residents that report being smokers; for this measure, higher values are associated with worse health. High percentages are especially pronounced throughout the Central and North Central subregions.

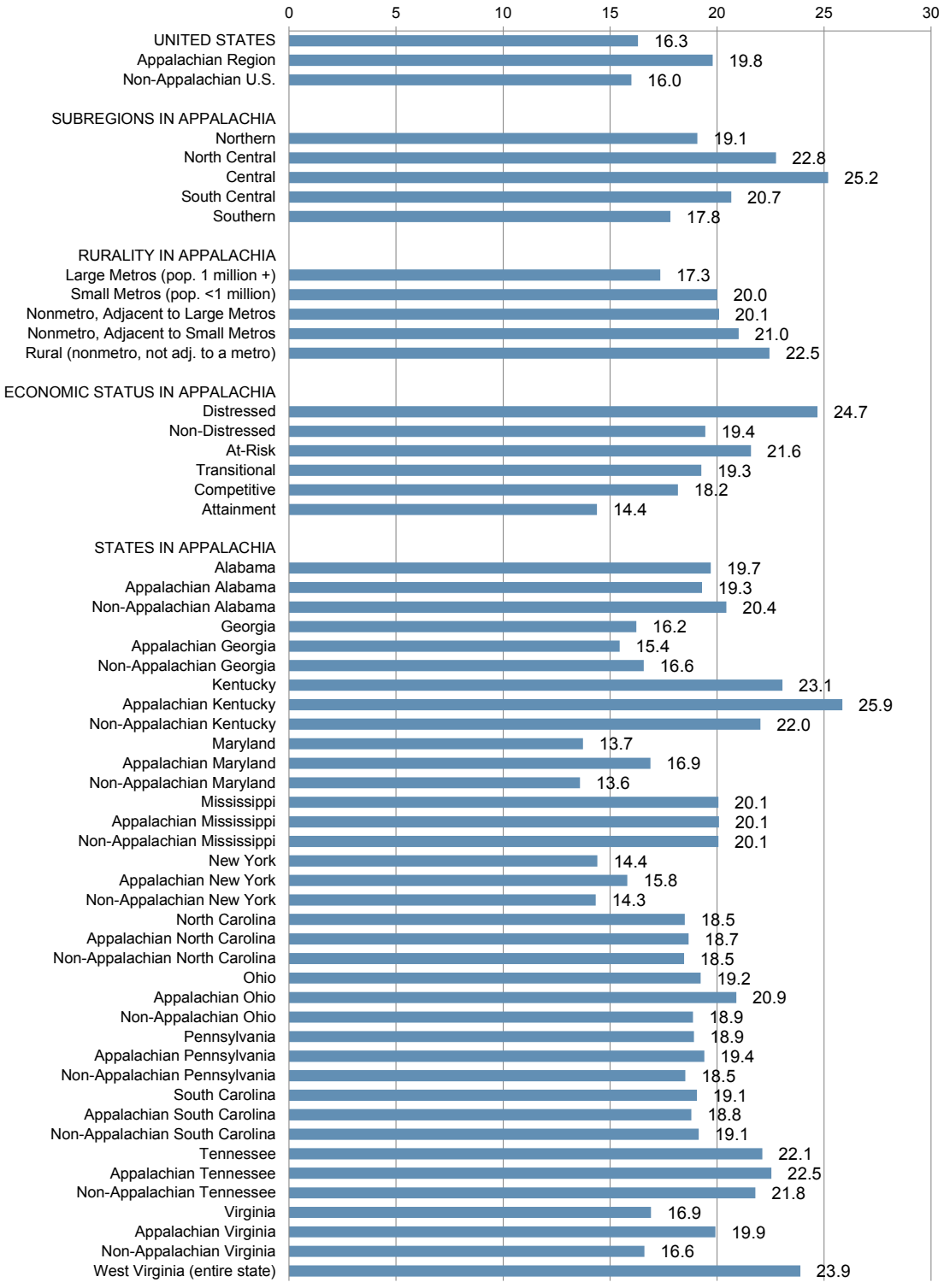
Figure 106 aggregates the data for a variety of geographies useful for comparison: the Region compared to both the U.S. as a whole and the non-Appalachian portion of the country, subregions throughout Appalachia, levels of rurality in Appalachia, and economic status in Appalachia. State-level aggregation is done at three levels: the entire state, and then both the Appalachian and non-Appalachian portions of each state.

Figure 105: Map of Percentage of Adults that Smoke Cigarettes in the Appalachian Region, 2014



Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Figure 106: Chart of Percentage of Adults that Smoke Cigarettes, 2014

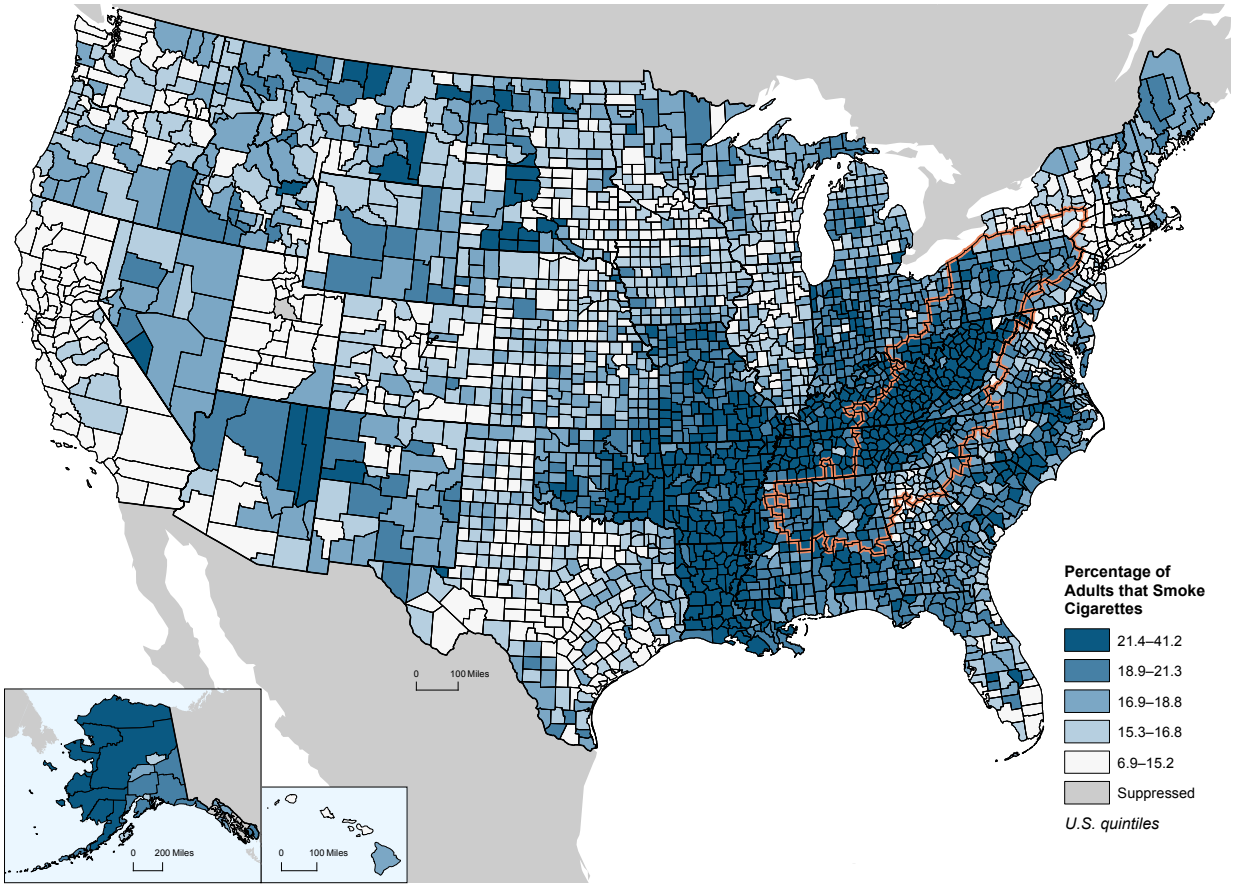


Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Overview: Adult Smoking Prevalence in the United States

Figure 107 shows the variation in adult smoking prevalence across the United States. Smoking prevalence is pronounced in North Central and Central Appalachia, as well as in the Mississippi Delta region, including large areas of Missouri, Oklahoma, Arkansas, and Louisiana. Portions of the mid-Atlantic and coastal Southeast also display high smoking prevalence. Although pockets of high smoking prevalence appear in nearly every region, the West, Upper Midwest, and Northeast tend to have the lowest values in the country.

Figure 107: Map of Percentage of Adults that Smoke Cigarettes in the United States, 2014

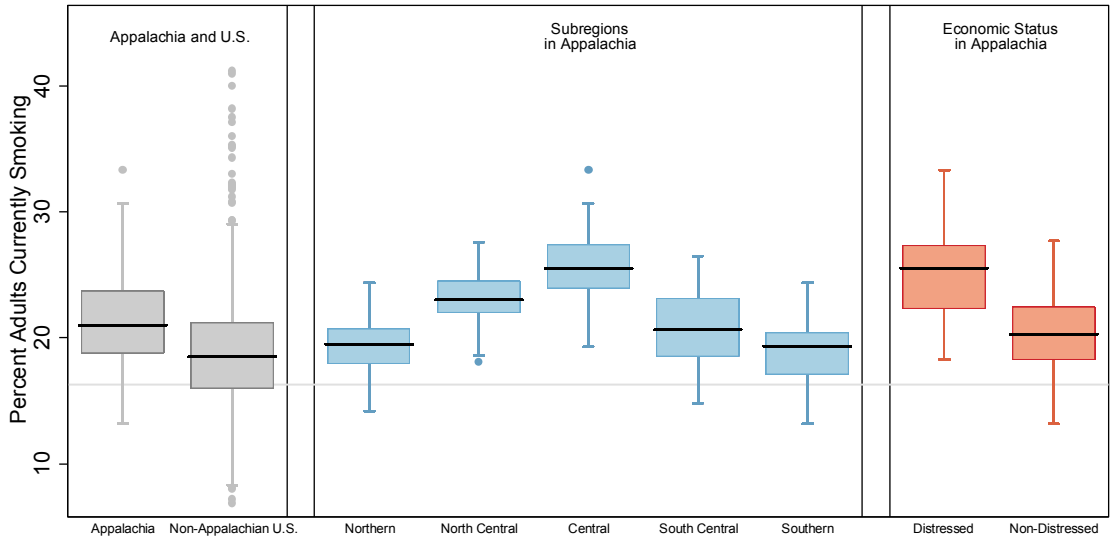


Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Distribution of Adult Smoking Prevalence

Figure 108 shows the distribution of adult smoking prevalence by geography and economic status. The shaded boxes show the middle 50 percent of values for each group, with dots representing unusually high or low values. The gray line stretching across the width of the graph indicates the national average, and the black lines inside the shaded boxes indicate the median for each respective group. Of all 3,113 counties in the nation, five have a missing value for this indicator.

Figure 108: Box Plot of Percentage of Adults that Smoke Cigarettes by Geography and Economic Status, 2014



Grey line denotes national average. 5 of 3113 counties have a missing value for this indicator.
For this indicator, higher values are associated with worse health.

Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

The distribution of adult smoking prevalence among national quintiles for Appalachian counties is shown in Table 38. Of the 420 counties in the Region, 189 (45 percent) rank in the worst-performing national quintile, while 17 (4 percent) rank in the best-performing national quintile.

Table 38: Distribution of Percentage of Adults that Smoke Cigarettes among National Quintiles for Appalachian Counties

Indicator	Best Quintile		2nd Best Quintile		Middle Quintile		2nd Worst Quintile		Worst Quintile	
	#	*Pct.*	#	*Pct.*	#	*Pct.*	#	*Pct.*	#	*Pct.*
Smoking prevalence	17	*4%*	27	*6%*	67	*16%*	120	*29%*	189	*45%*

Data source for authors' calculations shown above: Appalachian_Health_Disparities_Data.xlsx. The number of counties across all five quintiles for this indicator may not sum to 420 due to missing or suppressed values.

KEY FINDINGS | Chlamydia Incidence

- Chlamydia incidence in the Appalachian Region is 27 percent lower than the national average.
- All five subregions have lower chlamydia incidence than the nation as a whole, and Central Appalachia's rate is 52 percent lower than the national mark.
- Chlamydia incidence is 23 percent lower in the Appalachian Region's rural counties than the incidence in the Region's large metro counties.
- Non-distressed Appalachian counties report a 12 percent higher incidence of chlamydia than the Region's distressed counties.

Background

Chlamydia incidence measures the number of new cases of chlamydia reported per 100,000 population, per year. Data for this measure come from County Health Rankings and are based on 2013 data from CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Chlamydia is the most common bacterial sexually transmitted infection (STI) in the United States.

Higher chlamydia prevalence may reflect barriers to accessing STI prevention services, possibly due to cost, limited transportation options, or stigma (Barry & Sherrod, 2014). However, increased incidence rates may also be higher in areas that dedicate more resources to comprehensive screening programs. When comparing chlamydia incidence across geographies, it is important to note that low rates are not necessarily markers of good health outcomes. Rather, low incidence levels may actually serve as markers of poor detection or prevention services.

There are a number of risk factors for chlamydia, including: being younger than age 25, cervical ectopy, having multiple sex partners within the past year, not using a condom consistently, and a history of previous sexually transmitted infections (Centers for Disease Control and Prevention, Chlamydia-CDC Fact Sheet, 2017). The risk of chlamydia can be reduced by abstaining from sex, reducing the number of sexual partners, and proper condom use (Centers for Disease Control and Prevention, Chlamydia-CDC Fact Sheet, 2017). Rates of chlamydia are higher among women, minorities, and people ages 15–24. Numbers for men are likely underreported, as they are often not recommended for routine screening for the disease (Centers for Disease Control and Prevention, Trends in Reportable Sexually Transmitted Diseases in the United States, 2009).

In some cases, chlamydia can be symptomless, so it is often unreported. If undetected or untreated, it can cause serious damage to a woman's reproductive system and make pregnancy dangerous or even impossible. Because the problem is so prevalent and the complications so severe, the U.S. Preventive Services Task Force recommends that clinicians screen all sexually active women for chlamydia

infection, including all those who are pregnant, and especially among young women who belong to subpopulations known for higher incidence (Office of Disease Prevention and Health Promotion, Gonorrhea and Chlamydia: Screening – Women, 2016).

The interpretation of these values may be approached from a variety of viewpoints. This indicator may simply capture the incidence of chlamydia among the population of a region. However, chlamydia incidence must be considered with an important caveat: identification and diagnosis vary significantly across counties, states, and regions. As such, low values in this measure may not indicate lower incidence of chlamydia, but rather, less success in the identification and diagnosis of the sexually transmitted infection. In this report, high levels of chlamydia incidence are interpreted as an indicator of poor health, though these important caveats should be kept in mind.

Overview: Chlamydia Incidence in the Appalachian Region

Overall, with an incidence of 321 cases per 100,000 population, the chlamydia rate in Appalachia is 27 percent lower than the national rate of 441 per 100,000. Each of the Appalachian Region's five subregions have rates lower than the national figure, and Central Appalachia's rate of 210 cases per 100,000 population is 52 percent lower than the national rate. Southern Appalachia, with a rate of 390 per 100,000, has the highest chlamydia incidence of all of the subregions, yet is still 12 percent lower than the national rate.

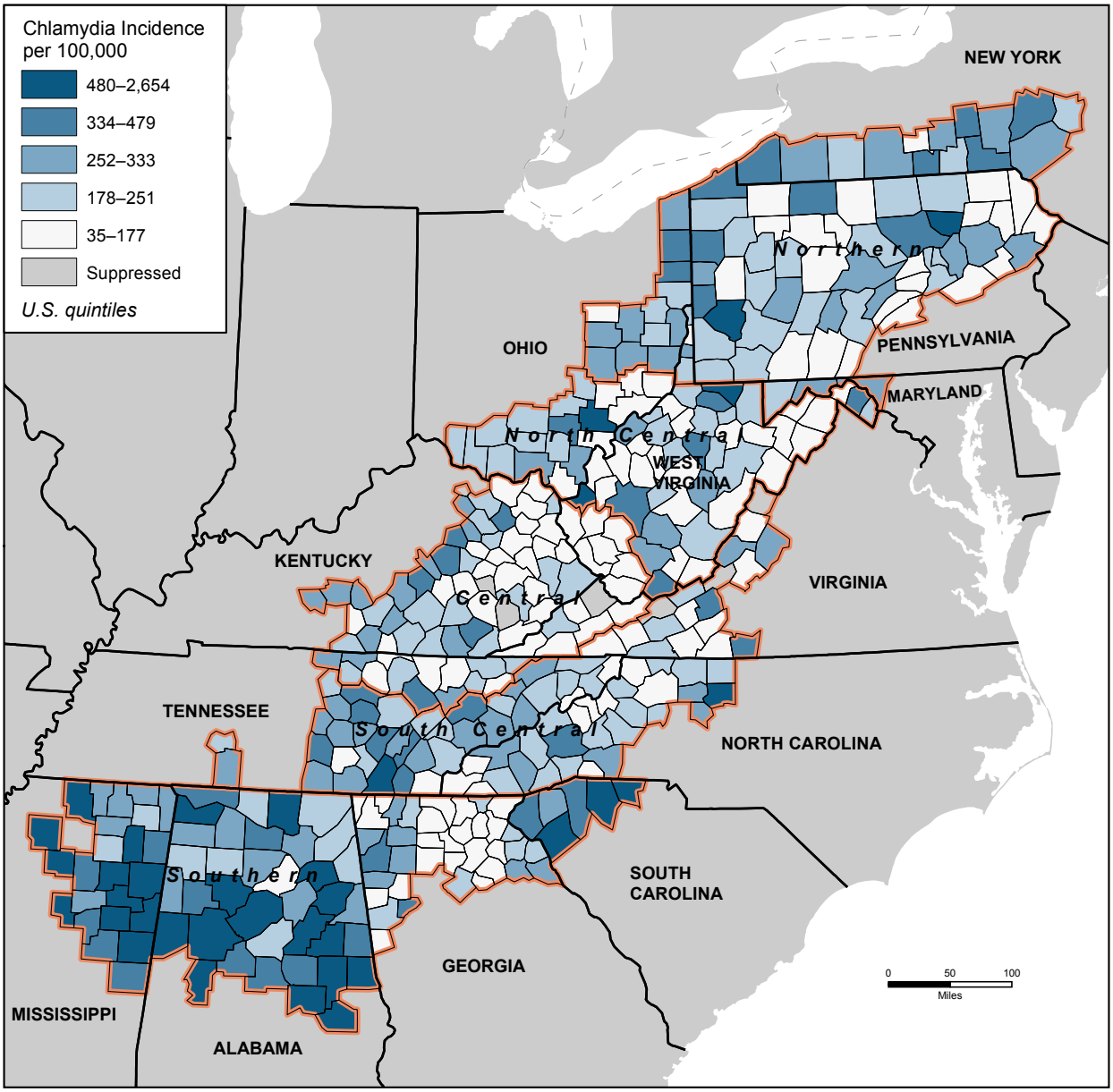
Incidence is generally lower among rural areas throughout the Region. Nonmetro areas adjacent to small metro areas report the lowest incidence, with a rate of 248 cases per 100,000 population, slightly better than the rate reported by rural areas (263 per 100,000). Small metro areas report the highest incidence with a rate of 359 per 100,000, slightly higher than that reported by large metro areas (341 per 100,000). Economic status plays a role, but not the one typically expected: chlamydia incidence is higher in the Appalachian Region's non-distressed counties (324 per 100,000) than in its distressed counties (290 per 100,000).

For each state in the Region, the Appalachian portions all have lower chlamydia rates than their respective non-Appalachian portions. The Appalachian portions of Georgia (196 per 100,000), Virginia (214), and Kentucky (231) report the lowest rates. Only the Appalachian portions of Alabama (532 per 100,000), Mississippi (521), and South Carolina (445) report rates higher than the national average.

Figure 109 shows the variation in chlamydia incidence across the Appalachian Region. Darker blue indicates higher rates of chlamydia incidence; for this measure, higher values are associated with worse health. Much of the Region performs better than the national rate, with only a few pockets in Southern Appalachia standing out for poor performance.

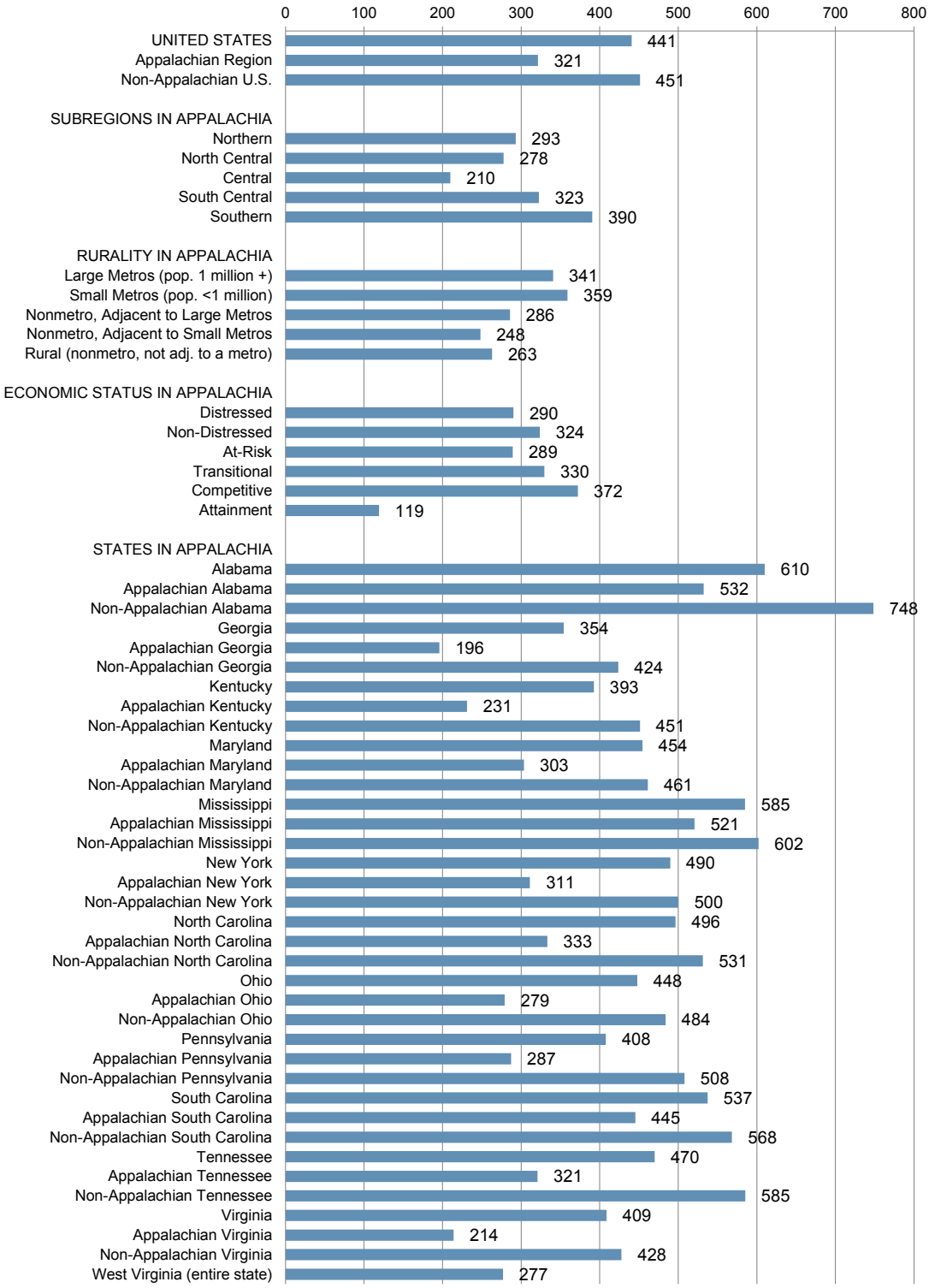
Figure 110 aggregates the data for a variety of geographies useful for comparison: the Region compared to both the U.S. as a whole and the non-Appalachian portion of the country, subregions throughout Appalachia, levels of rurality in Appalachia, and economic status in Appalachia. State-level aggregation is done at three levels: the entire state, and then both the Appalachian and non-Appalachian portions of each state.

Figure 109: Map of Chlamydia Incidence per 100,000 Population in the Appalachian Region, 2013



Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Figure 110: Chart of Chlamydia Incidence per 100,000 Population, 2013

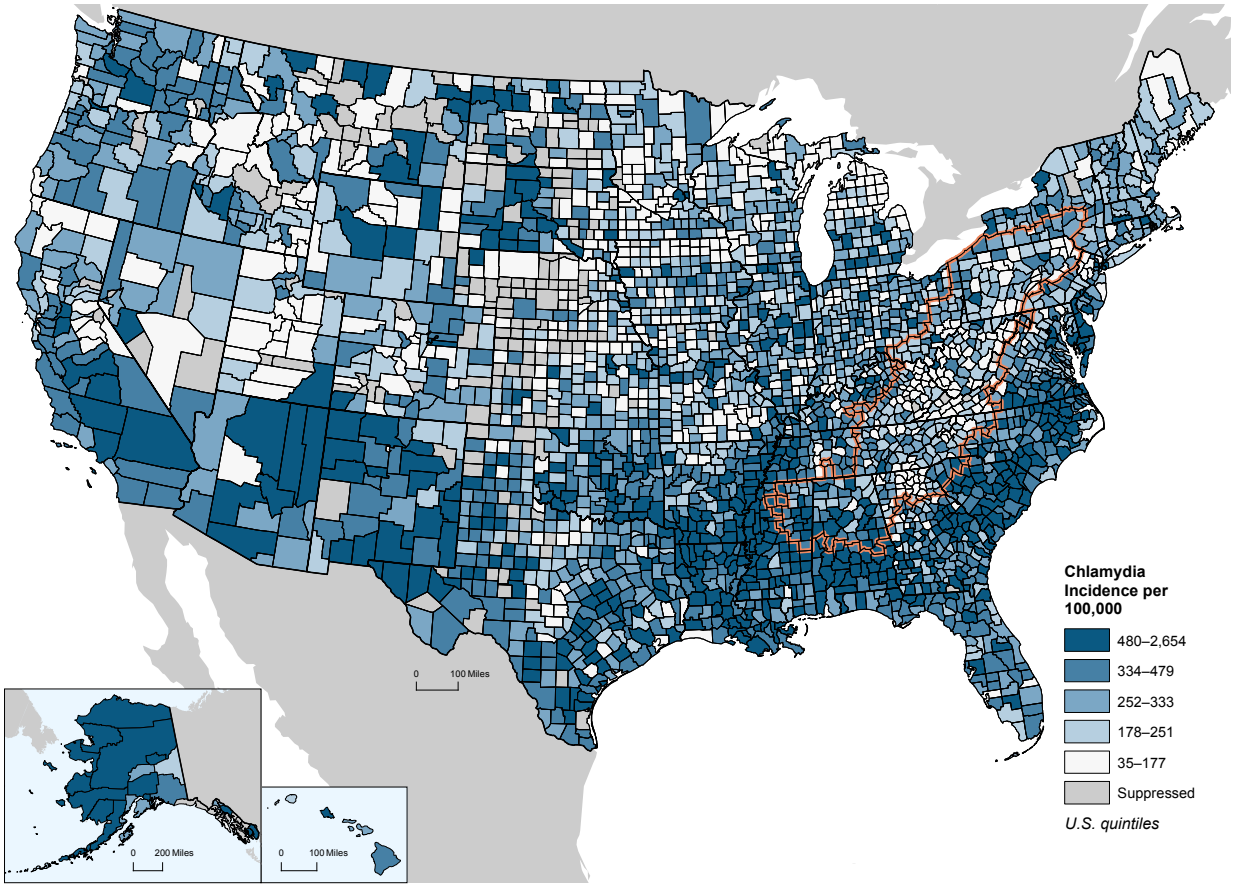


Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Overview: Chlamydia Incidence in the United States

Figure 111 shows the variation in chlamydia incidence across the United States. The rates in Appalachia are among the nation's lowest and are similar to those reported in areas throughout the Midwest. High rates are reported along the southeastern coast, as well as in the Mississippi Delta region. High rates of chlamydia are reported in pockets throughout the West, as well as around large metropolitan areas throughout the country.

Figure 111: Map of Chlamydia Incidence per 100,000 Population in the United States, 2013

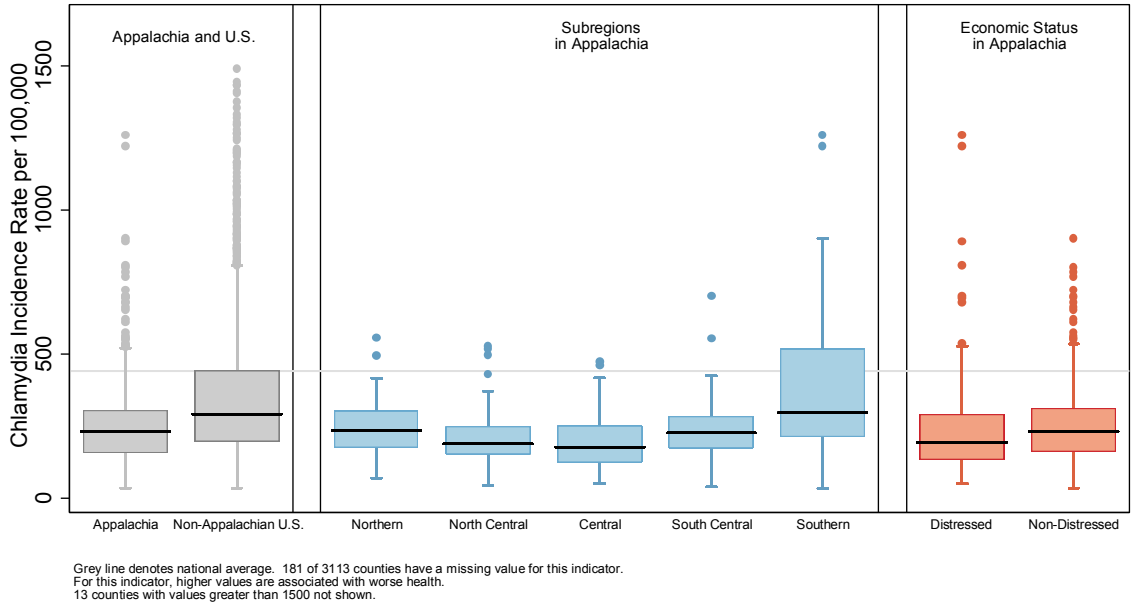


Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

Distribution of Chlamydia Incidence

Figure 112 shows the distribution of chlamydia incidence by geography and economic status. The shaded boxes show the middle 50 percent of values for each group, with dots representing unusually high or low values. The gray line stretching across the width of the graph indicates the national average, and the black lines inside the shaded boxes indicate the median for each respective group. Of all 3,113 counties in the nation, 181 have a missing value for this indicator, and 13 counties with values greater than 1,500 are not included in the box plot.

Figure 112: Box Plots of Chlamydia Incidence per 100,000 Population by Geography and Economic Status, 2013



Grey line denotes national average. 181 of 3113 counties have a missing value for this indicator.
For this indicator, higher values are associated with worse health.
13 counties with values greater than 1500 not shown.

Data source: County Health Rankings & Roadmaps, 2016 edition. University of Wisconsin Population Health Institute supported by Robert Wood Johnson Foundation http://www.countyhealthrankings.org/rankings/data.

The distribution of chlamydia prevalence among national quintiles for Appalachian counties is shown in Table 39. Of the 420 counties in the Region, 36 (9 percent) rank in the worst-performing national quintile, while 132 (31 percent) rank in the best-performing national quintile.

Table 39: Distribution of Chlamydia Incidence per 100,000 Population among National Quintiles for Appalachian Counties

Indicator	Best Quintile		2nd Best Quintile		Middle Quintile		2nd Worst Quintile		Worst Quintile	
	#	*Pct.*	#	*Pct.*	#	*Pct.*	#	*Pct.*	#	*Pct.*
Chlamydia incidence	132	*31%*	111	*26%*	84	*20%*	50	*12%*	36	*9%*

Data source for authors' calculations shown above: Appalachian_Health_Disparities_Data.xlsx. The number of counties across all five quintiles for this indicator may not sum to 420 due to missing or suppressed values.

Physical Inactivity

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