

## Estimates of Alabama County-Level Health Insurance Coverage Rates:

### Results from Alabama's 2003 Household Survey

#### INTRODUCTION

The 2003 Alabama Health Care Insurance and Access Survey was conducted to measure the number and percentage of those without health insurance in Alabama. The survey sample was designed to provide estimates of health insurance coverage for the state as a whole and twelve different geographic regions made up of groups of counties. Survey findings indicate the overall rate of uninsurance for the state was 11.2%. This rate varied by region, ranging from a low of 7.7% in Birmingham metro area to a high of 15.6% in the Northern Rural Region.

In addition to using survey data to estimate levels of uninsurance at the state level, many states are interested in generating estimates of uninsurance at the substate or county level. Most state surveys, including the 2003 Alabama Health Care Insurance and Access Survey, are able to yield estimates for larger regions or groups of counties, as shown in Table 1. Each regional estimate was compared to the overall state rate of uninsurance (11.2%). While the regional estimates are informative, most states would like even more detailed information including estimates at the county level to inform local policy.

**Table 1. Rates of Uninsurance in Alabama by Geographic Region, 2003**

Region	% Uninsured	Standard Error	Number of Uninsured	Significance
Anniston and Gadsden	10.7%	1.74%	22,787	
Auburn-Opelika	13.0%	2.02%	21,605	
Birmingham	7.7%	1.71%	69,946	
Black Belt Counties	14.9%	2.32%	32,860	
Dothan	10.0%	1.74%	14,156	
Florence	13.6%	2.22%	18,449	
Huntsville and Decatur	8.4%	1.39%	40,423	
Mobile	13.3%	1.97%	72,284	
Montgomery	9.1%	1.67%	30,616	
Northern Rural	15.6%	2.05%	98,589	*
Southern Rural	11.8%	1.66%	61,129	
Tuscaloosa	10.9%	1.71%	18,708	
Total	11.2%	0.62%	501,549	

\* p<.05, statistical test of significance between region and the overall state rate of uninsurance  
Source: 2003 Alabama Health Care Insurance and Access Survey

When more targeted estimates for smaller subdivisions of a state are required, there are two basic methods of obtaining these estimates. The first approach – the direct survey method – requires that a large enough random sample is drawn from each subdivision to ensure a reliable estimate. Frequently in state surveys, the sample size in each individual county is insufficient to ensure reliable estimates. In addition, it is typically cost-prohibitive to obtain large enough sample sizes to generate reliable estimates of uninsurance in these small, substate areas.

The second approach – statistical modeling – allows analysts to generate estimates at the substate level. This issue brief presents the results of analysis using statistical modeling to generate county-level estimates of health insurance coverage in Alabama. The results presented here may be used to inform the discussion on how to target programs and interventions on areas of greatest need.

## DATA AND METHODS

Findings from the 2003 Alabama Health Care Insurance and Access Survey, as well as numerous national and state studies of health coverage, suggest that an individual’s age, race and ethnicity, employment status and income are all strongly associated with a person’s likelihood of having health

insurance coverage. To derive county-level estimates of health insurance coverage we used a small area estimation technique that took into account the direct survey estimate of uninsurance, other individual level characteristics, and county level characteristics. The direct survey estimates of uninsurance were given very little weight in counties for which there are very few observations. This is due to the relative unreliability of estimates based on few observations. Instead, uninsurance rates for these counties were more dependent on the county level characteristics. On the other hand, more weight was given to the direct survey estimates for counties that had a large number of observations.<sup>1</sup> The data for our analysis came from the 2003 Alabama Health Care Insurance and Access Survey. The individual level variables used in this analysis include: gender, age, race/ethnicity, marital status, education, income, employment status, and employer size.

## RESULTS OF ANALYSIS

Table 2 provides a distribution of the ranges of uninsurance rates across the state of Alabama. The lowest estimated rate of uninsurance rate was 7.0% in Shelby County in the Birmingham Metro Area. Perry County, in the Black Belt County Region had the highest estimate of 18.3%.

**Table 2. Distribution of Estimates of Alabama Uninsurance Rates by County**

Uninsurance Rate	Number of Counties	% of Counties
0-9.4%	9	13%
9.5-10.9%	18	27%
11.0-12.4%	13	19%
12.5-13.9%	10	15%
>14.0%	17	25%

Figure 1. Estimates of Alabama Uninsurance Rates by County

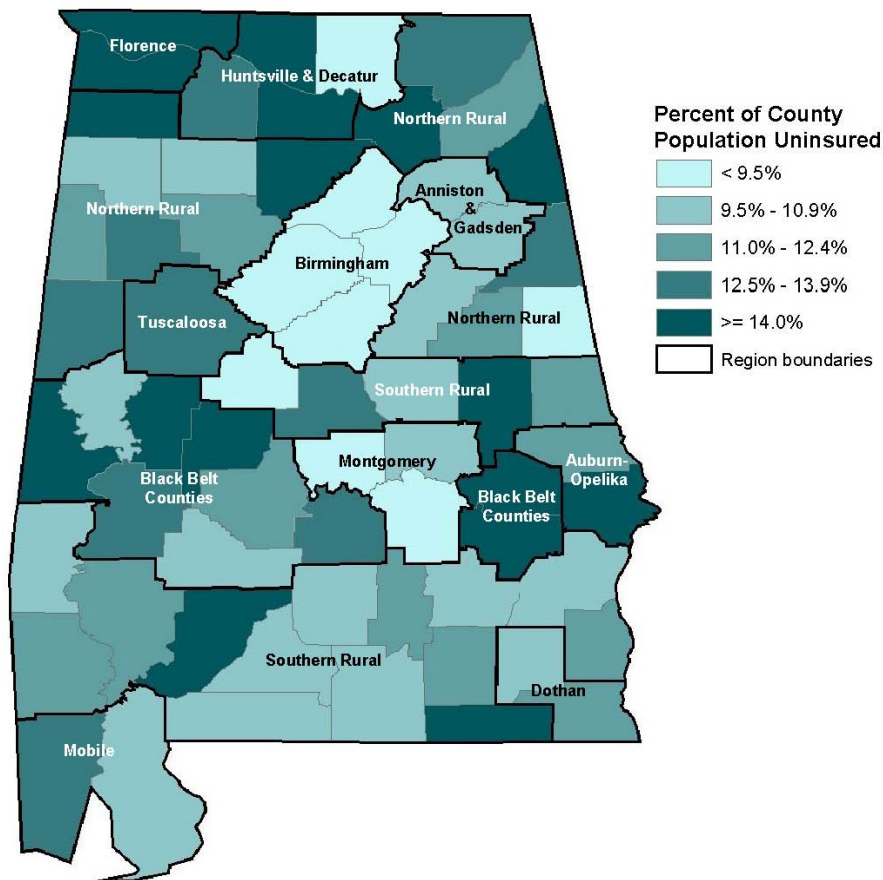


Figure 1 shows the wide variation in uninsurance rates by county across the state of Alabama, with the darker shading indicating higher uninsurance rates and the lighter shading indicating lower rates. All of the counties shaded with the two lightest shades (and a portion of the counties in the middle shade) indicate uninsurance rates below the state average of 11.2%. A comparison of the map in Figure 1 with the regional estimates in Table 1 highlights pockets of high rates of uninsurance within the larger regions.

Some of the counties with lower uninsurance rates contain metropolitan areas, including Birmingham

**SUMMARY**

The data presented in this brief represent model-based estimates of uninsurance rates at the county level using the data from the 2003 Alabama Health Care Insurance and Access Survey. The data provide additional information about the distribution of people without health insurance coverage throughout the state of Alabama. While the information is helpful

and Montgomery. All of the counties in the Birmingham Region fall in the lowest range (<9.5%). Two of the three counties in the Montgomery Region also fall in this range. Higher uninsurance rates are scattered through the remaining regions, with the majority in the Northern Rural and Black Belt Counties Regions. A large majority of counties in these two regions are above 11.2%, the average rate of uninsurance in Alabama.

All of the individual county estimates are displayed in Table 3.<sup>2</sup>

at the local level, policy makers must use caution when using these data to compare changes in these rates over time. The data is most useful to estimate uninsurance rates during the time period of the survey (October 2002-February 2003) and the significant variation in those rates across geographic areas of the state.

**Table 3. Estimates of Uninsurance by County, Alabama 2003**

Region/County	Uninsured	Region/County	Uninsured	Region/County	Uninsured
<b>Anniston and Gadsden</b>		<b>Huntsville and Decatur</b>		<b>Southern Rural</b>	
Calhoun	10.6%	Lawrence	13.3%	Barbour	10.1%
Etowah	10.2%	Limestone	15.8%	Bibb	9.1%
<b>Auburn-Opelika</b>		Madison	8.3%	Butler	9.7%
Lee	11.0%	Morgan	14.8%	Chambers	12.2%
Russell	16.8%	<b>Mobile</b>		Chilton	12.7%
<b>Birmingham</b>		Baldwin	10.7%	Choctaw	10.1%
Blount	8.3%	Mobile	13.8%	Clarke	11.8%
Jefferson	9.1%	<b>Montgomery</b>		Coffee	11.2%
Shelby	7.0%	Autauga	8.1%	Conecuh	9.6%
St. Clair	7.5%	Elmore	10.0%	Coosa	10.8%
<b>Black Belt Counties</b>		Montgomery	9.3%	Covington	9.5%
Bullock	14.0%	<b>Northern Rural</b>		Crenshaw	11.7%
Dallas	12.3%	Cherokee	15.6%	Escambia	10.2%
Greene	10.5%	Clay	12.2%	Geneva	14.8%
Hale	14.0%	Cleburne	13.6%	Henry	11.0%
Lowndes	13.0%	Cullman	14.1%	Monroe	14.0%
Macon	14.3%	Dekalb	11.5%	Pike	9.6%
Marengo	12.5%	Fayette	12.5%	Tallapoosa	14.8%
Perry	18.3%	Franklin	17.6%	Washington	11.0%
Sumter	17.8%	Jackson	13.2%	<b>Tuscaloosa</b>	
Wilcox	9.5%	Lamar	11.2%	Tuscaloosa	12.7%
<b>Dothan</b>		Marion	10.4%	<p><i>For more information, contact the State Health Access Data Assistance Center (SHADAC) at (612) 624-4802 or email us at <a href="mailto:shadac@umn.edu">shadac@umn.edu</a>. The Alabama Health Care Insurance and Access Survey was funded by a grant from the Alabama Department of Public Health under the State Planning Grant from the Health Resources and Services Administration, U.S. Department of Health and Human Services.</i></p>	
Dale	10.9%	Marshall	16.5%		
Houston	11.1%	Pickens	13.1%		
<b>Florence</b>		Randolph	7.8%		
Colbert	14.3%	Talladega	10.1%		
Lauderdale	14.4%	Walker	11.5%		
		Winston	10.4%		

Source: Small area estimation model using the 2003 Alabama Health Care Insurance and Access Survey.

## NOTES

<sup>1</sup> The analysis relied on a mixed model that used Empirical Bayes estimation for counties with fewer than 25 observations and a multi-variate model that included 15 individual level covariates for counties with 25 or more observations. As a final step, a raking procedure was used to ensure the weighted county-level estimates of coverage equaled the state-level estimate of coverage. Further information on the steps of the analysis is available upon request.

<sup>2</sup> The methodology used to estimate county-level rates of health insurance coverage does not produce standard errors. Therefore, significance testing is not possible.