Lack of Health Insurance Among Adults Aged 18 to 64 Years: Findings From the 2013 Behavioral Risk Factor Surveillance System

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Abstract

Introduction
The objective of this study was to estimate the prevalence of lack of health insurance among adults aged 18 to 64 years for each state and the United States and to describe populations without insurance.

Methods
We used 2013 Behavioral Risk Factor Surveillance System data to categorize states into 3 groups on the basis of the prevalence of lack of health insurance in each state compared with the national average (21.5%; 95% confidence interval, 21.1%–21.8%): high-insured states (states with an estimated prevalence of lack of health insurance below the national average), average-insured states (states with an estimated prevalence of lack of health insurance equivalent to the national average), and low-insured states (states with an estimated prevalence of lack of health insurance higher than the national average).

Results
Compared with the national age-adjusted prevalence of lack of health insurance, 24 states had lower rates of uninsured residents, 12 states had equivalent rates of uninsured, and 15 states had higher rates of uninsured. Compared with adults in the high-insured and average-insured state groups, adults in the low-insured state group were more likely to be non-Hispanic black or Hispanic, to have less than a high school education, to be previously married (divorced, widowed, or separated), and to have an annual household income at or below $35,000. Seventy-one percent of high-insured states were expanding Medicaid eligibility compared with 67% of average-insured states and 40% of low-insured states.

Conclusion
Large variations exist among states in the estimated prevalence of health insurance. Many uninsured Americans reside in states that have opted out of Medicaid expansion.
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$25,000–$34,999, $35,000–$49,999, $50,000–$74,999, ≥$75,000, or unknown), presence of children and youths in the household younger than 18 years (yes, no, or unknown), and self-reported disability based on a yes response to either of 2 questions: “Are you limited in any way in any activities because of physical, mental, or emotional problems?” and “Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?”

For statistical analysis we first estimated the prevalence of lack of health insurance and adjusted it to the 2000 projected population for the United States and for each state. Second, states were sorted into 3 categories: 1) high-insured states with a prevalence of lack of health insurance below the national average (nonoverlapping 95% confidence intervals [CIs]); 2) average-insured states with an estimated prevalence of lack of health insurance equivalent to the national average (overlapping 95% CIs); and 3) low-insured states with an estimated prevalence of lack of health insurance above the national average (nonoverlapping 95% CIs). Third, we used bivariate analyses to compare the age-adjusted sociodemographic characteristics among these 3 groups. Finally, we examined the distribution of Medicaid expansion among the 3 groups. Both SAS (SAS Institute) and SUDAAN (RTI International) were used for all analyses to account for the complex sampling design, to estimate unadjusted and age-standardized prevalence and 95% CIs, and to test for statistical significance. All statistical inferences were based on a significance level of $P < .05$.

BRFSS was reviewed by the Human Research Protection Office of the Centers for Disease Control and Prevention (CDC) and determined to be exempt research.

Results

In 2013, adults aged 18 to 64 years ($N = 325,179$) completed the BRFSS interview in all 50 states and the District of Columbia. After excluding from the analyses data on participants who responded “don’t know” or “not sure,” refused to answer, or had missing responses for current health insurance or sociodemographic variables (except for income and number of children in the household), data on 307,247 respondents remained for our analyses. These data were weighted to more than 183 million US adults aged 18 to 64 years (145 million adults with health insurance and 38 million without health insurance).

Among US adults aged 18 to 64 years, the unadjusted prevalence of lack of health insurance was 20.8% (95% CI, 20.5%–21.1%) and the age-adjusted prevalence was 21.5% (95% CI, 21.1%–21.8%). The unadjusted and age-adjusted prevalence of lack of health insurance were lowest in Massachusetts (unadjusted prevalence, 7.1% [95% CI, 6.3%–8.1%]; adjusted prevalence, 7.5% [95% CI; 6.6%–8.5%]) and highest in Texas (unadjusted prevalence, 32.7% [95% CI, 31.0%–34.4%]; adjusted prevalence, 33.2% [95% CI, 31.5%–34.9%]) (Figure 1).

Compared with the national age-adjusted prevalence of lack of health insurance (21.5%), 24 states had lower rates of uninsured (ranging from 7.5% in Massachusetts to 19.5% in New Jersey); 12 states had equivalent rates of uninsured (ranging from 19.9% in Alaska to 23.1% in Oklahoma); and 15 states had higher rates of uninsured (ranging from 23.9% in Wyoming to 33.2% in Texas) (Figure 1).

Compared with adults in the high-insured or average-insured states, those in the low-insured states were more likely to be non-Hispanic black or Hispanic, to have no more than a high school education, to be previously married (divorced, widowed, separated), and to have an annual household income of $15,000 to $34,999 (Table). Compared with adults in the low-insured or average-insured states, adults in the high-insured states were more likely to be aged 45 to 64 years, to be non-Hispanic white, to have at least a college education, to have never married, to be employed, and to have annual household incomes of $50,000 or higher; they were also less likely to have children living at home. Additionally, adults in the high-insured states were less likely to be disabled than those in the average-insured states (17.5% vs 18.5%; $P < .01$).
Seventeen of the 24 (70.8%) high-insured states expanded Medicaid eligibility compared with 8 of the 12 (66.6%) average-insured states and 6 of the 15 (40.0%) the low-insured states. Approximately 46.5 million adults aged 18 to 64 years reside in low-insured states that have opted out of Medicaid expansion compared with 10.7 million in average-insured states and 15.0 million in high-insured states and may be affected by states’ decisions not to expand Medicaid (Figure 2).

Our study’s estimate of a national uninsured rate of 20.8% in 2013 is consistent with findings of other national surveys (15,17,21). By using the Gallup-Healthways Well-Being Index, Sommers et al (21) estimated the national unadjusted uninsured rate to be 21.0% in September 2013. The American Community Survey (ACS) estimate was 20.3% (17), and the 2013 National Health Interview Survey (NHIS) estimate was 20.4% (15). Notably, Sommers et al (21) reported that, by the second quarter of 2014, the uninsured rate declined 6.0 percentage points (P < .01) among low-income adults who reside in states that expanded Medicaid eligibility whereas uninsured rates among low-income adults who reside in states that did not expand eligibility declined only 3.1 percentage points (P = .13). Approximately 1 year later, uninsured rates declined among low-income adults residing in both Medicaid expansion states (13.0 percentage points) and nonexpansion states (7.0 percentage points) (22).

In 2014, the ACS (17) published estimates of the number of uninsured Americans nationwide, and the NHIS (15) published estimates for 43 states. These estimates were similar to the BRFSS’s state estimates for 2014 with some differences. Although all 3 surveys found large variations in the unadjusted uninsured rate by state, state rankings varied from one survey to the other. NHIS state estimates ranged from 4.7% for the District of Columbia to 29.3% for Nevada; the ACS range was 5.2% for Massachusetts to 29.9% for Texas, and the BRFSS range was 7.1% for Massachusetts to 32.7% for Texas. Estimates derived from these 3 surveys vary for several reasons, such as differences in survey methodology, sample size, and precision; mode of interview; and various question effects (eg, order, number, wording, probes). Additionally, in contrast to these surveys, the BRFSS includes IHS health insurance. The impact of the inclusion of IHS coverage on our estimates needs further elucidation, particularly for states with large populations of American Indians or Alaska Natives. Our results regarding the sociodemographic characteristics of adults residing in states with low and high uninsured rates were consistent with the existing body of scientific literature (15,21,23). We found a disproportionately high number of adults aged 18 to 64 years residing in states that did not expand Medicaid. Low-income residents in these states may not be able to afford health insurance through the ACA’s Health Insurance Marketplace and have in-

Discussion

We used data from the 2013 BRFSS, the largest and longest-running public health, state-based, random-digit-dialed surveillance system in the United States, to estimate lack of health insurance at the state level and nationwide pre-ACA Medicaid expansion. These estimates provide a baseline with which to monitor changes in health care access post-ACA and expansion of Medicaid eligibility within states. We reported several key findings. First, after sorting states into 3 groups (those with lower levels of health insurance than the national average, those with equivalent levels, and those with higher levels), we found significant differences in sociodemographic characteristics among these groups. Adults in the low-insured states were more likely to be non-Hispanic black or Hispanic, to have low educational attainment, to have incomes between $15,000 and $34,999, and to be previously married than adults in the average-insured and high-insured states. Second, a higher proportion of states in the high-insured group expanded Medicaid eligibility than the proportion of states in the low-insured and average-insured groups. Finally, approximately 46.5 million adults reside in the low-insured states that are not expanding Medicaid.

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comes too high to qualify for Medicaid. This coverage gap means that low-income adults of these states continue to face a financial barrier to health insurance and, as a result, remain at increased risk for poor health outcomes (8–12). The impact of states’ Medicaid expansion decisions may also vary based on the racial/ethnic distribution of adults in each state because Hispanics and non-Hispanic blacks are more likely to lack health insurance than non-Hispanic whites (27% and 16%, respectively, vs 11%) (23). Notably, 7 of the 9 states that chose not to expand Medicaid in the low-insured group are Southern states. Given that non-Hispanic blacks are a large proportion of the southern population, and are more likely to be uninsured, they are estimated to account for a disproportionate share of those in the coverage gap (24% vs 11% of non-Hispanic white uninsured adults and 7% of Hispanic uninsured adults), which results in increased racial disparities in health (23). Conversely, several states with large Hispanic populations (eg, Arizona, California, and New York) expanded Medicaid and thus increased access to health insurance and services for their eligible uninsured Hispanic adults (23).

The federal government finances 100% of Medicaid expansion of ACA for the first 3 years. Federal financing then tapers off to 95% in 2017 and 90% by 2021 (24). In addition to receiving the initial federal financing, states may save approximately $18 billion in uncompensated health care costs through 2022 (24,25). Despite these potential benefits, 19 states chose not to expand Medicaid (13). Some states, such as Tennessee and Utah, are exploring alternative Medicaid expansion plans, such as through private health plans (as in Arkansas and Michigan), cost-sharing, or incentives for healthy behaviors (13,26). Research has demonstrated, however, that cost-sharing can deter people from accessing needed health care, particularly low-income people (27). States that expanded Medicaid for ACA are seeing benefits such as reductions in state Medicaid program costs and lower numbers of uninsured residents. Post-expansion savings for the state budget in Michigan, for example, were projected to cover increased health care costs through 2027 (28).

This study has limitations. BRFSS data are self-reported, and self-report is subject to bias. However, the question used to estimate number of uninsured produced estimates comparable with those from the NHIS and the National Health and Nutrition Examination Survey (29). Sociodemographic characteristics and state of residence are only a few of many factors that may be associated with lack of health insurance. This study did not examine other possible factors such as attitudes, awareness, and knowledge of the ACA; health status; and state-specific determinants (eg, available resources, sociocultural and political climate). Additionally, this analysis did not examine the impact of pre-2013 state Medicaid expansions on study results (30). Finally, the BRFSS is limited to community-dwelling adults, excluding certain populations that are likely to have access to health care, such as institutionalized adults and those in the US Armed Forces.

The number of uninsured people younger than 65 years is expected to drop from 55 million in 2013 to 29 million in 2016 (16). The remaining uninsured population will comprise unqualified immigrants (who are not eligible for health insurance under ACA); those who are ineligible for Medicaid because they reside in a state that did not expand Medicaid; those who are eligible for Medicaid but choose not to enroll; and those who choose to remain uninsured, although they have access to insurance through an employer, an exchange, or directly from an insurer (16,23,24).

To the best of our knowledge, this is the first study to use BRFSS data to estimate the number of people without health insurance pre-Medicaid expansion by state and to examine the sociodemographic characteristics and states’ Medicaid expansion status in relation to these estimates. When 2014 BRFSS data become available, it will be possible to assess changes in health care access following ACA’s coverage expansion at the state level. Our results show large variations among states in the estimated prevalence of lack of health insurance. Of note, a large number of uninsured adults aged 18 to 64 years reside in states that opted out of Medicaid expansion. Continued surveillance at the state level is needed to monitor the effect of the ACA and Medicaid expansion on health care access, use of health services, health outcomes, and their economic impact in multiple health care domains.

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### Tables

#### Table. Sociodemographic Characteristics of Adults Aged 18 to 64 Years Categorized by Estimated State Prevalence of Lack of Health Insurance Coverage Compared With the US National Average, 2013 Behavioral Risk Factor Surveillance System (n = 307,247 [Unweighted])

| Characteristic | State Group, Weighted % (95% Confidence Interval) | P Value, Comparison of State Groups |
|---------------|--------------------------------------------------|-----------------------------------|
|               | A: High-Insured States\(^b\) & B: Average-Insured States\(^c\) & C: Low-Insured States\(^d\) | A and B & C and B & A and C |
| Age, y        |                                                 |                                   |
| 18–24         | 15.5 (15.1–15.9) & 15.8 (15.2–16.4) & 15.6 (15.1–16.2) | .40 & .67 & .70 |
| 25–44         | 40.3 (39.8–40.7) & 42.0 (41.3–42.7) & 42.3 (41.6–43.0) | <.001 & .52 & <.001 |
| 45–64         | 44.2 (43.8–44.7) & 42.2 (41.5–42.9) & 42.0 (41.4–42.7) | <.001 & .52 & <.001 |
| Female        | 50.6 (50.1–51.0) & 50.1 (49.4–50.9) & 50.5 (49.8–51.2) | .38 & .46 & .96 |
| Race/ethnicity|                                                 |                                   |
| White, non-Hispanic | 70.1 (69.6–70.6) & 58.5 (57.7–59.2) & 55.0 (54.3–55.7) | <.001 & <.001 & <.001 |
| Black, non-Hispanic | 11.7 (11.4–12.1) & 8.7 (8.2–9.1) & 16.5 (16.0–17.0) | <.001 & <.001 & <.001 |
| Hispanic      | 10.3 (10.0–10.6) & 21.4 (20.7–22.1) & 22.7 (22.1–23.4) | <.001 & <.01 & <.001 |
| Other, non-Hispanic\(^e\) | 7.9 (7.6–8.2) & 11.4 (10.8–12.1) & 5.7 (5.4–6.1) | <.001 & <.001 & <.001 |
| Education     |                                                 |                                   |
| ≤High school  | 39.0 (38.5–39.5) & 41.4 (40.6–42.1) & 44.4 (43.7–45.1) | <.001 & <.001 & <.001 |
| Some college  | 31.1 (30.6–31.5) & 32.0 (31.3–32.7) & 32.1 (31.4–32.7) | <.05 & .83 & <.05 |
| ≥College      | 30.0 (29.6–30.3) & 26.7 (26.1–27.2) & 23.5 (23.0–24.0) | <.001 & <.001 & <.001 |
| Marital status|                                                 |                                   |
| Married       | 50.6 (50.2–51.0) & 51.2 (50.5–51.9) & 50.5 (49.9–51.1) | .15 & .15 & .81 |
| Previously married\(^f\) | 13.5 (13.2–13.8) & 15.0 (14.6–15.5) & 16.8 (16.3–17.3) | <.001 & <.001 & <.001 |
| Never married/member of an unmarried couple | 35.9 (35.5–36.3) & 33.8 (33.2–34.4) & 32.7 (32.1–33.3) | <.001 & <.05 & <.001 |
| Employment status |                                                 |                                   |
| Employed      | 69.2 (68.7–69.6) & 64.8 (64.1–65.5) & 64.6 (64.0–65.3) | <.001 & .63 & <.001 |
| Unemployed    | 8.4 (8.1–8.7) & 9.2 (8.7–9.6) & 9.0 (8.6–9.4) | <.01 & .64 & <.05 |

\(^a\) Sociodemographic characteristics (except age) were age-adjusted to the 2000 US standard population.  
\(^b\) States with an estimated prevalence of lack of health insurance less than the lower bound of the 95% CI of the national average are Connecticut, Delaware, Hawaii, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Virginia, Wisconsin, and the District of Columbia (24 states; n = 148,352).  
\(^c\) States with an estimated prevalence of lack of health insurance coverage within the 95% CI of the national average are Alabama, Alaska, California, Colorado, Illinois, Indiana, Kansas, Kentucky, Montana, Oklahoma, Tennessee, and Washington (12 states; n = 78,289).  
\(^d\) States with an estimated prevalence of lack of health insurance coverage greater than the upper bound of the 95% CI of the national average are Arizona, Arkansas, Florida, Georgia, Idaho, Louisiana, Mississippi, Nevada, New Mexico, North Carolina, Oregon, South Carolina, Texas, West Virginia, and Wyoming (15 states; n = 80,606).  
\(^e\) “Other” includes respondents who reported their ethnicity as non-Hispanic and their race as American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, some other race, or more than 1 race (ie, multiracial).  
\(^f\) “Previously married” includes respondents who reported their marital status as divorced, widowed, or separated.  
\(^g\) “Not in labor market” includes respondents who reported their employment status as a student, a homemaker, retired, or unable to work.

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| Characteristic | State Group, Weighted % (95% Confidence Interval) | P Value, Comparison of State Groups |
|---------------|--------------------------------------------------|-----------------------------------|
|                | A: High-Insured States b | B: Average-Insured States c | C: Low-Insured States d | A and B | C and B | A and C |
| Not in labor market g | 22.5 (22.1–22.9) | 26.0 (25.4–26.6) | 26.4 (25.8–27.0) | <.001 | .40 | <.001 |
| Annual household income, $ | | | | | | |
| 0–14,999 | 9.3 (9.0–9.6) | 13.3 (12.8–13.9) | 12.1 (11.7–12.6) | <.001 | <.01 | <.001 |
| 15,000–24,999 | 13.7 (13.3–14.0) | 14.4 (13.9–15.0) | 17.5 (16.9–18.0) | <.05 | <.001 | <.001 |
| 25,000–34,999 | 8.4 (8.2–8.7) | 8.9 (8.5–9.3) | 10.0 (9.6–10.4) | .08 | <.001 | <.001 |
| 35,000–49,999 | 11.8 (11.5–12.1) | 11.8 (11.4–12.3) | 12.2 (11.8–12.7) | .97 | .28 | .17 |
| 50,000–74,999 | 14.1 (13.7–14.4) | 13.3 (12.8–13.8) | 12.2 (11.8–12.7) | <.05 | <.01 | <.001 |
| ≥75,000 | 13.3 (13.0–13.7) | 28.1 (27.5–28.8) | 23.6 (23.0–24.2) | <.001 | <.001 | <.001 |
| Unknown | 11.5 (11.2–11.9) | 10.1 (9.6–10.5) | 12.4 (11.9–12.8) | <.001 | <.001 | <.01 |
| ≥1 Children in household | 46.3 (45.9–46.8) | 47.9 (47.2–48.7) | 48.0 (47.3–48.6) | <.001 | .92 | <.001 |
| Self-reported disability | 17.5 (17.2–17.9) | 18.5 (18.0–19.1) | 18.1 (17.6–18.5) | <.01 | .18 | .07 |

a Sociodemographic characteristics (except age) were age-adjusted to the 2000 US standard population.
b States with an estimated prevalence of lack of health insurance coverage less than the lower bound of the 95% CI of the national average are Connecticut, Delaware, Hawaii, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Virginia, Wisconsin, and the District of Columbia (24 states; n = 148,352).
c States with an estimated prevalence of lack of health insurance coverage within the 95% CI of the national average are Alabama, Alaska, California, Colorado, Illinois, Indiana, Kansas, Kentucky, Montana, Oklahoma, Tennessee, and Washington (12 states; n = 78,289).
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e “Other” includes respondents who reported their ethnicity as non-Hispanic and their race as American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, some other race, or more than 1 race (ie, multiracial).
f “Previously married” includes respondents who reported their marital status as divorced, widowed, or separated.
g “Not in labor market” includes respondents who reported their employment status as a student, a homemaker, retired, or unable to work.