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Changes In Health Insurance Coverage, Access To Care, And Income-Based Disparities Among US Adults, 2011–17

Kevin N. Griffith [PhD candidate],
Department of Health Law, Policy and Management at Boston University School of Public Health, in Massachusetts

David K. Jones [associate professor],
Department of Health Law, Policy and Management, Boston University School of Public Health

Jacob H. Bor [assistant professor],
Departments of Global Health and Epidemiology, Boston University School of Public Health

Benjamin D. Sommers [professor of health policy and economics]
Department of Health Policy and Management, Harvard T. H. Chan School of Public Health, and a professor of medicine at Brigham and Women's Hospital, both in Boston

Abstract

The Affordable Care Act increased insurance coverage and access to care, according to numerous national studies. However, the administration of President Donald Trump implemented several policies that may have affected the act's effectiveness. It is unknown what effect these changes had on access to care. We used survey data for 2011–17 from the Behavioral Risk Factor Surveillance System to assess changes access to care among nonelderly adults from before to after the change in administration in 2017. We found that the proportion of adults who were uninsured or avoided care because of cost increased by 1.2 percentage points and 1.0 percentage points, respectively, during 2017. These changes were greater among respondents who had household incomes below 138 percent of the federal poverty level, resided in states that did not expand eligibility for Medicaid, or both. At the population level, our findings imply that approximately two million additional US adults experienced these outcomes at the end of 2017, compared to the end of 2016.

The year 2017 marked an important transition period for the Affordable Care Act (ACA). Republicans controlled both houses of Congress and the White House for the first time in more than a decade, and they ushered in several policy changes that affected key features of the ACA. These included, in 2017, the cancellation of cost-sharing reduction payments to insurers[1] and reduced outreach and a shorter enrollment period for most ACA Marketplaces and, in 2018, greater access to short-term insurance options that are not required to include many of the ACA's consumer protections.[2] Congress also repealed the individual insurance mandate penalty (effective in 2019) and came within one vote of full ACA repeal, which led many voters to believe that the law was no longer in effect.[3,4] At the same time, insurer

kgriffit@bu.edu.

NOTES

competition within the ACA Marketplaces declined, and insurance premiums continued to rise.[5,6] Uncertainty over the ACA's future was implicated in some of these insurer exits.[7]

The first three years following implementation of the ACA's major provisions such as Medicaid expansion and the creation of individual insurance Marketplaces (2014–16) resulted in large improvements in health care access and reductions in racial, socioeconomic, and urban-rural disparities in access.[8–10] For instance, the uninsurance rate for households earning less than $25,000 per year fell by 15.0 percentage points from 2013 to 2015 in states that expanded eligibility for Medicaid under the ACA and by 5.3 percentage points in nonexpansion states.[11] Some early reports have suggested potential declines in health care coverage under the administration of President Donald Trump,[12,13] although these studies relied on nongovernmental surveys with low response rates. Meanwhile, 2017 coverage estimates from the Census Bureau[14] and the National Center for Health Statistics[15] showed a nonsignificant increase in uninsurance. However, Census Bureau reports do not include trends by month or quarter. Using high-quality survey data from the nationally representative Behavioral Risk Factor Surveillance System (BRFSS), we examined trends in access to care and insurance coverage disparities during 2017. BRFSS surveys are conducted as a continuous random sample, and survey dates are published in the public-use data—which allowed us to study changes on a quarterly basis. We assessed changes in health care access outcomes in the overall nonelderly US adult population and stratified by state Medicaid expansion status and household income. Because of the observational nature of our study design, our results should be considered descriptive; they do not enable us to make any direct connection between specific policy interventions and the study outcomes.

Study Data And Methods

DATA

Data for this study are from the 2011–17 BRFSS. The BRFSS is a nationwide, repeated cross-sectional telephone survey that has included both land-line and mobile phones since 2011; its sampling methodology and respondent characteristics have been described elsewhere.[16,17] Our sample included adults up until the age of Medicare eligibility—that is, ages 18–64—who resided in the US (not including its territories).

MEASURES

Our outcome variables included three self-reported measures of health care access: whether respondents had any kind of health care coverage, whether they had one person they thought of as their personal doctor or health care provider, and whether there was a time in the past twelve months when they had needed to see a doctor but could not because of cost. These measures have been validated in several previous works.[18] For instance, Lorelei Mucci and coauthors interviewed BRFSS respondents to validate their health insurance status and found that 93 percent of the respondents who reported that they had insurance were able to produce their insurance cards.[19] We also extracted data on a variety of demographic characteristics: race, household income, sex, home ownership, educational attainment, age, veteran status, rurality (using BRFSS metropolitan status codes), household size, and whether children were present in the household. We calculated an imputed percentage of the federal poverty

level, which was then used to categorize respondents by household income: less than 138 percent of poverty (the income eligibility threshold under the Medicaid expansion), 138–400 percent of poverty (corresponding to subsidy eligibility limits in the ACA Marketplaces), and more than 400 percent of poverty (eligible for neither Medicaid nor Marketplace subsidies). For a summary of this process, see the online appendix[20] or an earlier article by Benjamin Sommers and coauthors.[21] We used hot-deck imputation to replace the small number of missing answers to specific survey questions (less than 1 percent), which reduced the potential for nonresponse bias in our models.[22]

ANALYTIC APPROACH

We first assessed quarterly trends in the three measures of health care access in the period 2011–17, stratified by household income and state Medicaid expansion status. Since our study focused on changes in 2017, states were treated as having expanded Medicaid if they had implemented the Medicaid expansion by the end of 2016. We then used an interrupted time-series approach to estimate the adjusted changes in access for each quarter in the period 2014–17, relative to what would have been expected had trends at baseline (2011–13) for each state continued. Wald tests were used to check whether the regression coefficients for each quarter of 2017 were significantly different from those of the fourth quarter of 2016. In sensitivity analyses we examined annual instead of quarterly changes in access. All regressions were estimated as linear probability models using BRFSS sampling weights. The results were highly comparable when we used logistic models and changes in average predicted probabilities. Models were adjusted for the demographic covariates listed earlier, survey quarter, and state-specific pre-ACA time trends.

Lastly, we assessed changes in absolute income-based disparities in avoided care because of cost from 2013–16 to 2016–17, again stratified by state expansion status. Absolute disparities were calculated as the adjusted differences in average regression predictions for households with incomes less than 138 percent or more than 400 percent of poverty, with covariates standardized to the final quarter of 2013. The study methodology is discussed in more detail in the appendix.[20] Analyses were conducted using Microsoft R Open, version 3.5.1.

LIMITATIONS

Our study had several limitations. First, it had many of the standard limitations of survey-based designs, such as the potential for nonresponse bias and the reliance on self-reported outcomes. However, the BRFSS generally has a high response rate for telephone surveys (nearly 50 percent each year),[17] responses were reweighted to reflect state-level demographics, and hot-deck imputation was used to replace missing answers to specific questions.[22] In previous work, the measures of health care access that we examined have been found to have high levels of validity and reliability.[18]

Second, income measurement in the BRFSS is quite imprecise, and our imputed household income measure was only a rough proxy for the family income measure used to determine eligibility for Medicaid and Marketplace subsidies.

Third, the BRFSS does not include an assessment of different coverage types in its core survey, which meant that we could not directly assess whether the coverage losses in 2017 reflected changes in Medicaid, Marketplace insurance, or some other type of coverage. However, the Centers for Medicare and Medicaid Services (CMS) reported that enrollment in the individual Marketplaces fell by 10 percent from 2016 to 2017 and continued to decline in 2018.[23] These declines have been strongly concentrated among people ineligible for premium subsidies. Total nonsubsidized enrollment fell from approximately 6.27 million in 2016 to 3.77 million in 2018, a decline of 40 percent. It's unclear how much of the enrollment decline reflected a net loss of coverage versus substitution for non-Marketplace plans. Meanwhile, total subsidized enrollment among eligible people showed a modest increase of 1.3 percent, from 8.25 million to 8.36 million.[24]

Fourth, the BRFSS does not include questions about citizenship status. This precluded analyses of changes in access for immigrant populations, whose members may be disproportionately affected by recent policy changes.

Finally, because of the observational nature of our study design, our estimates should be interpreted only as associations. We were unable to directly attribute changes in access from 2016 to 2017 to specific changes in the policy environment.

Study Results

Our final sample included nearly 2.2 million respondents (sample characteristics are in appendix exhibit A1).[20] Respondents in states that chose to expand Medicaid were less likely to be black, and they had higher household incomes and a higher rate of college graduation, but they were similar in terms of employment and other covariates compared to respondents in states that did not expand Medicaid.

The uninsurance rate for low-income respondents fell to 23.2 percent in the first quarter of 2017 (exhibit 1). However, it rose to 27.5 percent by the end of the year, its highest point since the third quarter of 2015. The proportion of respondents who reported having no personal doctor reached its nadir during the first quarter of 2017 (32.5 percent), when the proportion who reported having avoided care fell to 23.1 percent. However, both measures also rose during 2017. These data are available for other income groups and for the entire sample in appendix exhibit A2.[20] In the subsequent sections of this article, we focus on results from adjusted models (unadjusted results are in appendix exhibit A3).[20]

CHANGES IN ACCESS, OVERALL AND BY HOUSE-HOLD INCOME

From the end of 2013 through the end of 2016, uninsurance rates declined by 7.1 percentage points (exhibit 2) (95% confidence interval: 6.6, 7.7), the proportion of respondents without a personal doctor declined by 6.3 percentage points (95% CI: −6.9, −5.7), and the proportion that avoided care because of cost declined by 4.0 percentage points (95% CI: −4.5, −3.4). Starting in the second quarter of 2017, all of these coverage gains were partially reversed. From the end of 2016 through the end of 2017, the overall proportion of adults without health insurance rose 1.2 percentage points (95% CI: 0.7, 1.5), and this increase was concentrated among respondents with household incomes below 138 percent of poverty (1.6

percentage points; 95% CI: 0.7, 2.5). In contrast, the proportion without a personal doctor decreased slightly (−0.8 percentage points; 95% CI: −1.3, −0.5), led by changes in middle-income households (−1.2 percentage points; 95% CI: −1.9, −0.5). The rate of avoiding care because of cost worsened (1.0 percentage points; 95% CI: 0.6, 1.4), with the greatest increases seen in the lowest-income group (1.3 percentage points; 95% CI: 0.4, 2.2).

The 2017 declines in insurance coverage and affordability were concentrated in nonexpansion states (exhibit 3). Uninsurance increased by 2.1 percentage points overall in nonexpansion states from the fourth quarter of 2016 through the fourth quarter of 2017 (95% CI: 1.4, 2.8), primarily as a result of changes in the group with incomes below 138 percent of poverty (3.4 percentage points; 95% CI: 1.8, 5.0). Smaller increases in uninsurance rates were observed during this period in Medicaid expansion states (0.6 percentage points; 95% CI: 0.1, 1.1). Overall changes from the fourth quarter of 2016 to the fourth quarter of 2017 in the proportion of respondents without a personal doctor were similar in expansion and nonexpansion states, but there was significant variation by subgroup. In expansion states there was a decrease in the proportion of respondents in the lowest income group who had no personal doctor (−1.7 percentage points; 95% CI: −2.9, −0.5). In nonexpansion states there was an increase instead (2.0 percentage points; 95% CI: 0.4, 3.6), but this was offset by declines in the other income groups. Rates of avoiding care because of cost increased by 2.1 percentage points in nonexpansion states (95% CI: 1.4, 2.8), and estimates for subgroups were roughly similar. Increases in the rates were smaller in magnitude for expansion states and were significant only for the highest income group (0.8 percentage points; 95% CI: 0.2, 1.4).

ANNUALIZED CHANGES IN HEALTH CARE ACCESS

As a robustness check, we repeated our analyses, looking at annual instead of quarterly changes in access from 2013 to 2017. The annual estimates of changes in access from 2016 to 2017 were generally similar to our quarterly estimates and also highly significant, although slightly attenuated. For instance, the overall change in the proportion of adults without health insurance from 2016 to 2017 was 0.9 percentage points (95% CI: 0.6, 1.2), and the proportion who avoided care because of cost rose by 0.8 percentage points (95% CI: 0.6, 1.0). These results are in appendix exhibits A4 and A5.[20]

CHANGES IN COVERAGE DISPARITIES

Income-based disparities in avoided care because of cost decreased from the end of 2013 to the end of 2016 in both expansion and nonexpansion states. For instance, the disparity in rates of avoided care between the high- and low-income groups declined by 8.5 percentage points (95% CI: 7.2, 9.7) in expansion states (exhibit 4). However, disparities began to rise in 2017 for respondents in nonexpansion states. From the fourth quarter of 2016 to the fourth quarter of 2017, the absolute disparity in avoided care between rich and poor increased from 23.4 percentage points to 26.0 percentage points in nonexpansion states (a relative increase of 11 percent), while falling from 14.3 percentage points to 13.3 percentage points in expansion states (a relative decrease of nearly 7 percent).

Discussion

Consistent with a large body of evidence on the ACA's impacts,[9,11,25] we observed substantial improvements in health care access from 2013 through 2016. These gains were concentrated among respondents who had household incomes under 400 percent of poverty, resided in states that chose to expand Medicaid, or both. These trends reversed in 2017, and gains in health care access began to erode. We also observed sizable reductions in income-based disparities in avoided care because of cost from 2013 through 2016, although these disparities increased in 2017 for Medicaid nonexpansion states.

Nationally, we estimated that uninsurance rates fell by 7.1 percentage points from 2013 to 2016 but rose by 1.2 points during 2017. Thus, roughly 17 percent of the adjusted change in coverage from the ACA's early years had been reversed by the end of 2017. On the population level, our findings of an increase of approximately 1 percentage point in the rates of uninsurance and avoided care because of cost imply that nearly two million additional US adults ages 18–64 experienced each of these outcomes at the end of 2017, compared to the end of 2016. These recent declines were primarily concentrated among people who were poor, resided in nonexpansion states, or both. As a result, income-based disparities in avoided care because of cost began to increase in nonexpansion states during 2017.

The nature of our study design did not allow us to causally link changes in health care access with specific policy interventions. For instance, it is unclear whether the observed protective effects of Medicaid expansion are due to expansion per se or to other related state policies and activities. Expansion states were more likely to establish and operate state-based Marketplaces, provide more generous funding for Marketplace navigators, and have a greater volume of advertising promoting ACA open enrollment periods.[5,26,27] Notwithstanding this limitation, the observed changes were concurrent with important policy developments under the Trump administration, which took office in January 2017. The declines in coverage coincided with the implementation of federal policies that shortened enrollment periods and reduced advertising and outreach, as well as with general confusion about the ACA's status after the repeal debate.[5,13,28,29] Given that these changes also occurred during a time of low unemployment and that our model directly adjusted for demographic factors such as employment and income, it is less likely that the economy or population changes accounted for these results. The observed changes in health care access may in fact understate the effects of the above-mentioned policy changes. Furthermore, the fact that the negative impacts in 2017 were concentrated in nonexpansion states suggests that state policies are important drivers of coverage and access. Misinformation may also have played a role; a 2017 Morning Consult/Politico survey found that nearly one in four Americans incorrectly believed that the ACA had been partially repealed, while 15 percent believed that it had been totally repealed.[4] Our results on insurance coverage are largely consistent with findings from the Gallup Well-Being Index.[13] To our knowledge, however, ours is the first study to use a validated government data source to document significant changes in coverage, as well as the first to show an associated change in access to care.

It is unclear whether these trends continued into 2018 and 2019, and the conflicting results from alternative data sources add more uncertainty to the implications of these findings. For

instance, the uninsurance rate for adults ages 18–64 increased from 11.9 percent in 2016 to 12.1 percent in 2017, according to the Current Population Survey,[14] and from 12.4 percent to 12.8 percent, according to the National Health Interview Survey.[15] The Commonwealth Fund's Biennial Health Insurance Survey showed no change in the uninsurance rate from 2016 to 2018 (it remained 12 percent), although these estimates were rounded to the nearest integer.[30] Meanwhile, Gallup recently reported a large uptick in the uninsurance rate in 2018,[31] though given a large-scale redesign in that data source at the end of 2017, it is unclear whether the revised survey provides valid estimates of coverage trends over time.[32] Lastly, recent results from the Current Population Survey showed a slight uptick in the uninsurance rate from 2017 (7.9 percent) to 2018 (8.5 percent).[33] It is possible that our results are early indicators of concerning trends that may become more apparent over time and across other data sources. It is also possible that idiosyncrasies in the BRFSS (and Gallup data) may be responsible for our findings. Future research with multiple data sources will be critical to evaluating these points.

Ongoing policy changes such as the elimination of the individual insurance mandate penalty in 2019, reductions in CMS's budget for ACA marketing and navigator programs,[28] temporarily halting risk-adjustment payments to insurers,[34] and shortening the open enrollment period on the ACA's insurance Marketplaces may further erode access gains.[29] On the other hand, Virginia's and Maine's Medicaid expansions became effective in January 2019, and expansions were approved by voters in Idaho, Nebraska, and Utah in 2018 but have not yet been implemented.[35,36] As we approach the ten-year anniversary of the passage of the ACA, further monitoring of these national trends with high-quality data will be critical to informing policy discussions regarding the act's future. ■

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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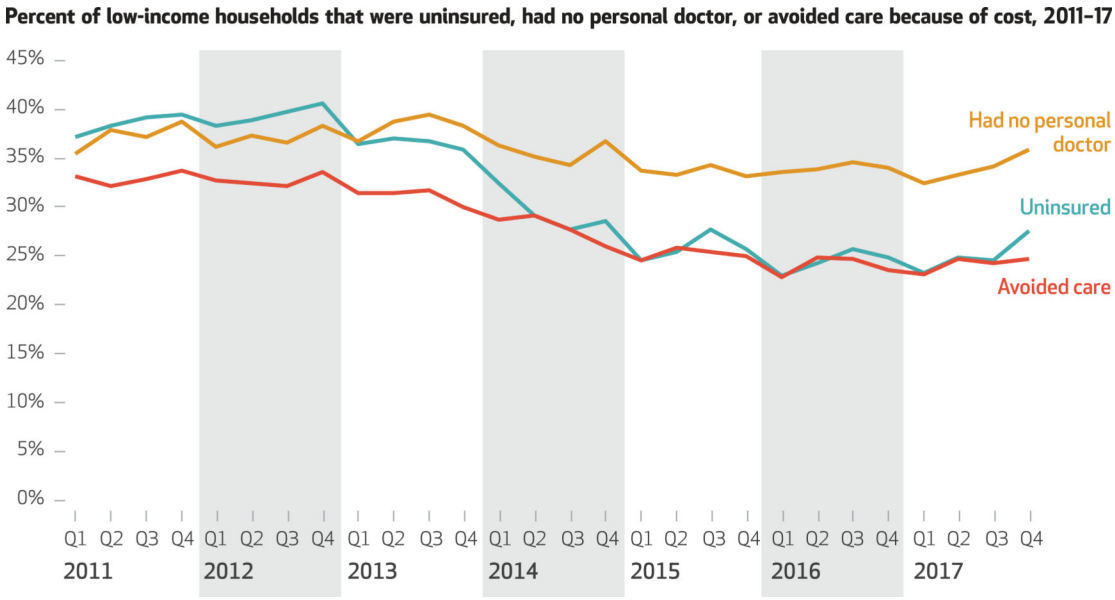

EXHIBIT 1.

SOURCE Authors' analysis of data for 2011–17 from the Behavioral Risk Factor Surveillance System (BRFSS). **NOTES** All lines show unadjusted proportions of those households with incomes of less than 138 percent of federal poverty level, accounting for BRFSS sampling weights. In each year, respondents were asked whether they had experienced these outcomes in the past twelve months.

Differences between rich and poor households in rates of avoided care because of cost in the fourth quarters of 2013, 2016, and 2017, by whether or not states expanded eligibility for Medicaid

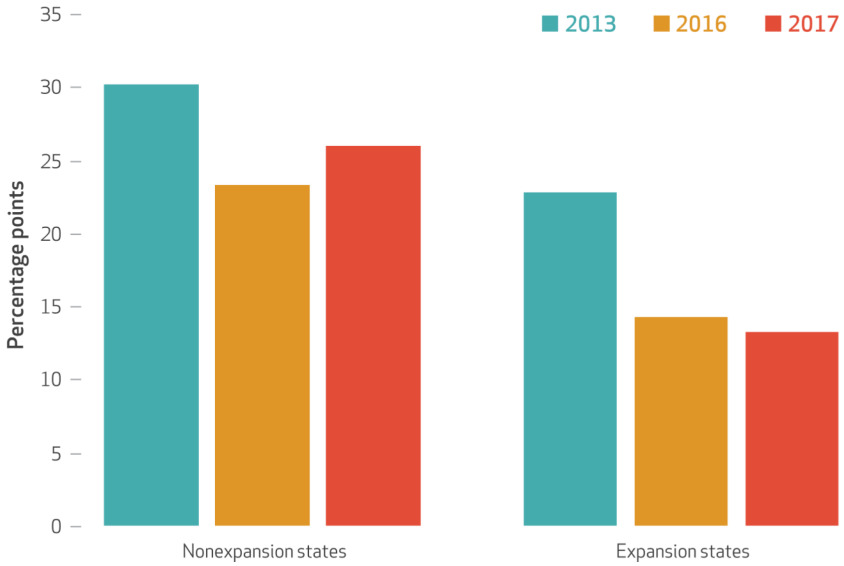

EXHIBIT 4.

SOURCE Authors' analysis of data for 2013–17 from the Behavioral Risk Factor Surveillance System. **NOTE** Absolute disparities are calculated as the percentage-point differences in average regression predictions for poor households (those with incomes below 138 percent of the federal poverty level) and rich households (those with incomes above 400 percent of poverty), with covariates standardized to the fourth quarter of 2013.

EXHIBIT 2

Adjusted percentage-point changes from 2013 to 2017 in households that were uninsured, had no personal doctor, or avoided care because of cost, by household income group

		Compared to 2016 Q4[a]			
Household income (% FPL)	**2016 Q4[b]**	**2017 Q1**	**2017 Q2**	**2017 Q3**	**2017 Q4**
UNINSURED					
Less than 138%	−10.9****	−0.8	0.3	0.3	1.6****
138–400%	−4.3****	−0.2	0.7**	0.8***	1.0****
More than 400%	−0.9**	0.5	0.7**	1.2****	1.1****
All	−7.1****	0.0	0.5**	0.8****	1.2****
HAD NO PERSONAL DOCTOR					
Less than 138%	−6.6****	−1.6***	−2.5****	−1.2**	−0.4
138–400%	−6.6****	0.6	0.5	0.1	−1.2****
More than 400%	−1.9****	−0.3	−0.1	0.0	−0.5
All	−6.3****	−0.2	−0.7***	−0.3	−0.8****
AVOIDED CARE BECAUSE OF COST					
Less than 138%	−6.8****	−0.4	1.2**	1.6***	1.3***
138–400%	−1.0***	0.3	0.9***	0.9***	1.1****
More than 400%	−0.3	1.2****	1.6****	1.9****	1.1****
All	−4.0****	0.4*	1.1****	1.4****	1.0****

SOURCE Authors' analysis of data for 2011–17 from the Behavioral Risk Factor Surveillance System (BRFSS). **NOTES** Models are adjusted for state-level time trends; survey quarter; and respondent demographic characteristics, including race, household income, sex, home ownership, educational attainment, age, veteran status, rurality, household size, and whether children were present in the household. In each year, respondents were asked whether they had experienced these outcomes in the past twelve months. For additional details on our regression specifications, see the appendix (note 20 in text). FPL is federal poverty level.

[a] Wald test for the difference between two regression coefficients.

[b] Counterfactual estimates of changes from the fourth quarter of 2013.

* $p < 0.10$

** $p < 0.05$

*** $p < 0.01$

**** $p < 0.001$

EXHIBIT 3

Adjusted percentage-point changes from 2013 to 2017 in households that were uninsured, had no personal doctor, or avoided care because of cost, by household income group and whether or not states expanded eligibility for Medicaid

Household income (% FPL)	2016 Q4[b]	Compared to 2016 Q4[a]			
		2017 Q1	2017 Q2	2017 Q3	2017 Q4
NONEXPANSION STATES					
Uninsured					
Less than 138%	−6.1****	0.7	1.8**	−0.3	3.4****
138–400%	−4.2****	−1.0*	1.6***	1.9****	1.3***
More than 400%	−0.5	0.5	1.1*	2.6****	0.9*
All	−5.7****	0.4	1.7****	1.5****	2.1****
Had no personal doctor					
Less than 138%	−6.1****	0.2	0.1	−0.2	2.0**
138–400%	−5.7****	1.0	−0.2	−0.1	−2.3****
More than 400%	−1.5	−1.4*	−1.7**	−1.4*	−2.5****
All	−5.8****	0.5	−0.3	−0.3	−0.7*
Avoided care because of cost					
Less than 138%	−3.2***	1.1	2.9****	1.7*	2.3***
138–400%	−1.0	1.2**	1.7***	2.0****	2.0****
More than 400%	−2.0***	1.7***	2.3****	2.6****	1.7***
All	−3.3****	1.7****	2.5****	2.1****	2.1****
EXPANSION STATES					
Uninsured					
Less than 138%	−13.8****	−2.0***	−0.8	0.6	0.4
138–400%	−4.4****	0.1	−0.1	0.1	0.8**
More than 400%	−1.1**	0.4	0.3	0.4	1.3****
All	−7.8****	−0.5*	−0.4	0.3	0.6**
Had no personal doctor					
Less than 138%	−6.8****	−2.7****	−4.3****	−1.8***	−1.7***
138–400%	−7.0****	0.1	0.7	0.0	−0.7*
More than 400%	−1.9***	0.1	0.5	0.5	0.5
All	−6.4****	−0.8**	−1.1****	−0.4	−0.9***
Avoided care because of cost					
Less than 138%	−9.0****	−1.5**	−0.1	1.5**	0.7
138–400%	−1.1**	−0.2	0.4	0.4	0.6
More than 400%	0.7	0.9**	1.2***	1.5****	0.8**
All	−4.3****	−0.4	0.2	1.0****	0.4*

SOURCE Authors' analysis of data for 2011–17 from the Behavioral Risk Factor Surveillance System. **NOTES** Models are adjusted for the factors listed in the notes to exhibit 2. In each year, respondents were asked whether they had experienced these outcomes in the past twelve months. For additional details on our regression specifications, see the appendix (note 20 in text). FPLis federal poverty level.

[a] Wald test for the difference between two regression coefficients.

[b] Counterfactual estimate of changes from the final quarter of 2013.

* $p < 0.10$

** $p < 0.05$

*** $p < 0.01$

**** $p < 0.001$