SPECIAL REPORT

Medicaid Work Requirements — Results from the First Year in Arkansas

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In recent years, policymakers have introduced unprecedented changes to Medicaid. As of April 2019, nine states have received approval by means of a federal waiver to implement work requirements in Medicaid, and six have applications pending.[1] According to the Centers for Medicare and Medicaid Services, work requirements — also known as community engagement requirements — may promote better health and help beneficiaries escape poverty.[2] However, critics dispute these claims[3,4] and warn that the policy could lead to large coverage losses.[5] Work requirements have been used previously in programs such as the Supplemental Nutrition Assistance Program and the Temporary Assistance for Needy Families program. Studies of those programs showed that work requirements produced modest, short-term increases in employment but no increases in income.[6,7] The effects of work requirements in a health insurance program are unclear.

In June 2018, Arkansas became the first state to implement work requirements in Medicaid. Medicaid beneficiaries 30 to 49 years of age were notified by the state (by mail and informational fliers) that they were required to work 80 hours per month, participate in another qualifying community engagement activity such as job training or community service, or meet criteria for an exemption such as pregnancy or disability.[8] Three months of noncompliance or nonsubmission of monthly online reports within a year led to removal from Medicaid. By December, nearly 17,000 adults were notified by mail that they had been removed from Medicaid.[9] In March 2019, a federal judge halted the program owing to concerns about its effect on coverage. Although several analyses have predicted various results of Medicaid work requirements,[10-15] data from independent assessments since the policy took effect have been limited. Our objective was to assess early changes in insurance coverage and employment after implementation of the work requirements in Arkansas.

METHODS

STUDY DESIGN AND SETTING

We conducted a telephone survey to compare changes in outcomes before and after implementation of the work requirements in Arkansas among persons 30 to 49 years of age, as compared with Arkansans 19 to 29 years of age and those 50 to 64 years of age (who were not subject to the requirement in 2018) and with adults in three comparison states — Kentucky, Louisiana, and Texas. Kentucky, like Arkansas, expanded Medicaid under the Affordable Care Act (ACA) in 2014 and planned to introduce work requirements in 2018, but the requirements were blocked by a federal judge before implementation. Neither Louisiana (which expanded Medicaid in 2016) nor Texas (which has not expanded Medicaid) has implemented work requirements. All four study states are in the Southern census region and have poverty rates in the highest quartile of the United States. We used baseline data from 2016 (before the implementation of work requirements) for these states from a previous survey conducted by our team that has been validated against government data sources.[16-18] This project was approved by the institutional review board of the Harvard T.H. Chan School of Public Health.

SAMPLE AND SURVEY

Our survey was conducted by means of cellular and landline telephones, in English or Spanish,

between November 8 and December 30, 2018. The sample comprised U.S. citizens 19 to 64 years of age who reported family incomes in 2017 below 138% of the federal poverty level (e.g., $16,600 for a single adult or $33,900 for a family of four), which corresponds to the income limit for the ACA Medicaid expansion. This inclusion criterion was based on the respondent's income in the previous year in order to prevent any potential employment response to the policy from biasing the sample composition.

We contacted potential survey participants in Arkansas, Kentucky, Louisiana, and Texas primarily by means of random-digit dialing. The study also included respondents from different surveys that had been previously conducted by our survey vendor who were recontacted for this survey; this facilitated oversampling in the age group subject to work requirements in Arkansas. We combined the 2018 data with baseline data from November and December 2016, which had been obtained from a different set of respondents.[17,18] Further details on the survey design are provided in the Methods section in the Supplementary Appendix, available with the full text of this article at NEJM.org.

OUTCOMES

Our study had three primary outcomes: the percentage of respondents with Medicaid, the percentage of respondents who were uninsured, and the percentage of respondents reporting any employment. Secondary outcomes were the number of hours worked per week, the percentage of respondents satisfying any category of community engagement requirement (described below), the percentage of respondents with employer-sponsored insurance, and two measures of access to care — the percentages of respondents having a personal physician and reporting any cost-related delays in care. We also examined Arkansas respondents' experience with work requirements: whether they had heard "a lot," "a little," or "nothing" about the requirements; whether they thought they were (or would be) subject to the requirements; and their reporting activities to the state.

Health insurance was categorized into mutually exclusive categories (see the Methods section in the Supplementary Appendix). The 2014 expansion in Arkansas used Medicaid funds to purchase ACA marketplace plans for most newly eligible adults (sometimes called the "private option").[19] In contrast, most low-income adults in the other expansion states in our study (Kentucky and Louisiana) were eligible for Medicaid but not ACA marketplace plans. Because of the blurred boundary between Medicaid and marketplace coverage in Arkansas, coverage with Medicaid alone or marketplace coverage alone in Arkansas as compared with the other states would be misleading. Accordingly, we combined Medicaid and marketplace coverage into a single category.

Activities meeting the Arkansas work requirements included 80 hours per month of employment, job search, job training, or community service. Populations of adults who were eligible for exemptions included pregnant women, persons with disabilities or medical frailty, full-time students, persons caring for a child or other household member, and anyone receiving treatment for substance abuse. Since our baseline survey did not assess employment-related activities, our 2018 survey asked respondents about their activities 12 months earlier (during 2017) and then assessed their current activities. The survey questions are shown in the Supplementary Appendix; the 2018 survey questions used identical wording to our baseline survey whenever possible.

STATISTICAL ANALYSIS

Our approach was a difference-in-difference-in-differences (or triple-difference) model, which used comparisons according to year, state, and age group to identify changes in outcomes associated with the policy. Our model tested whether the change among respondents 30 to 49 years of age in Arkansas, relative to the change in other age groups in Arkansas, was larger than the comparable relative changes in other states. This method filters out time trends common to all four states and any state-specific factors influencing employment and coverage in Arkansas that were not due to work requirements. For instance, the waiver in Arkansas increased cost sharing and premiums for some enrollees in addition to work requirements, but these features were not specific to age.[20] We implemented this model with adjustment for state, year, and age group (19 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years, and 60 to 64 years) and with pairwise

interaction terms between those variables. The policy estimate came from the three-way interaction among indicator variables for Arkansas, the 30-to-49–year-old age group, and the year 2018; the regression equations are shown in the Supplementary Appendix.

For outcomes regarding insurance coverage and health care access, which were measured in separate samples from 2016 and 2018, we used a linear model with standard errors clustered according to age group and state (20 state–age group clusters); we used linear models for ease of interpretation of interaction terms, as is standard practice in difference-in-differences analyses.[21] For community engagement outcomes, which were measured in the 2018 sample on the basis of questions regarding activities in the previous year and current year, we used a multilevel mixed model with random effects for age groups in each state and for each respondent.

All models adjusted for sex, respondent-reported race and ethnic group, educational level, interview language (English or Spanish), marital status, and residence area (urban or rural). All analyses used survey weights to reflect the target population in each state (see the Supplementary Appendix).

To assess awareness of and experiences with work requirements in Arkansas, we calculated survey-weighted means. We estimated a multivariate logistic model to identify demographic predictors of awareness of work requirements.

We conducted several sensitivity analyses: a difference-in-differences model that was limited to respondents 30 to 49 years of age, comparing Arkansas with the other states; models for community engagement that adjusted directly for baseline employment (before the implementation of a work requirement), with the use of a single observation per person; and an analysis of the U.S. Census Bureau American Community Survey for 2016 and 2017 to test whether trends in coverage and employment were similar across our study states and age groups before the implementation of work requirements. We report P values (unadjusted and post hoc family-wise adjusted; see the Supplementary Appendix) only for our three primary outcomes, and we report results with 95% confidence intervals (without adjustment for multiple comparisons) for the primary and secondary outcomes.

RESULTS

STUDY SAMPLE AND DESCRIPTIVE STATISTICS

The overall sample included 5955 respondents (3004 respondents from the 2018 survey, and 2951 from the 2016 baseline data[17,18]). Approximately half the 2018 sample was from Arkansas. Most respondents (90.3%) were recruited by means of random-digit dialing; the remainder consisted of respondents from previous surveys conducted by our survey vendor who were recontacted. A total of 14% of the persons who were contacted for the survey completed it.

Table 1 presents summary statistics for the study sample according to state (Arkansas vs. others) and age (30 to 49 years vs. others). In all four groups, the majority of the respondents were non-Hispanic white, and approximately one quarter of the respondents were black; Hispanic ethnicity was more common in the comparison states than in Arkansas. Respondents in Arkansas disproportionately lived in rural areas.

HEALTH INSURANCE COVERAGE

Figure 1 and Table S1 in the Supplementary Appendix present unadjusted rates of insurance coverage according to year, age, and state. The share of Arkansans 30 to 49 years of age who had Medicaid or ACA marketplace coverage went from 70.5% in 2016 to 63.7% in 2018, a decline of 6.8 percentage points. Meanwhile, the levels of Medicaid or marketplace coverage in the other age groups in Arkansas and among non-Arkansas residents showed smaller changes, ranging from an increase of 3.9 to a decrease of 1.3 percentage points. The percentage of uninsured respondents among Arkansans 30 to 49 years of age increased from 10.5% in 2016 to 14.5% in 2018, with smaller or no changes in the other groups. The percentage of Arkansans 30 to 49 years of age with employer-sponsored coverage increased slightly, from 10.6% to 12.2%.

Table 2 presents regression estimates of our primary insurance coverage outcomes. The model indicated that the percentage of respondents with Medicaid or marketplace coverage declined by 13.2 percentage points (95% confidence interval [CI], –23.3 to –3.2) more among Arkansans 30 to 49 years of age relative to other age groups in the state than the comparable age-based difference in the control states (P=0.01). The analogous esti-

Table 1. Characteristics of the Study Sample of Low-Income Adults in Arkansas and in the Control States of Kentucky, Louisiana, and Texas.*

Characteristic	Arkansas, 30–49 Yr of Age (N=804)	Arkansas, Other Ages (N=1430)	Control States, 30–49 Yr of Age (N=1295)	Control States, Other Ages (N=2426)
	percentage of respondents			
Age group				
19–29 Yr	0	50.8	0	49.3
30–39 Yr	57.0	0	54.5	0
40–49 Yr	43.0	0	45.5	0
50–59 Yr	0	31.0	0	31.4
60–64 Yr	0	18.2	0	19.3
Race or ethnic group†				
White non-Hispanic	61.9	64.9	53.1	53.9
Hispanic	4.7	5.8	16.3	17.0
Black non-Hispanic	27.2	23.7	27.1	24.2
Other	6.2	5.7	3.5	4.9
Educational level				
No high school diploma	18.9	18.5	22.7	23.2
High school diploma or equivalent	45.0	42.7	41.9	38.1
Some college or college degree	36.1	38.8	35.3	38.7
Female sex	58.6	54.6	60.1	55.6
Married or living with a partner	44.6	37.8	47.1	35.0
Interview conducted in Spanish	0.7	0.1	4.0	3.2
Resident in rural area	50.2	54.8	35.8	31.1

* Data are from a telephone survey involving low-income adults (income <138% of the federal poverty level), 19 to 64 years of age, who were U.S. citizens. The survey was conducted in November and December 2016 and in November and December 2018. The target group comprised respondents 30 to 49 years of age in Arkansas. For the comparison groups, other ages were respondents 19 to 29 years of age and those 50 to 64 years of age. All estimates are survey-weighted. Percentages may not total 100 because of rounding.

† Race and ethnic group were reported by the respondent.

mate of changes in the percentage of respondents who were not insured was an increase of 7.1 percentage points (95% CI, 0.5 to 13.6; P=0.04). Models that were limited to respondents 30 to 49 years of age showed a pattern of coverage changes associated with the Arkansas work requirements that were similar to those in our primary model. There were no significant changes associated with work requirements in the percentage of respondents with employer-sponsored insurance or the two access measures (Table S2 in the Supplementary Appendix).

EMPLOYMENT AND COMMUNITY ENGAGEMENT

Figure 2 and Table S3 in the Supplementary Appendix present unadjusted estimates of employment and community engagement according to year, age, and state. In all groups, the percentages of respondents who were employed at least 20 hours per week declined from 2017 to 2018, and the percentage of respondents reporting disability increased. Employment declined from 42.4% to 38.9% among Arkansans 30 to 49 years of age, a change of −3.5 percentage points. The three comparison groups had similar decreases, ranging from −2.9 to −5.7 percentage points. Overall, more than 92% of the respondents in all four groups — and nearly 97% of the respondents 30 to 49 years of age in Arkansas — were already meeting the community engagement requirement

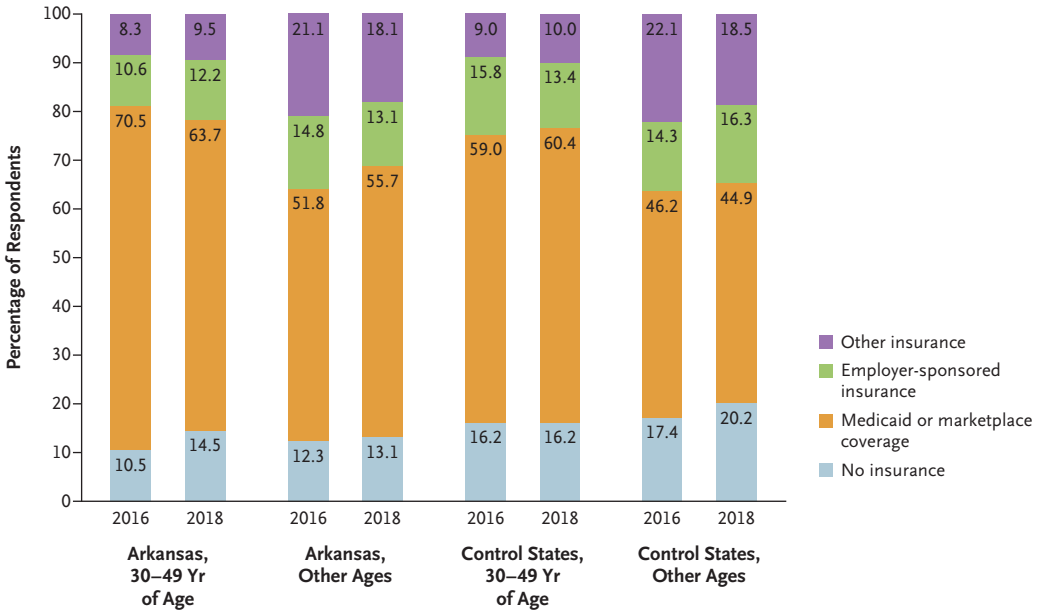

Figure 1. Health Insurance Status According to Year, State, and Age Group.

Data are from a telephone survey involving 5955 low-income adults 19 to 64 years of age that was conducted in November and December 2016 and in November and December 2018. All estimates are survey-weighted. Medicaid and Affordable Care Act marketplace coverage were combined because the Medicaid expansion in Arkansas was implemented with the use of a private insurance expansion, in which most (but not all) expansion enrollees were placed in subsidized marketplace coverage rather than traditional Medicaid. Coverage types were mutually exclusive and categorized according to an insurance hierarchy (see the Methods section in the Supplementary Appendix). The target group comprised respondents 30 to 49 years of age in Arkansas. "Other ages" were the groups of respondents 19 to 29 years of age and those 50 to 64 years of age. Kentucky, Louisiana, and Texas were the control states. Percentages may not total 100 because of rounding.

or should have been exempt before the policy took effect. The share of respondents who were not meeting the requirement increased from 3.3% in 2017 to 3.9% in 2018 in the Arkansas target age group (an increase of 0.6 percentage points), whereas other groups had changes ranging from –1.0 to +0.2 percentage points.

Table 3 presents the regression results for employment. Table S4 in the Supplementary Appendix shows secondary outcomes of hours worked and any community engagement. Neither the main model nor analyses involving only respondents 30 to 49 years of age indicated any significant changes in these outcomes. Similar results were seen in alternative models that adjusted for employment in the previous year (Table S5 in the Supplementary Appendix).

EXPERIENCE WITH WORK REQUIREMENTS

Table S6 in the Supplementary Appendix describes Arkansas residents' awareness of and experience with work requirements. A total of 32.9% of the adults 30 to 49 years of age who had Medicaid or marketplace coverage had not heard anything about the policy. Multivariate analysis indicated that Medicaid or marketplace enrollees were more likely to know about the policy than those with other coverage (Table S7 in the Supplementary Appendix). Adults 19 to 29 years of age, men, and those without a high-school diploma were less likely to know about the requirements than respondents 30 to 49 years of age, women, and respondents with some college or a college degree, respectively.

Nearly half the target population was unsure whether the requirements applied to them (Table S6 in the Supplementary Appendix). Among Arkansans 30 to 49 years of age who had Medicaid or marketplace coverage or no insurance, only 21.8% thought that they were (or would be) sub-

Table 2. Regression Estimates of Changes in Health Insurance Associated with Medicaid Work Requirements in Arkansas.*

Outcome and Analysis	Arkansas		Control States		Adjusted Difference in Change (95% CI)†	P Value‡
	2016 (N=733)	2018 (N=1501)	2016 (N=2218)	2018 (N=1503)		
	percent of respondents				*percentage points*	
Respondents with Medicaid or marketplace coverage						
Difference-in-differences analysis involving respondents 30–49 yr of age	70.5	63.7	59.0	60.4	−10.4 (−18.5 to −2.4)	0.02
Difference-in-differences analysis involving respondents in control age groups of 19–29 yr and 50–64 yr of age	51.8	55.7	46.2	44.9	4.0 (−3.9 to 11.9)	0.29
Triple-difference analysis of target age group vs. control age groups and of Arkansas vs. control states	—	—	—	—	−13.2 (−23.3 to −3.2)	0.01
Respondents with no insurance						
Difference-in-differences analysis involving respondents 30–49 yr of age	10.5	14.5	16.2	16.2	5.9 (0.4 to 11.4)	0.04
Difference-in-differences analysis involving respondents in control age groups of 19–29 yr and 50–64 yr of age	12.3	13.1	17.4	20.2	−1.5 (−6.0 to 2.9)	0.46
Triple-difference analysis of target age group vs. control age groups and of Arkansas vs. control states	—	—	—	—	7.1 (0.5 to 13.6)	0.04

* The study sample was from a telephone survey involving 5955 low-income adults 19 to 64 years of age conducted in November and December 2016 and in November and December 2018, minus item nonresponse for each study outcome. All estimates are survey-weighted. Standard errors were clustered according to age group in each state. Coverage types were mutually exclusive and categorized according to an insurance hierarchy. All models were adjusted for sex, respondent-reported race and ethnic group, education, language of the interview (English or Spanish), marital status, and urban or rural residence, as well as by age group, state, and year. Details and full regression equations are provided in the Methods section in the Supplementary Appendix. CI denotes confidence interval.

† The adjusted change associated with work requirements is the policy estimate. Results are from difference-in-differences analysis for the first two rows of each outcome and for the difference-in-difference-in-differences (or triple-difference) analysis for the third row of each outcome.

‡ Family-wise P values, with adjustment for two primary outcomes within the family of coverage outcomes, yield the following P values (in the same order as in the table): 0.03, 0.54, 0.03, 0.03, 0.49, and 0.04 (see the Methods section in the Supplementary Appendix).

ject to the new work requirements; 44.2% were unsure. A total of 14.4% of the respondents outside this age group incorrectly believed that they were subject to the requirements in 2018, and 50.2% were unsure. Among the respondents who had been told by the state that they needed to report community engagement activities, only 49.3% were doing so regularly. The most common reason for not reporting was a belief that they were not meeting the requirement (40.4%), but their other responses indicated that all 22 of these respondents did satisfy the requirements. Other reasons for not reporting to the state were lack of Internet access (32.3% of respondents) and confusion about reporting (17.8%).

TRENDS IN OUTCOMES BEFORE WORK REQUIREMENTS

Table S8 in the Supplementary Appendix shows analysis of data from the American Community Survey from 2016 and 2017. These results revealed no significant differential changes in coverage or

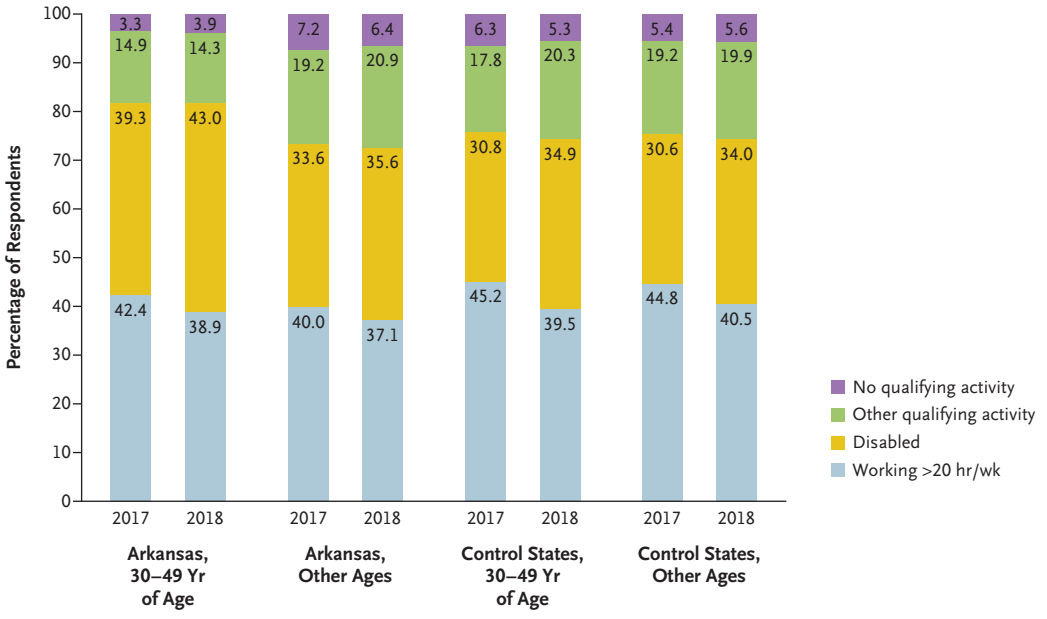

Figure 2. Employment and Community Engagement Activities According to Year, State, and Age Group.

Shown are the results from a telephone survey involving 3004 low-income adults 19 to 64 years of age that was conducted in November and December 2018. Respondents were asked about these outcomes for the current year and for the 12 months before the survey (in 2017). All estimates are survey-weighted. Other qualifying activity included full-time student status, participation in job training, actively seeking work, community service, pregnancy, or caring for a child or household member who could not care for himself or herself. Outcomes were assessed in a mutually exclusive hierarchy, from the bottom to top in each bar (e.g., if a person was working >20 hours a week, we did not assess whether the person was disabled or met another category of activity). The target group comprised respondents 30 to 49 years of age in Arkansas. "Other ages" were the groups of respondents 19 to 29 years of age and those 50 to 64 years of age. Kentucky, Louisiana, and Texas were the control states. Percentages may not total 100 because of rounding.

employment according to state or age group before 2018.

DISCUSSION

Using a timely survey involving low-income adults in Arkansas and three comparison states, we found that implementation of the first-ever work requirements in Medicaid in 2018 was associated with significant losses in health insurance coverage in the initial 6 months of the policy but no significant change in employment. Lack of awareness and confusion about the reporting requirements were common, which may explain why thousands of persons lost coverage even though more than 95% of the target population appeared to meet the requirements or qualify for an exemption.

Our findings regarding coverage are consistent with the official report from Arkansas that nearly 17,000 adults were removed from Medicaid between October and December 2018.[9] We estimate from the American Community Survey that our sampling frame corresponds to 140,000 low-income adults 30 to 49 years of age in Arkansas. Taken together, these numbers imply a reduction in Medicaid enrollment of 12 percentage points, which is well within our confidence intervals. Our results show that this loss of Medicaid coverage was accompanied by a significant increase in the percentage of adults who were uninsured, indicating that many persons who were removed from Medicaid did not obtain other coverage. Although point estimates suggest a potential increase in the use of employer-sponsored insurance, confidence intervals for this measure in-

Table 3. Regression Estimates of Changes in Employment Associated with Medicaid Work Requirements in Arkansas.*

Outcome and Analysis	Arkansas		Control States		Adjusted Difference in Change (95% CI)†	P Value
	2017 (N=1501)	2018 (N=1501)	2017 (N=1503)	2018 (N=1503)		
	percent of respondents				*percentage points*	
Respondents reporting employment						
Difference-in-differences analysis involving respondents 30–49 yr of age	46.9	42.2	50.6	44.0	1.6 (–5.0 to 8.2)	0.63
Difference-in-differences analysis involving respondents in control age groups of 19–29 yr and 50–64 yr of age	45.0	43.5	49.3	45.2	2.7 (–1.7 to 7.1)	0.23
Triple-difference analysis of target age group vs. control age group and of Arkansas vs. control states	—	—	—	—	–1.1 (–8.7 to 6.5)	0.78

* The study sample was from a telephone survey involving low-income adults 19 to 64 years of age. Respondents in 2018 were asked about their activities for the previous year (12 months earlier in 2017) and about the current year. Thus, each sample contains two observations per person. The model used random effects at the individual and age-group (per state) levels to account for repeated observations. All estimates are survey-weighted. Standard errors were clustered according to age group in each state. All models were adjusted for sex, respondent-reported race and ethnic group, educational level, language of the interview (English or Spanish), marital status, and urban or rural residence, as well as for age group, state, and year. The full regression equations are provided in the Methods section in the Supplementary Appendix.

† The adjusted change associated with work requirements is the policy estimate. Results are from difference-in-differences analysis for the first two rows and for the difference-in-difference-in-differences (or triple-difference) analysis for the third row.

cluded no effect. We did not detect any meaningful changes in the percentages of respondents having a personal physician or cost-related delays in care in the first 3 months of disenrollment; longer-term assessment will be essential.[22-25]

We did not find any significant change in employment (one of our three primary outcomes) or in the related secondary outcomes of hours worked or overall rates of community engagement activities. Although our confidence intervals are wide enough that policy-relevant changes cannot be ruled out, nearly everyone who was targeted by the policy already met the requirements, so there was little margin for the program to increase community engagement. This finding is consistent with analyses predicting that most Medicaid beneficiaries already satisfy work requirements in one way or another.[10,11,14,15,26]

Our descriptive results indicate that the implementation of this policy was plagued by confusion among many enrollees, a finding consistent with qualitative research.[27,28] Lack of Internet access was also a barrier to reporting information to the state, although in late December 2018 Arkansas added a telephone option.[29] To reduce the administrative burden on beneficiaries, state officials used existing data sources when possible to confirm employment or disability status, which exempted two thirds of enrollees from the reporting requirement.[30] Nonetheless, major barriers remain. One third of persons who were subject to the policy had not heard anything about it, and 44% of the target population was unsure whether the requirements applied to them. Levels of awareness were worse among persons with less education and among adults 19 to 29 years of age, who became subject to the Arkansas requirements in January 2019.[20] Although Medicaid has always struggled with high turnover owing in part to legally required annual eligibility redeterminations,[31] our findings suggest that work requirements have substantially exacerbated administrative hurdles to maintaining coverage.

Our study has several limitations. First, our response rate was lower than that of government surveys. However, our approach of combining

random-digit dialing telephone surveys with demographic weighting for nonresponse has been used to provide timely evidence regarding Medicaid and the ACA, with results similar to those produced by subsequent analyses of government data.[32-36]

Our analysis is based on survey data regarding a policy that created substantial confusion, which makes it difficult to attribute any single respondent's loss of coverage directly to work requirements as opposed to other factors, such as income changes or incompletion of renewal paperwork. Questions about employment may suffer from social desirability bias, leading to greater reporting of employment this year among persons who were subject to the new work requirement. Our lack of baseline data on employment meant that we had to ask respondents about employment activities in the current and previous years, which raises the possibility of recall bias. However, this phenomenon is likely to be similar across states and age groups and would be filtered out by our study design.

The study was limited to a single state implementing work requirements and approximately 6000 respondents overall. Survey questions about experiences reporting work hours to the state applied only to small numbers of respondents. In addition, details regarding work requirements in other states vary and could produce different results.[10] Finally, our study was nonrandomized, and unmeasured time-varying confounders could bias the results. However, our use of both within-state and out-of-state control groups reduces this possibility.

In conclusion, in its first 6 months, work requirements in Arkansas were associated with a significant loss of Medicaid coverage and rise in the percentage of uninsured persons. We found no significant changes in employment associated with the policy, and more than 95% of persons who were targeted by the policy already met the requirement or should have been exempt. Many Medicaid beneficiaries were unaware of the policy or were confused about how to report their status to the state, which suggests that bureaucratic obstacles played a large role in coverage losses under the policy.

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