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RESEARCH BRIEF

Medicaid Disenrollment and Disparities in Access to Care: Evidence from Tennessee

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Objective. To assess the effects of Tennessee's 2005 Medicaid disenrollment on access to health care among low-income nonelderly adults.

Data Source/Study Setting. We use data from the 2003–2008 Behavioral Risk Factor Surveillance System.

Study Design. We examined the effects of Medicaid disenrollment on access to care among adults living in Tennessee compared with neighboring states, using difference-in-difference models.

Principal Findings. Evidence suggests that Medicaid disenrollment resulted in significant decreases in health insurance and increases in cost-related barriers to care for low-income adults living in Tennessee. Statistically significant changes were not observed for having a personal doctor.

Conclusions. Medicaid disenrollment is associated with reduced access to care. This finding is relevant for states considering expansions or contractions of Medicaid under the Affordable Care Act.

Key Words. Medicaid disenrollment, insurance coverage, access to care

Medicaid expansions have historically been a key policy intervention designed to increase access to care among low-income groups. Nonelderly adults who are covered by Medicaid have better access to care than uninsured adults and are less likely to delay care due to cost (Long et al. 2012). Evidence shows that Medicaid expansions have reduced uninsurance rates, improved access to care, and reduced delays in receiving care due to cost for a variety of populations across the United States (Baicker and Finkelstein 2011; Sommers, Baicker, and Epstein 2012; Kronick and Bindman 2013). For example, evidence from the Oregon Health Insurance Experiment showed that Medicaid coverage was associated with a significant increase in both access to a usual source of care and utilization of preventive services (Baicker et al. 2013).

Medicaid contractions, however, have received far less attention in recent years than Medicaid expansions. In one seminal study, Medicaid disenrollment of medically indigent adults in California during the early 1980s was associated with significant decreases in access to care and utilization of outpatient services (Lurie et al. 1986), although there is little evidence from recent decades on the effects of insurance contractions. The effects of Medicaid disenrollment may not parallel the effects of Medicaid expansion since losing coverage affects continuity of care for those who may already be accessing regular care, while gaining coverage allows previously uninsured individuals increased access to the health care system.

Studying the effects of Medicaid contractions is an issue of critical importance in the current health policy environment. The federal government is paying the full cost of Medicaid expansion under the Affordable Care Act (ACA) for the first 3 years and supporting at least 90 percent of the cost subsequently, which should incentivize states to take-up the expansion option (Center on Budget and Policy Priorities 2012). Yet some participating states are uncertain about the future of expansion (Associated Press 2015) and have expressed that they may consider withdrawing from expansion after full federal funding expires (Ayanian 2013). Our study analyzes the impacts of one such eligibility contraction on access to care among low-income (below 200 percent of the federal poverty level [FPL]) people in the state of Tennessee.

Beginning in 1994, Tennessee received a waiver from the federal government to expand coverage and was subsequently one of the most generous states with respect to Medicaid eligibility (Conover and Davies 2000). TennCare, Tennessee's Medicaid expansion program, was different from the traditional Medicaid program since it neither required participants to be parents nor have income below federal minimums. The main goal of the expansion was to provide coverage for the uninsured and uninsurable (those who needed medical care but were denied coverage by insurers) (Centers of Medicare and Medicaid 2014; Gallen 2014). The program provided subsidized coverage to individuals with annual incomes as high as 400 percent FPL (Wooldridge et al. 1996; Moreno and Hoag 2001). Evidence suggests that the Medicaid expansion in Tennessee improved access to and utilization of preventive

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services (Moreno and Hoag 2001). Nevertheless, in 2002, TennCare faced financial difficulties and began to apply stricter eligibility requirements.

In 2005, TennCare terminated coverage for almost 170,000 beneficiaries who were covered under the expansion but failed to qualify for traditional Medicaid (Garthwaite, Gross, and Notowidigdo 2014). As a result of the termination—the largest disenrollment in the history of Medicaid—approximately 10 percent of TennCare enrollees lost coverage (Bureau of TennCare 2006). While a few studies have documented the association between losing Medicaid and an increase in emergency room visits in Tennessee (Heavrin et al. 2011; Emerson et al. 2012) and other states (Rimsza, Butler, and Johnson 2007; Lowe et al. 2008), little is known about how losing Medicaid insurance affects access to health care services more generally. We examine the impact of Medicaid disenrollment in Tennessee on access to care among low-income adults. We use a difference-in-difference approach to compare changes in health insurance coverage, having a personal doctor, and inability to see a doctor due to cost among adults in Tennessee compared with a similar group from neighboring states.

DATA AND METHODS

We use data from the Behavioral Risk Factor Surveillance System (BRFSS) for 2003–2008. The BRFSS is a random, population-based telephone survey of noninstitutionalized adults in all 50 states and the District of Columbia (Centers for Disease Control and Prevention 2013a). The survey collects nationally representative data on self-reported preventive health practices and risk behaviors. The median response rates across states were 53.3 and 52.7 percent in 2004 and 2008, respectively. Self-reported measures of access to care in the BRFSS have been used in previous studies examining the effects of Medicaid expansion (Pande et al. 2011; Sommers, Baicker, and Epstein 2012). We use the BRFSS data because they are collected annually and are representative of the population at the state level, allowing us to examine health care access in Tennessee compared with neighboring states. All analyses are survey weighted to account for complex sampling design and minimize the effect of differences in nonresponse and telephone noncoverage rates among respondents in different states (Centers for Disease Control and Prevention 2013b). We use the midpoint of BRFSS reported income ranges in conjunction with information on poverty guidelines from the Department of Health and

Human Services (U.S. Department of Health & Human Services 2015) to construct measures of income as a percentage of FPL.

We include all individuals ages 21–64 years with household income below 200 percent FPL¹ who lived in Tennessee and five neighboring states from 2003 through 2008. This group includes low-income people who possibly lost Medicaid coverage but were unlikely to have any other source of coverage. The neighboring states used as a comparison group are Alabama, Arkansas, Georgia, Kentucky, and Virginia. We exclude observations from the other neighboring states that also implemented smaller scale Medicaid disenrollment policies in 2005 or after (Kaiser Family Foundation 2006).

Analysis

Our dependent variables include having health insurance coverage, having a personal doctor as a usual source of care, and inability to see a doctor in the past year due to cost.² We considered respondents to have a personal doctor when they reported that they had at least one person they considered a personal health care provider. These three outcome measures are commonly used in the literature and by the Agency for Healthcare Research and Quality to assess access to health care services (Long, Coughlin, and King 2005; Agency for Healthcare Research and Quality 2010; Pande et al. 2011; Yabroff et al. 2013).

We estimated difference-in-difference models for each of our outcomes, controlling for sex, age, race, ethnicity, marital status, education, employment, income, and year and state fixed effects. For ease of interpretation, we estimated linear probability models. We repeated the analyses using a sample of all individuals living in Tennessee and the comparison states (regardless of income), and our results were in the same direction but smaller in magnitude (see online Appendix SA2).

RESULTS

Descriptive Findings

Table 1 shows that low-income individuals who lived in Tennessee and comparison states had similar demographic characteristics before and after Medicaid disenrollment. The majority of the sample in each group was non-Hispanic white. Although unemployment rates were similar in Tennessee and comparison states before disenrollment and they both significantly declined

Table 1: Descriptive Statistics for the Sample

	<i>Tennessee</i>		<i>Alabama, Arkansas, Georgia, Kentucky, and Virginia</i>	
	<i>Predisenrollment</i>	<i>Postdisenrollment</i>	<i>Predisenrollment</i>	<i>Postdisenrollment</i>
Observations	1,449	2,902	12,658	17,216
Outcomes				
Insurance coverage (%)	77.2	68.4***	65.2	62.3***
Personal doctor (%)	74.6	74.2	71.9	70.9
Cost barrier (%)	25.4	32.3***	34.0	36.7***
Basic demographics				
Male (%)	42.5	44.0	45.2	44.8
Mean age±(SE)	39.5±(0.43)	40.8**±(0.33)	39.0±(0.16)	39.7***±(0.16)
Race (%)				
White	76.3	74.3	62.5	61.9
African American	18.9	20.5	28.8	28.7
Other	4.8	5.3	8.7	9.4
Hispanic (%)	3.5	2.0*	4.3	6.8***
Employed (%)	60.4	49.9***	58.1	52.3***
Education (%)				
Less than high school	13.8	15.9	15.7	16.4
High school	47.0	50.0	47.2	44.8***
Some college	27.5	25.1	25.5	25.8
College graduate	11.7	9.01*	11.6	13.0**
Married (%)	54.7	49.0***	49.6	48.6

Notes. * $p < .10$, ** $p < .05$, *** $p < .01$.
All figures represent weighted percentages or means with linearized standard errors in parentheses for continuous variables.

after disenrollment, the unemployment rate decreased in Tennessee more than in the comparison states (difference is 10.5 vs. 5.8 percentage points).

As expected, low-income adults in Tennessee reported significantly higher rates of health insurance coverage prior to disenrollment, compared with after (difference of -8.8 percentage points, $p < .001$). Low-income individuals living in Tennessee also had a significant lower probability of reporting cost barriers in the period before Medicaid disenrollment, compared with the years after (difference of 6.9 percentage points, $p < .001$). There was no significant difference in the probability of having a personal doctor between the pre- and postdisenrollment periods. However, low-income adults in the comparison states experienced a slight decrease in the probability of having insurance coverage and a personal doctor, but a minor increase in the probability of being unable to see a doctor due to cost.

Difference-in-Difference Results

The results from the difference-in-difference models are presented in Table 2. We found that Medicaid disenrollment in Tennessee was associated with a decrease in access to care. Compared with low-income nonelderly adults in the comparison states, those in Tennessee had a significant decrease of 5.4 percentage points ($p = .012$) in the probability of having insurance coverage after Medicaid disenrollment. Low-income individuals in Tennessee also had a marginally significant increase of 3.9 percentage points ($p = .061$) in reporting inability to see a doctor due to cost. There was no statistically significant association between the TennCare disenrollment and the probability of having a personal doctor.

As a robustness check, we repeated the analyses using only the years 2006 and 2007 as the postdisenrollment period. Since the 2008 BRFSS contains information on 2008 insurance coverage but inability to see a doctor due to cost over the previous year (2007), the 2008 recession may have affected the probability of employment and increased the number of individuals categorized as low-income, impacting insurance coverage rates in 2008. When we used an alternative postdisenrollment period (excluding 2008), we found that adults living in Tennessee had a decrease of 2.9 percentage points in the probability of reporting having insurance coverage, compared with adults living in the neighboring states. However, these results were not statistically significant. We also found that adults living in Tennessee had a marginally significant increase of 4.1 percentage points ($p = .079$) in probability of reporting inability to see a doctor due to cost.

In a further set of robustness checks, we limited our sample to low-income individuals who reported having poor or poor/fair health. Point estimates of the effect of the Medicaid contraction on cost barriers to care are even larger among this population (see online Appendix SA2). This provides suggestive evidence that the effects of the disenrollment were magnified among sicker low-income populations, an observation that has been found in other social experiments such as the RAND Health Insurance Experiment (Manning et al. 1987). However, the results were not statistically significant, which may be a reflection of the small sample size of this subgroup.

DISCUSSION

We examined the effects of Medicaid disenrollment in Tennessee on access to care among low-income adults. We found that Medicaid disenrollment was

Table 2: Difference-in-Difference Estimates of Access to Care Measures after Disenrollment

	Health Coverage	Personal Doctor	Cost Barrier
Tennessee*after disenrollment	-0.054** (-0.096 to -0.012)	0.004 (-0.038 to 0.045)	0.039* (-0.002 to 0.081)
Tennessee	0.085*** (0.051-0.120)	-0.004 (-0.038 to 0.030)	-0.063*** (-0.097 to -0.028)
Comparison states	Reference	Reference	Reference
After disenrollment	-0.036*** (-0.062 to -0.010)	-0.020 (-0.045 to 0.005)	0.031** (0.005-0.056)
Male	-0.049*** (-0.066 to -0.032)	-0.134*** (-0.151 to -0.118)	-0.063*** (-0.080 to -0.047)
Age in years	0.004*** (0.003-0.005)	0.006*** (0.006-0.007)	-0.002*** (-0.002 to -0.001)
Race			
African American	0.024** (0.005-0.044)	0.013 (-0.006 to 0.032)	-0.056*** (-0.074 to -0.037)
Nonwhite/non-African American	-0.025 (-0.064 to 0.013)	-0.071*** (-0.110 to -0.033)	0.016 (-0.022 to 0.055)
White	Reference	Reference	Reference
Hispanic	-0.069*** (-0.122 to -0.017)	-0.107*** (-0.162 to -0.053)	0.009 (-0.045 to 0.062)
Married	0.059*** (0.043-0.076)	0.050*** (0.034-0.065)	-0.022*** (-0.038 to -0.006)
Education			
College or more	0.165*** (0.132-0.197)	0.079*** (0.047-0.111)	-0.124*** (-0.157 to -0.092)
Some college	0.131*** (0.106-0.157)	0.079*** (0.054-0.104)	-0.068*** (-0.094 to -0.043)
High school	0.064*** (0.041-0.088)	0.050*** (0.028-0.073)	-0.067*** (-0.090 to -0.044)
Less than high school	Reference	Reference	Reference
Employed	0.021** (0.004-0.037)	-0.031*** (-0.047 to -0.015)	-0.048*** (-0.064 to -0.032)

Notes: * $p < .10$, ** $p < .05$, *** $p < .01$. Survey-weighted standard errors in parentheses. All models also include year and state dummies and a constant (data not shown). Comparison states are AL, AR, GA, KY, and VA.

associated with decreases in health insurance coverage and increases in inability to see a doctor due to cost. These findings highlight the role of public health insurance in enabling beneficiaries to access health services and the potentially deleterious effects of removing coverage in near-poor populations.

We did not observe statistically significant decreases in having a personal doctor after disenrollment. This might be due to differences in respondents' understanding of the definition of having a personal doctor, which some may think of as any health care provider that cared for them during an episode of illness. It may also be the case that individuals continue to see the same doctors, even if the wait is longer or the cost is greater.

A number of limitations should be noted. First, results may not be generalizable to all regions of the United States. The average unemployment rates in the southern states are higher than those in the other regions in the country (Bureau of Labor Statistics 2004, 2009), and thus people in these states are less likely to have employer-sponsored insurance coverage. Second, BRFSS data are self-reported and response rates can be low. Response rates in the states included in our study ranged from 48 to 65 percent in 2004 and from 42 to 66 percent in 2008 (Centers for Disease Control and Prevention 2014). These ranges resemble typical response rates for BRFFS, and we use sampling weights to correct for potential nonresponse biases. Third, BRFSS does not contain data on type of insurance. Fourth, BRFSS does not include specific income values; the survey only includes ranges of income. We used the median income of each range to approximate household income. Finally, the results using only 2006 and 2007 as the postdisenrollment period imply that the observed decline in insurance coverage could be attributed in part to the recession.

Nonetheless, the results from our study may have important policy implications. Low-income people who experience disenrollment from Medicaid face decreases in the rates of insurance coverage and declines in access to care. Our findings also have policy implications for states that may be considering withdrawing from Medicaid expansion once full federal funding expires (Ayanian 2013). In an attempt to save money or balance budgets, these states may consider disenrolling people who became eligible for Medicaid under the expansion. Further, states are perennially considering ways to reduce Medicaid spending, including limiting eligibility. This study analyzes a comparable state policy change and provides evidence on the potential impact of withdrawal from the Medicaid program on health insurance coverage and access to care among low-income nonelderly adults. There are differences between the Tennessee disenrollment and the current context since under the

ACA individuals with income above 100 percent FPL may be eligible for Marketplace coverage, which was not available before the ACA (Garfield and Damico 2015). Therefore, findings from this study are likely to be most relevant for individuals with income below 100 percent FPL, who are not eligible for Marketplace tax credits and fall into the “Medicaid gap.” In the long run, disparities in access between high-income and low-income individuals may widen if low-income people lose Medicaid insurance coverage, which contradicts the aim of the ACA to reduce health disparities by providing health insurance coverage for underserved populations (Department of Health and Human Services 2010). These findings offer lessons on the potential widening of disparities if states consider terminating coverage of newly eligible Medicaid recipients. Future research should examine the effect of Medicaid disenrollment on other outcomes, including utilization of specific health care services and diagnosis and treatment of different diseases.

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NOTES

1. Based on personal communication with sources in Tennessee, our understanding is that individuals with income below 200 percent FPL represented many of the enrollees in the predisenrollment years within the study period.
2. These variables along with receipt of annual checkup constitute the access to care module in BRFSS. We could not examine annual checkup because BRFSS does not include this variable in 2003 or 2004. BRFSS questions are: “Do you have any kind of health care coverage?” “Do you have one or more persons you think of as your personal doctors or health care providers?” and “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?”

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Appendix SA2: Appendix to "Medicaid Disenrollment and Disparities in Access to Care: Evidence from Tennessee," by Wafa W. Tarazi, Tiffany L. Green, and Lindsay M. Sabik.