



Editor's Choice

Impacts of the Affordable Care Act's Medicaid Expansion on Women of Reproductive Age: Differences by Parental Status and State Policies



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ABSTRACT

Introduction: We use data from the Behavioral Risk Factor Surveillance System (BRFSS) from 2012 to 2015 to estimate the effects of the Affordable Care Act's (ACA) Medicaid expansions on insurance coverage and access to care for low-income women of reproductive age (19–44).

Methods: We use two-way fixed effects difference-in-differences models to estimate the effects of Medicaid expansions on low-income (<100% of the Federal Poverty Level) women of reproductive age. Additional models are stratified to estimate effects based on women's parental status, pre-ACA state Medicaid eligibility levels, and the presence of a state Medicaid family planning waiver.

Results: ACA Medicaid expansions decreased uninsurance among low-income women of reproductive age by 13.2 percentage points. This decrease was driven by a decrease of 27.4 percentage points for women without dependent children, who also experienced a decrease in the likelihood of not having a personal doctor (13.3 percentage points). We find a 3.8-percentage point reduction in the likelihood of experiencing a cost barrier to care among all women, but no significant effects for other access measures or subgroups. When stratified by state policies, decreases in uninsurance were greater in states expanding from pre-ACA eligibility levels of less than 50% of Federal Poverty Level (19.4 percentage points) and in states without a Medicaid family planning waiver (17.6 percentage points).

Conclusions: The ACA Medicaid expansion increased insurance coverage for low-income women of reproductive age, with the greatest effects for women without dependent children and women residing in states with relatively lower pre-ACA Medicaid eligibility levels or with no family planning waiver before the ACA.

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The 2010 Affordable Care Act (ACA) contains several provisions intended to increase health insurance coverage, including the 2014 Medicaid eligibility expansion to all non-elderly adults with family incomes of up to 138% of the Federal Poverty Level (FPL). This provision was originally intended to occur across all states, but a 2012 Supreme Court decision made state Medicaid expansions optional. This choice, given to the states, created a “natural experiment,” which allows researchers to use the variation in expansion decisions across states to measure the effects of ACA Medicaid expansions. As of January 2017, 31 states and the District of Columbia expanded Medicaid eligibility under the ACA provision, some using waivers to customize their expansion ([Kaiser Family Foundation, 2017](#)). Although there are reported promising effects of ACA Medicaid

expansion on insurance coverage, access to care, and use of preventive services for low-income individuals overall, to date, no research has studied the effects of this policy for women of reproductive age (Antonisse, Garfield, Rudowitz, & Artiga, 2016; Courtemanche, Marton, Ukert, Yelowitz, & Zapata, 2017; McMorrow, Gates, Long, & Kenney, 2017; Miller & Wherry, 2017; Simon, Soni, & Cawley, 2017; Sommers, Gunja, Finegold, & Musco, 2015; Wherry & Miller, 2016).

Health insurance can provide reproductive-age women with improved access to medical care by reducing the patient and clinician financial burden associated with obtaining needed services, particularly for low-income women (Biermann, Dunlop, Brady, Dubin, & Brann, 2006; Jack & Culpepper, 1990; Johnson et al., 2006; Johnson, Applegate, & Gee, 2015; Lu et al., 2006; Lu & Halfon, 2003; Salganicoff & An, 2008a). Beyond women's own health, increasing access to medical care for nonpregnant women can also have positive effects for any future children, as women's access to and use of health care outside of pregnancy has been identified as necessary to improving both maternal and child health outcomes (Atrash, Johnson, Adams, Cordero, & Howse, 2006; Johnson et al., 2015; Lu & Halfon, 2003; McCormick, 2001).

Background

Historically, the eligibility structure of Medicaid focused on providing coverage to low-income pregnant women and mothers, largely omitting nonpregnant and childless women (Adams & Johnston, 2016; Salganicoff & An, 2008b). Recognizing the importance of prenatal care to promoting healthy pregnancies and healthy children, the federal government mandated that states expand Medicaid eligibility to pregnant women with incomes up to 133% of the FPL in the late 1980s, and most states further expanded eligibility to those with higher incomes (Johnson et al., 2015; Kaiser Family Foundation, 2016). However, this pregnancy-based coverage only covers women during pregnancy and immediately postpartum (usually 60 days), leaving many women of reproductive age uninsured before and after pregnancy (MACPAC, 2014). Before the ACA, only 16 states and the District of Columbia covered working parents with family with incomes of up to 100% of the FPL or more, and only five states provided Medicaid coverage for childless adults (Artiga, Rudowitz, & McGinn-Shapiro, 2010; Ross, Jarlenski, Artiga, & Marks, 2009).

Thus, pre-ACA Medicaid eligibility for low-income women depended not only on their income, but also on their pregnancy status, parental status, disability status, and their state of residence. Some states partially addressed this gap in coverage by implementing Medicaid family planning waivers and state plan amendments. These programs expanded eligibility for reproductive health and family planning services to low-income women who did not otherwise qualify for the Medicaid program. Although these programs do not provide women with comprehensive health insurance coverage (Atrash et al., 2006; Johnson et al., 2015; Lu & Halfon, 2003; McCormick, 2001; Sonfield, Frost, & Gold, 2011), it is unclear if women consider this type of coverage to include access to primary care services.

Earlier Studies

Expansions of Medicaid eligibility to women of reproductive age before the ACA were found to increase insurance coverage, use of prenatal care services and cervical cancer screens, and timely initiation of prenatal care among low-income pregnant women

(Currie & Gruber, 1996; Dubay, Joyce, Kaestner, & Kenney, 2001; Howell, 2001; Sabik, Tarazi, Hochhalter, Dahman, & Bradley, 2017). A number of recent papers have studied the effects of the ACA Medicaid expansion on low-income individuals, finding that expansions increased coverage through Medicaid programs (Antonisse et al., 2016; Courtemanche et al., 2017; McMorrow et al., 2017; Miller & Wherry, 2017; Simon et al., 2017; Sommers et al., 2015; Wherry & Miller, 2016). Expansions were also found to increase access to care by decreasing the likelihood that individuals do not have a personal physician, have difficulty accessing medicine, are unable to afford needed follow-up care, and worry about paying medical bills (Miller & Wherry, 2017; Simon et al., 2017; Sommers et al., 2015). The effect of expansions on health care use is mixed; some studies found increases in physician and hospital visits, whereas others found no effect on use (Miller & Wherry, 2017; Wherry & Miller, 2016). Finally, ACA Medicaid expansions were found to increase the use of certain forms of preventive care (Simon et al., 2017).

Among these studies, only two specifically report effects for women. Courtemanche et al. (2017) find that ACA Medicaid expansions increased insurance coverage among all women by 3.4 percentage points. Simon et al. (2017) report effects for women and for childless adults versus parents, limiting all samples to individuals with an income of less than 100% of the FPL. They find that expansions increased insurance coverage for women by 3.4 percentage points and for childless adults by 10.1 percentage points, with no significant increase for parents. They also find greater effects in the 21 states that had no Medicaid eligibility for childless adults before 2014, states in which expansion increased eligibility from none to 138% of the FPL. Their analysis excludes the 10 states that covered some of this population before the ACA and, therefore, experienced smaller changes in eligibility levels. For example, Delaware covered childless adults up to 100% of the FPL in its Diamond State Health Plan waiver before the ACA. Thus, the expansion in Delaware only changed eligibility from 100% to 138% of the FPL. These results suggest that eligibility gains among women of reproductive age may vary based on women's parental status and state pre-ACA eligibility policies, but further research is needed to study these questions specifically for women of reproductive age.

Contribution

In this study, we build on prior research by investigating the effects of the 2014 ACA Medicaid expansions on health insurance coverage and access to care for low-income women of reproductive age. We further investigate whether these effects vary based on women's parental status or prior state Medicaid eligibility policies expanding health insurance coverage for low-income women. This analysis adds to our understanding of the coverage and access gaps created by long-standing categorical Medicaid eligibility criteria for women and the extent to which the ACA has improved access for a population with much to gain from expanded coverage.

Our analysis is informed by the Andersen model of access to health care, which asserts that the use of health services is influenced by individuals' predisposing characteristics, enabling characteristics, and need (Andersen & Aday, 1978). We hypothesize that the 2014 ACA Medicaid expansions led to increased health insurance coverage for women of reproductive age and that this, in turn, led to improved access to care. Owing to the categorical nature of Medicaid eligibility before the 2014 expansion, we anticipate that women without dependent children will experience greater

effects than those with dependent children. Finally, we expect that women residing in states that had less generous Medicaid eligibility policies before the ACA will experience greater effects of Medicaid expansion than women of reproductive age residing in states with more generous pre-ACA policies.

Methods

Data and Study Sample

This study uses secondary data from the Behavioral Risk Factor Surveillance System (BRFSS) to estimate the effects of the 2014 ACA Medicaid expansions on women of reproductive age. We analyze data from 2012 to 2015, which includes a 2-year (2012 and 2013) preexpansion period and a 2-year (2014 and 2015) postexpansion period. The BRFSS is a system of telephone surveys of more than 400,000 adult (≥ 18 years of age) U.S. residents with questions on health-related risk behaviors, chronic health conditions, and the use of preventive services. Samples are chosen to be state representative; a common set of questions are used across states, with flexibility for states to supplement their survey. BRFSS data, including survey weights, are publicly available through the Centers for Disease Control and Prevention. Data from the Area Health Resource File on state unemployment and the Health Resources and Services Administration on federally qualified health centers are merged at the state level.

Our analytic study sample includes women of reproductive age (19–44 years) with household incomes of less than 100% of the FPL in 14 states that expanded Medicaid on January 1, 2014, and 16 states without an ACA Medicaid expansion. We omit 18-year-olds from our analysis owing to their eligibility for coverage through the Children's Health Insurance Program, independent of the ACA. Because pregnancy among women with incomes of less than 100% of the FPL would qualify them for Medicaid before the ACA, we omit those women reporting they were pregnant at the time of the BRFSS survey from our analytic sample. This exclusion applies to approximately 4.7% of women with dependent children and 3.3% of women without dependent children in the total sample. The resulting analytic samples vary slightly by dependent variable, ranging from 24,955 to 25,816 low-income, nonpregnant women of reproductive age.

Twenty states and the District of Columbia are excluded from this analysis owing to early or late ACA Medicaid expansions or the presence of pre-ACA Medicaid waiver covering childless adults up to 100% of the FPL. We limit our sample to expansions that occurred on January 1, 2014, to ensure a balanced analytic sample that includes the 2 years before the expansion (2012–2013) and 2 years after the expansion (2014–2015). Including 2 years of postperiod data, in particular, is important to allow for the identification of lagged effects and effects for BRFSS questions that refer to the entire 12-month period before the interview. A full classification of states is presented in [Table 1](#). Although expansion increased Medicaid eligibility to 138% of the FPL (133% FPL with the addition of a 5% disregard), we limit our sample to those with incomes below 100% of the FPL because women with incomes 100% to 138% of the FPL in nonexpansion states were eligible for health insurance subsidies through the Marketplace beginning in January 2014.

Measures

Our dependent variables are indicators of whether a woman 1) was uninsured, 2) needed to see a doctor, but could not due to

Table 1

Classification of States by Medicaid Expansion Decision

Expansion States	Nonexpansion States	Excluded States
Arkansas	Alabama	Alaska
Colorado	Florida	Arizona
Illinois	Georgia	California
Iowa	Idaho	Connecticut
Kentucky	Kansas	Delaware
Maryland	Louisiana	District of Columbia
Massachusetts	Mississippi	Hawaii
Nevada	Nebraska	Indiana
New Mexico	North Carolina	Maine
North Dakota	Oklahoma	Michigan
Ohio	South Carolina	Minnesota
Oregon	South Dakota	Missouri
Rhode Island	Texas	Montana
West Virginia	Utah	New Hampshire
	Virginia	New Jersey
	Wyoming	New York
		Pennsylvania
		Tennessee
		Vermont
		Washington
		Wisconsin

Note: To better measure the effects of the 2014 Affordable Care Act (ACA) expansions, we omit women in states with prior Medicaid expansions to childless adults through section 1115 waivers or early ACA expansions and those in states that expanded Medicaid after January 1, 2014.

cost 3) had no personal doctor, and 4) had a primary care visit in the past year. The first three measures are indicators of a lack of access, whereas having a primary care visit in the past year is a positive indicator of access. All models control for individual variables likely to affect insurance coverage and access: 1) age, 2) race/ethnicity, 3) education, 4) work status, 5) marital status, 6) household size, 7) health status, and 8) urban/rural county. Finally, we include two state-level measures: state unemployment rate accounts for changes in the overall economy and the number of federally qualified health centers per women ages 19 to 44 in poverty accounts for supply of health care services that do not require insurance coverage.

Statistical Analysis

We use 2 years (2012 and 2013) before and 2 years (2014 and 2015) after the implementation of ACA Medicaid expansions to assess the effects of expansion on two groups of women: 1) women with dependent children, and 2) women without dependent children. This classification is based on the number of children in a woman's household.

We apply a quasi-experimental difference-in-differences approach based on the variation in states' decisions to expand Medicaid using cross-state logistic regression models that include state and year fixed effects. We measure the effect of expansion using a dummy variable indicating the presence of Medicaid expansion in a given state-year. When state fixed effects and year fixed effects are also included in the model, the coefficient of this variable measures the effect of the presence of an expansion on the likelihood of each outcome for women of reproductive age, holding other factors constant. All analyses were conducted using STATA 14 (StataCorp, College Station, TX). Models include BRFSS survey weights and standard errors clustered at the state level; results are reported as marginal effects.

We conduct two sets of secondary analyses of our primary outcome, uninsurance. First, we classify states by their pre-ACA eligibility level to capture differences in the magnitude of

expansions. We use the following categories: 1) expansion from a pre-ACA Medicaid eligibility level of less than 50% of the FPL, 2) expansion from a pre-ACA Medicaid eligibility level of 50% or greater of the FPL, and 3) no expansion. Pre-ACA eligibility levels are specific to a woman's parental status; women with dependent children are assigned the pre-ACA parental eligibility level and women without dependent children are assigned the pre-ACA childless adult eligibility level. Second, we estimate separate effects for 1) women residing in states with a Medicaid family planning waiver, and 2) women residing in states without a Medicaid family planning waiver. Arkansas is excluded from this analysis because they implemented a family planning waiver during our study period.

Results

Women's characteristics are generally consistent between the pre- and post-expansion periods (Table 2). Overall, women without dependent children are younger, more educated, more likely to be White, and more likely to be unmarried than women with dependent children. Based on descriptive data alone, rates of uninsurance and reported inability to access care owing to cost were lower in the postexpansion period compared with the pre-expansion period (Table 3). Rates of primary care visits were also higher in the post period, although the reported lack of a personal doctor remained consistent over time. Overall, women without dependent children were less likely to be uninsured but

Table 2
Characteristics of Low-Income Women of Reproductive Age, by Year and Sample, 2012–2015

	All Women < 100% FPL (%)		Women with Dependent Children < 100% FPL (%)		Women without Dependent Children < 100% FPL (%)	
	2012–2013	2014–2015	2012–2013	2014–2015	2012–2013	2014–2015
Age						
19–26	29.3	28.3	24.3	22.7	53.3	54.7
27–34	36.9	35.5	40.7	39.7	18.2	16.0
35–44	33.8	36.2	35.0	37.6	28.5	29.3
Race/ethnicity						
White	37.2	36.8	33.9	33.5	53.3	52.5
Black	24.1	23.9	24.2	23.9	23.6	23.8
Asian	2.6	3.4	2.1	2.8	5.1	6.2
Other	2.7	1.9	2.6	1.7	3.2	3.0
Hispanic	33.4	34.0	37.2	38.1	14.8	14.5
Educational attainment						
Less than high school degree	32.3	31.3	34.7	34.3	20.4	17.3
High school degree	31.9	31.1	33.1	32.1	25.8	26.4
Some college	29.8	31.0	27.4	28.3	41.6	43.5
College degree or more	6.0	6.7	4.8	5.4	12.3	12.8
Work Status						
Nonworker	60.2	60.0	58.0	58.2	70.7	68.1
Worker	39.8	40.0	42.0	41.8	29.3	31.9
Marital status						
Not married	69.8	68.2	66.3	64.2	86.7	86.5
Married	30.2	31.8	33.7	35.8	13.3	13.5
Household size						
1	14.8	15.3	–	–	86.7	86.5
2	16.3	16.8	17.0	17.6	13.3	13.5
3	23.7	21.1	28.5	25.6	–	–
≥4	45.2	46.8	54.5	56.8	–	–
Health status						
Excellent	13.5	14.4	13.1	14.2	15.5	15.4
Very good	20.1	21.5	19.3	20.8	24.0	24.6
Good	40.1	39.1	42.0	40.7	31.0	32.2
Fair	20.0	20.0	19.9	20.0	20.5	19.8
Poor	6.3	5.0	5.7	4.3	8.9	8.0
Urban/rural						
Rural	8.0	6.2	8.3	6.3	6.5	5.7
Urban	23.3	17.7	24.6	18.4	16.9	14.2
Missing	68.7	76.1	67.1	75.3	76.6	80.1
Unemployment rate	7.4	5.6	7.4	5.6	7.4	5.6
Number of FQHC per 100,000 women in poverty	11.7	12.9	11.5	12.8	12.6	13.4
Sample size ^a						
Unweighted <i>n</i>	14,169	11,617	11,765	9,693	2,404	1,924
Weighted <i>n</i> (in millions)	10.8	10.3	8.9	8.5	1.8	1.8

Abbreviations: FPL, Federal Poverty Level; FQHC, federally qualified health centers.

Note: Data from the Behavioral Risk Factor Surveillance System (BRFSS) 2012–2015.

^a Sample size and descriptive statistics are reported from the sample for the uninsured model. Samples vary slightly across models depending on missing observations for the dependent variable. All samples include nonpregnant women of reproductive age (19–44 years) with household incomes of less than 100% of the FPL. Years 2012–2013 are before the Affordable Care Act (ACA) Medicaid expansion and years 2014–2015 are after the ACA Medicaid expansion. Data are adjusted by BRFSS survey weights. Samples include women residing in both expansion and nonexpansion states. The definition of the women with dependent children category does not allow for a household size of one. The definition of the women without dependent children category does not allow for a household size of more than two. Owing to the high percentage of missing values for the BRFSS Metropolitan Statistical Area (MSA) variable used to derive urban/rural, this measure includes three categories: urban, rural, and missing.

Table 3
Insurance Coverage and Access to Health Care among Low-Income Women of Reproductive Age, by Year and Sample, 2012–2015

	All Women < 100% FPL (%)			Women with Dependent Children < 100% FPL (%)			Women without Dependent Children < 100% FPL (%)		
	All	2012–2013	2014–2015	All	2012–2013	2014–2015	All	2012–2013	2014–2015
Uninsured	43.9	48.0	39.6	45.1	48.8	41.2	38.1	44.4	31.9
Needed to see doctor but could not due to cost	40.1	43.3	36.7	40.2	43.3	37.0	39.4	43.4	35.4
No personal doctor	40.9	41.2	40.6	40.7	40.9	40.4	42.0	42.7	41.2
Primary care visit within past year	60.2	58.7	61.9	60.0	58.5	61.6	61.4	59.6	63.2
Sample size*									
Unweighted <i>n</i>	25,786	14,169	11,617	21,458	11,765	9,693	4,328	2,404	1,924
Weighted <i>n</i> (in millions)	21.1	10.8	10.3	17.4	8.9	8.5	3.6	1.8	1.8

Abbreviation: FPL, Federal Poverty Level.

Note: Data from the Behavioral Risk Factor Surveillance System (BRFSS) 2012–2015.

* Sample size and descriptive statistics are reported from the sample for the uninsured model. Samples vary slightly across models depending on missing observations for the dependent variable. All samples include nonpregnant women of reproductive age (19–44 years) with household incomes of less than 100% of the FPL. Years 2012–2013 are before the Affordable Care Act (ACA) Medicaid expansion and years 2014–2015 are after the ACA Medicaid expansion. Data are adjusted by BRFSS survey weights. Samples include women residing in both expansion and nonexpansion states.

more likely to not have a personal doctor than women with dependent children.

ACA Medicaid expansions decreased the likelihood that low-income women of reproductive age were uninsured by 13.2 percentage points ($p < .001$; Table 4). This decrease in uninsurance was driven by effects among women without dependent children, who experienced a 27.4 -percentage point reduction in uninsurance ($p < .001$). Women with dependent children experienced a significant 10.1-percentage point decrease

Table 4
Effect of ACA Medicaid Expansions on Insurance Coverage and Access to Care among Low-Income Women of Reproductive Age 2012–2015

Measure (%)	All Women < 100% FPL	Women with Dependent Children < 100% FPL	Women without Dependent Children < 100% FPL
Uninsured	-13.2***	-10.1*	-27.4***
Needed to see doctor but could not owing to cost	-3.8*	-3.4	-8.6
No personal doctor	-1.2	1.5	-13.3**
Primary care visit within past year	-0.9	-1.7	3.4

Abbreviation: FPL, Federal Poverty Level.

Note: Data from the Behavioral Risk Factor Surveillance System (BRFSS) 2012–2015.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Sample includes nonpregnant women of reproductive age (19–44 years) with household incomes of less than 100% of the FPL. Logistic regression models adjust for age, race/ethnicity, education, work status, marital status, household size, health status, urban/rural county, state unemployment rate, and state counts of federally qualified health centers per 100,000 women of reproductive age in poverty. Owing to the high percentage of missing values for the BRFSS Metropolitan Statistical Area (MSA) variable used to derive urban/rural, this measure includes three categories: urban, rural, and missing. All models include state fixed effects and year fixed effects and use BRFSS survey weights. Standard errors are clustered at the state level. Results are reported as marginal effects. Models include expansion states (AR, CO, IL, IA, KY, MD, MA, NV, NM, ND, OH, OR, RI, and WV), and nonexpansion states (AL, FL, GA, ID, KA, LA, MS, NE, NC, OK, SC, SD, TX, UT, VA, and WY). Sample sizes vary by dependent variable. All uninsured women, $n = 25,786$; women with dependent children, $n = 21,458$; women without dependent children, $n = 4,328$. Needed to see doctor but could not owing to cost: all women, $n = 25,816$; women with dependent children, $n = 21,472$; women without dependent children, $n = 4,344$. No personal doctor: all women, $n = 25,797$; women with dependent children, $n = 21,451$; women without dependent children, $n = 4,346$. Primary care visit within past year: all women, $n = 24,955$; women with dependent children, $n = 20,756$; women without dependent children, $n = 4,199$.

($p < .05$). We find a significant reduction of 3.8 percentage points ($p < .05$) in the likelihood that all women who needed to see a doctor but could not due to cost, but we do not find an effect in either of our subsamples. Women without dependent children were 13.3 percentage points less likely to report not having a personal doctor after ACA Medicaid expansions ($p < .01$), but we do not find an effect for women with dependent children or all women. We do not find significant effects for the likelihood of having a primary care visit within the past year for any sample. Full results are reported in Appendix A.

As expected, states' pre-ACA Medicaid eligibility policies affected the impact of ACA Medicaid expansions on all women of reproductive age (Table 5). For all women, expansions in states with prior eligibility levels less than 50% FPL had a larger effect (19.4-percentage point decrease; $p < .001$) than those in states with prior eligibility levels of 50% or greater of the FPL (14.2-percentage point decrease; $p < .01$). The effect for women with dependent children in states with low pre-ACA Medicaid eligibility levels (26.6-percentage point decrease; $p < .001$) was more than twice the effect for those in states with higher pre-ACA eligibility (11.7-percentage point decrease; $p < .05$). Effects for all women with incomes of less than 100% of the FPL were also greater in states without a family planning waiver (17.6-percentage point decrease; $p < .01$) compared with those with a waiver (13.2-percentage point decrease; $p < .01$).

Decreases in uninsurance among women without dependent children, however, are generally consistent and large in magnitude across all classifications of states in Table 5, ranging from 26.4 to 28.2 percentage points ($p < .001$). These effects for women without dependent children were greater than any decreases found for all women or women with dependent children.

Sensitivity Analysis

We conducted tests of the parallel trends assumption of a difference-in-differences analysis. First, we plot trends in our study outcomes over time for women of reproductive age in expansion and nonexpansion states (Appendix B). These trends suggest that the means for each of our four outcomes are generally parallel between expansion and nonexpansion states during the 2012 and 2013 pre-expansion period of our study. We also conduct a formal test for the significance of pre-expansion period trends by interacting our expansion indicator variable with the year dummy for 2013 to test for differences from 2012,

Table 5
Effect of ACA Medicaid Expansions on Insurance Coverage among Low-Income Women of Reproductive Age 2012–2015, by Prior State Eligibility Levels and Family Planning Waivers

	Uninsurance (%)		
	All Women < 100% FPL	Women with Dependent Children < 100% FPL	Women without Dependent Children < 100% FPL
Pre-ACA Medicaid eligibility level			
Pre-ACA Medicaid eligibility < 50% FPL	–19.4***	–26.6***	–28.2***
Pre-ACA Medicaid eligibility ≥ 50% FPL	–14.2**	–11.7*	–
Medicaid family planning waivers			
Medicaid family planning waiver	–13.2**	–9.0*	–27.1***
No Medicaid family planning waiver	–17.6**	–14.5*	–26.4***

Abbreviations: ACA, Affordable Care Act; FPL, Federal Poverty Level.

Note: Data from the Behavioral Risk Factor Surveillance System (BRFSS) 2012–2015.

* $p < .05$; ** $p < .01$; *** $p < .001$.

All samples include nonpregnant women of reproductive age (19–44 years) with household incomes of less than 100% of the FPL. Logistic regression models adjust for age, race/ethnicity, education, work status, marital status, household size, health status, urban/rural county, state unemployment, and state counts of federally qualified health centers per 100,000 women of reproductive age in poverty. Owing to the high percentage of missing values for the BRFSS Metropolitan Statistical Area (MSA) variable used to derive urban/rural, this measure includes three categories: urban, rural, and missing. All models include state fixed effects and year fixed effects and use BRFSS survey weights. Standard errors are clustered at the state level. Results are reported as marginal effects. Uninsurance by pre-ACA Medicaid eligibility level: all women, $n = 25,786$; women with dependent children, $n = 21,458$; women without dependent children, $n = 4,328$. Uninsurance in states with a Medicaid family planning waiver: all women, $n = 10,791$; women with dependent children, $n = 9,086$; women without dependent children, $n = 1,705$. Uninsurance in states without a Medicaid family planning waiver: all women, $n = 14,003$; women with dependent children, $n = 11,547$; women without dependent children, $n = 2,456$. Expansion states with prior eligibility levels of less than 50% of the FPL for women with dependent children: AR, OR, and WV. Expansion states with prior eligibility levels of 50% or greater of the FPL for women with dependent children: CO, IA, KY, NV, ND, and OH. Expansion states with prior eligibility levels of less than 50% of the FPL for women without dependent children: AR, IL, IA, KY, MD, MA, NV, NM, ND, OH, OR, RI, and WV. Expansion states with prior eligibility levels of 50% or greater of the FPL for women without dependent children: none. Nonexpansion states: AL, FL, GA, ID, KA, LA, MS, NE, NC, OK, SD, TX, UT, VA, and WY. Expansion states with family planning waivers: IA, MD, NM, OH, and OR. Nonexpansion states with family planning waivers: AL, GA, LA, MS, SC, TX, and VA. Expansion states without family planning waivers: CO, KY, MA, NV, ND, RI, and WV. Nonexpansion states without family planning waivers: FL, ID, KA, NE, NC, OK, SD, UT, and WY.

the pre-expansion period trend, for each of our four outcome variables (Appendix Table B1). We find no significant differences ($p < .05$) in the pre-expansion period trends for all women or for our subgroups of women across all outcomes.

Discussion

ACA Medicaid expansions decreased uninsurance among women of reproductive age with incomes below 100% FPL by 13.2 percentage points, on average. Much greater effects were found for women who were categorically excluded from Medicaid eligibility before the ACA, particularly women without dependent children, who experienced a 27.4-percentage point decrease in uninsurance. For all women and for women with

dependent children, we also find greater effects for those residing in states that had not expanded Medicaid eligibility for parents with incomes above 50% of the FPL or had not implemented Medicaid family planning programs before the ACA. We find two effects on access. Women without dependent children were 13.3 percentage points less likely to report not having a personal doctor after the ACA Medicaid expansion. Finally, all women were 3.8 percentage points less likely to report not seeing a doctor owing to cost, although this effect was not found in either subgroup of women.

We find a greater reduction in uninsurance for low-income women of reproductive age than the recently published work by Simon et al. (2017), which also used BRFSS data. This discrepancy is likely due to differences in our classification of states and our restriction of the sample to women of reproductive age. Our larger estimate is based on analysis that includes only expansions that occurred on January 1, 2014. States with early expansions, who are excluded from our analysis, built off of existing Medicaid eligibility expansions for low-income adults; based on our findings for states with more generous pre-ACA eligibility, these expansions likely had smaller impacts on coverage for women of reproductive age than the average effects found in this study (Sommers, Arntson, Kenney, & Epstein, 2013; Sommers, Kenney, & Epstein, 2014). The inclusion of late expansions may further contribute to Simon's smaller findings, because these states would have a smaller postexpansion period and analysis would, therefore, be unable to identify gains in coverage that may have occurred in the second year of implementation.

Increased health insurance coverage among women of reproductive age is an important finding for women's health, women's overall well-being, and the health and well-being of their children. Women who gain coverage may experience the effects of gaining health insurance found in earlier studies, such as reduced all-cause mortality, improved self-reported physical and mental health, increased compliance with recommended preventive services, and decreased medical debt (Finkelstein et al., 2012; Sommers, Baicker, & Epstein, 2012). These improvements in women's health and well-being may also translate to improved health outcomes for their children (Atrash et al., 2006; Johnson et al., 2015; Lu & Halfon, 2003; McCormick, 2001). Finally, increased health insurance coverage may increase women's access to family planning and contraceptive services, helping women and their partners to plan pregnancies, potentially leading to health, social, and economic benefits for women and their families (Bailey, 2013; Sonfield, Hasstedt, Kavanaugh, & Anderson, 2013).

Our findings highlight the impact that state flexibility in Medicaid policy design has had on women's health insurance coverage in prior years and, hence, under the ACA. The larger effects of ACA Medicaid expansions found for women residing in states with low pre-ACA eligibility and without family planning waivers suggests that such women faced greater barriers to pre-ACA insurance coverage than their peers in other states. The large effect found for women without dependent children underscores the extent to which these women were previously excluded from Medicaid eligibility, limiting the ability to provide the life course view of health and appropriate services most tightly linked to improved maternal and infant health outcomes (Adams & Johnston, 2016). The differences in effects for all women with incomes of less than 100% of the FPL and women with dependent children in states with and without a family planning waiver points to the need to further understand how

women interpret the coverage they receive under these waiver programs. If women enrolled in Medicaid family planning waiver programs, who are eligible for only certain preventive and reproductive health benefits, consider themselves to be insured, our results may understate the effect of ACA Medicaid expansions on increasing comprehensive health insurance coverage.

Our finding of mixed effects for women's access to care is generally consistent with the earlier work of [Simon et al. \(2017\)](#), which found only marginally significant improvements in access for women and no significant changes in use of preventive care or changes in health behaviors. Second-order effects—outcomes that are expected to change owing to changes in health insurance coverage—may not be measurable owing to the limited post-expansion period observed in this and earlier work. Because the current analysis is limited by data availability to the 2 years after the expansion, we are unable to assess whether expansions had effects on access to care later in the implementation period.

We do, however, find that ACA Medicaid expansions increased the likelihood that women without dependent children had a personal doctor. Although we find limited effects for experiencing unmet need owing to cost and no effects for having a primary care visit in the past year, free clinics or other sources of care for uninsured women may meet these needs. Women accessing care through safety net systems, however, may be less likely to consider themselves to have a personal doctor, even if they have a visit with a health care provider. Having a usual source of care is clinically important, because it is associated with improved access to care, including increased receipt of preventive care and screening services and reduced access barriers and reported unmet need ([Blewett, Johnson, Lee, & Scal, 2008](#); [DeVoe, Fryer, Phillips, & Green, 2003](#); [Shi, Nie, & Wang, 2013](#)).

Future research should continue to investigate the effects of ACA Medicaid expansions on access to care as additional years of postexpansion period data become available. Researchers should consider the extent to which eligibility expansions may have resulted in overcrowded provider networks, thereby mitigating any expected improvements in access owing to increased coverage ([Miller & Wherry, 2017](#)), although an initial audit study suggests that primary care access for Medicaid patients increased between 2012 and 2016 ([Polsky et al., 2017](#)). Here too, qualitative research could shed light on additional factors influencing women's access to care after Medicaid expansions. For example, newly insured women may face challenges interacting with the health care system, particularly for planned and preventive health services. Conversely, before Medicaid, uninsured women may have found sources of care that did not require health insurance, such as federally qualified health centers or more women's-health centered sources such as Title X clinics, Planned Parenthood clinics, or through grant-funded maternity care (Title V). Finally, additional research is needed to assess whether the ACA Medicaid expansions mitigated disparities in coverage and access for women of reproductive age and to identify populations who continue to face barriers. As more women of reproductive age gain health insurance coverage, additional outreach and education may be needed to ensure that increased coverage translates into improved access for all groups.

Limitations

The primary limitation of this study is the short, 2-year postexpansion period examined. Owing to the limitations of BRFSS data availability, we are unable to capture effects of Medicaid expansion that occurred more than 2 years after

implementation. A second limitation is the inability to measure type of health insurance using BRFSS data. This prevents us from analyzing whether the decrease in uninsurance is due to an increase in Medicaid coverage. Further, the BRFSS does not ask questions about participation in Medicaid family planning programs. Therefore, we are unable to capture the extent to which women residing in states with such programs are affected by them. Finally, our interpretation of the reduction in uninsurance must be considered in light of the possibility that women report noncomprehensive coverage, such as that provided under a family planning waiver, as insurance coverage, particularly during the pre-ACA period.

Implications for Practice and/or Policy

As the wide range of policies targeting women's health—including Title X and Planned Parenthood funding, the required coverage of contraception and other women's preventive services without cost sharing under the ACA, and broad changes to the structure and financing of the Medicaid program—are debated at both the federal and state levels, our findings highlight the role of ACA Medicaid expansion as a policy tool to increase health insurance coverage for women of reproductive age. The coverage gains identified in this study remain at risk if Congress repeals or reduces funding for ACA Medicaid expansions or if states roll back their current expansions.

Our findings also highlight the opportunity that remains for states that have yet to expand Medicaid eligibility under the ACA. The majority of these 19 states have eligibility levels of less than 50% of the FPL for parents and no coverage for childless adults ([Kaiser Family Foundation, 2017](#)), the state policy characteristics we find to be associated with the largest gains in coverage for reproductive-age women owing to ACA Medicaid expansion. In addition to low eligibility levels, more than one-half of these states are located in the southeastern United States, where income is generally lower and maternal and infant outcomes are worse. Although many of these states operate family planning waivers, the women in these states stand to benefit greatly from future Medicaid expansion, providing them with an expanded range of health insurance benefits.

Conclusions

ACA Medicaid expansions successfully increased health insurance coverage among low-income women of reproductive age, and had a particularly large effect for women without dependent children. However, we found limited evidence of a change in access to care in the 2-year period immediately after implementation. The large magnitude of the insurance effect for women without dependent children suggests that these women may have faced greater barriers than those with dependent children to health insurance pre-ACA. Such barriers are consistent with the previous categorical eligibility structure of Medicaid, which omitted childless adults, and points to the importance of states' expansion choices. The large magnitude of the effects found for states expanding from less than 50% of the FPL underscores the opportunity that remains for states yet to expand coverage, particularly those that do not currently operate Medicaid family planning programs. Increasing access for all women of reproductive age is critical to ensuring the health and well-being of women, mothers, and their children in the United States.

Supplementary Data

Supplementary data related to this article can be found online at <https://doi.org/10.1016/j.whi.2017.11.005>.

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