Medicaid Family Planning Expansions: The Effect of State Plan Amendments on Postpartum Contraceptive Use

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Abstract

Objective: To determine the effect of state Medicaid family planning (FP) programs transitioning from a Section 1115 waiver to a State Plan Amendment (SPA) on reproductive health outcomes.

Materials and Methods: Data were from the Pregnancy Risk Assessment Monitoring System on 75,082 women who had a live birth between 2007 and 2013 and were living in one of nine states. We performed a difference-in-differences analysis to quantify the effect of the transition on postpartum contraceptive (PPC) use and unintended births (UBs).

Results: Over 80% of the sample reported using PPC; half reported an UB. The odds of PPC use among women who were living in a study state and gave birth after the transition were 1.14 times that of women who were living in a comparison state and/or gave birth before the transition (95% confidence interval: 1.04–1.24).

Conclusions: Findings suggest that women living in states that transitioned from a waiver to SPA experienced an increased likelihood of PPC compared with those living in comparison states.

Keywords: Medicaid, family planning, health policy, contraception

Introduction

MEDICAID PLAYS A CRITICAL ROLE in the U.S. health care system by providing health insurance to low-income children and adults and, as of April 2017, covered 69 million low-income Americans.^{1–3} Before the passage of the Affordable Care Act (ACA), individuals were only eligible for Medicaid coverage if they met categorical and income eligibility requirements. An individual would have to fall into one of the following five categories—pregnant woman; low-income parent of a dependent child; child; individual with disabilities; or elderly—and meet the income requirements for each category to be eligible for Medicaid coverage.⁴ These eligibility requirements inherently excluded women and men who were of childbearing age but were not pregnant, were not parents of dependent children, or were categorically eligible but did not meet the income requirements for their state.

Since the mid-1990s, 26 states have expanded the coverage of Medicaid family planning (FP) services to individuals who otherwise would be ineligible for Medicaid.^{5,6} The introduction of FP expansion programs allowed for states to expand eligibility for receipt of FP services so that previously ineligible members could gain access to FP services and supplies, including contraception and contraception coun-

seling, testing and treatment of sexually transmitted infections, and gynecological exams.^{6,7}

Before the ACA, state Medicaid agencies were required to apply for a Section 1115 demonstration waiver from the Center for Medicare and Medicaid Services to expand their FP program eligibility. Section 1115 waivers provide states with the flexibility to experiment with the design and implementation of their Medicaid programs, allowing states to expand eligibility to individuals who otherwise would be ineligible for Medicaid coverage, provide additional services that are not typically provided by Medicaid, and use innovative delivery systems to reduce costs and improve care.⁸

In the mid-1990s, states began to use Section 1115 waivers to extend coverage of FP services to women who were becoming ineligible for Medicaid for various reasons. For example, without a waiver, states provide postpartum FP services to women up to 60 days postpartum; waiver expansions allowed for states to extend those services up to 2 years postpartum. Although initially established to cover FP services for those becoming ineligible, states began to offer coverage of Medicaid FP services to all women of reproductive age, regardless of prior Medicaid status.^{7,9} Some states, including Alabama, Iowa, Maryland, Mississippi, Oregon, Rhode Island, and Washington, further expanded FP

waivers to cover men and/or adolescents younger than 19 years of age.⁵

Federal requirements associated with demonstration waivers include that they must be budget neutral to the federal government, evaluated annually, and renewed every 3–5 years.^{5,6,10} Research has demonstrated that FP waivers increase access to FP and FP-related services, including contraception, and reduce unintended pregnancy.^{11–14} A 12-state analysis by Adams et al. using data from the Pregnancy Risk Assessment Monitoring System (PRAMS) found that states adopting FP waivers were associated with a reduction in unwanted and mistimed births in New York, Illinois, and Oregon.¹¹ Additionally, a national analysis by Lindrooth and McCullough¹⁴ found that FP expansions was associated with lowered average annual birth rates across the country.

In 2010, a less-publicized provision of the ACA gave states an additional option for expanding Medicaid FP services, called a State Plan Amendment (SPA).¹⁰ Similar to Section 1115 waivers, SPAs can be used by states to address any aspect of Medicaid program administration, including making changes to eligibility, benefits, services, provider payments, and more.^{15,16} Additionally, SPAs can address multiple types of service provision, including FP services, dental services, home health services, and emergency services.¹⁵ Rather than being temporary, demonstration programs operating within state Medicaid plans, as Section 1115 waivers are, SPAs are permanent changes made to a state's Medicaid program.⁵

Under SPA FP expansion, states must provide FP services to *all* eligible women and men, regardless of age and their categorical eligibility.^{6,10,17} Additionally, states must utilize an income-based eligibility approach and provide nonemergency transportation to all FP beneficiaries, neither of which were required under a demonstration waiver.^{6,10,17} Although SPAs have these additional coverage and service requirements, they are not required to be budget neutral, evaluated annually, or renewed. Under SPA, a new Medicaid eligibility group is created, and thus states are permitted to offer FP “services and supplies to individuals (men and women) that States could previously offer only through demonstration projects.”¹⁰

SPAs used for expanding FP coverage generally cover the same FP services that are covered under a waiver; thus, the primary difference between providing FP services *via* SPAs rather than waivers is due to the expanded eligibility for individuals. As noted by Sonfield et al.,¹⁷ “the law allows for coverage of a larger population of individuals than currently covered under any existing waiver program, and requires states’ expansions to cover adolescents and men—two populations that have been excluded under some waivers.” As will be discussed in more detail below, Wisconsin expanded their financial eligibility requirements under the SPA, while Oklahoma extended coverage of FP services to adolescents and men in their SPA expansion.

While research has shown that FP waivers have improved access to FP services and reproductive health outcomes in states, no research has yet explored the effects of transitioning from a waiver to SPA on FP outcomes. Thus, we sought to explore states’ transitions from FP waivers to SPAs on postpartum contraception (PPC) use and unintended births (UBs).¹⁸ Based on the knowledge that SPAs increase eligibility for women to receive FP services *via* Medicaid, and that increased eligibility has led to increased use of contraception, we hypothesize that transitioning to SPA from a

waiver would provide increased access to (and thus use of) PPC and reduce UBs.

Materials and Methods

Objective and design

We sought to investigate the effects of transitioning from a Medicaid FP waiver to SPA on PPC use and UBs by comparing selected study states—states that transitioned from a waiver to SPA—to selected comparison states—states that maintained a FP waiver and did not transition to SPA. Because the SPAs in the two study states expanded eligibility for FP programs, this theoretically should increase the number of women who are able to access FP services, including contraception. An increase in access to FP services likely promotes an increase in utilization of these services; thus, it is reasonable to hypothesize that expanded eligibility would be associated with increased use of PPC and subsequently a decreased likelihood of UBs.

As such, our hypotheses were that transitioning from a waiver to SPA would increase a woman's likelihood of using PPC and decrease a woman's likelihood of experiencing UBs. We have taken advantage of this natural experiment in Medicaid FP policy across states and time, using a quasi-experimental difference-in-differences research design to evaluate the policy change on two important FP outcomes.

Data

We drew upon data from the PRAMS, a national research project conducted in partnership between the Centers for Disease Control and Prevention (CDC) and state health departments.¹⁹ PRAMS collects state-specific data on 47 states, New York City, Puerto Rico, and the District of Columbia on maternal experiences and behaviors before, during, and immediately following pregnancy.²⁰ The target population for PRAMS is all mothers with a live birth who are residents of and delivered their child in their specific state, identified *via* state vital record birth certificate files.²⁰

Women are selected for PRAMS using a stratified systematic sampling scheme, and states may stratify on two of the following six stratification variables: birthweight, maternal race and ethnicity, maternal education, maternal age, geographic area, and Medicaid status. Once strata have been created, systematic sampling is used so that all women have the same probability of being selected for the sample within each strata. The CDC has administered different phases of PRAMS; our dataset contains years 2007 through 2013, which encompass phase 5 (2004–2008), phase 6 (2009–2011), and phase 7 (2012–2015) of the survey.²¹ Data are woman-level and contain a state indicator, allowing for state-level aggregate estimates.

Study versus comparison states

For this analysis of PRAMS data, we compared two study states to seven comparison states. Our inclusion criteria were the following: (1) states participating in PRAMS with available data during the time period of interest (2007–2013) ($n = 25$); and (2) states that had a Section 1115 waiver before the start of the study ($n = 9$). Two of the nine available states—Oklahoma and Wisconsin—transitioned from FP waiver to SPA during this time period, and thus were chosen as our study states.

Under full-scope Medicaid coverage for pregnant women in both study states, postpartum coverage extends through the second month following the end of the pregnancy.^{22,23}

Oklahoma transitioned from waiver to SPA in July 2011. Under Oklahoma's FP waiver, women and men with incomes <185% of the federal poverty limit (FPL) were eligible for FP services, and adolescents under 19 were excluded from the program. With the transition from waiver to SPA, both adolescents under the age of 19 years and men became eligible to receive FP services. Estimates from Sonfield et al.¹⁷ suggest that between 5400 and 8900 individuals may have gained FP coverage due to the SPA transition.

Because Oklahoma's transition occurred in July 2011 and because PRAMS samples pregnant women, the earliest that women eligible for the expanded program would appear in PRAMS is 9 months following July 2011 or April 2012. Thus, the preperiod used for Oklahoma was June 2007 (the first available month of data) through March 2012, and the postperiod was April 2012 through December 2013 (the last available month of data).

Alternatively, Wisconsin transitioned from a waiver to SPA in November 2010. Prior to the SPA transition, Wisconsin's waiver covered all men and women, regardless of age, with incomes under 200% FPL. However, with the transition to the SPA, Wisconsin expanded the income eligibility for FP services from 200% to 306% FPL. Sonfield et al.¹⁷ estimate that between 10,600 and 18,800 new participants may have gained FP coverage due to the SPA transition.

Because Wisconsin transitioned to the SPA in November 2010, the earliest that women eligible for the expanded program would appear in PRAMS is 9 months following November 2010 or August 2011. Thus, the preperiod used for Wisconsin was June 2007 through July 2011 and the postperiod was August 2011 through December 2013. Wisconsin did not reach the CDCs required response rate (65%) during the 2010 PRAMS cycle, so we were unable to obtain birth data from that year.

The remaining states with available PRAMS data were used as comparison states due to their maintenance of a Section 1115 FP waiver during the time period of interest. These seven comparison states include Maryland, Minnesota, Missouri, New York, Oregon, Pennsylvania, and Washington. Multiple comparison states were chosen to ensure a broad representation of demographic and geographic profiles. None of the comparison states experienced substantial changes in eligibility in their Section 1115 waiver over the study period. Additionally, difference-in-differences (DID) methodology requires that comparison units have similar trends in the preperiod outcomes to the study units; graphical analyses suggest that the selected comparison states met this assumption for both outcomes of the study.

Time

Because our two study states transitioned from waivers to SPAs at different times, we had two sets of potential pre- and postperiods: one corresponding to Oklahoma's policy change, which occurred in July 2011, and one to Wisconsin's policy change, which occurred in November 2010. To compare pre- and postperiods in the bivariate analyses section only, we conducted these analyses using the pre- and postperiod definitions based on Wisconsin's policy change for comparison states, to account for more women in the post-

period. Women in Oklahoma and Wisconsin were correctly defined according to the respective time period for their state.

Outcome measures

We assessed two dichotomous outcome measures—one for PPC use and one for UBs. First, we measured PPC use using the item, "Are you and your husband or partner doing anything *now* to keep from getting pregnant?" (0=no; 1=yes). Next, we measured UBs using the PRAMS item, "When you got pregnant with your baby, were you trying to get pregnant?" (0=no; 1=yes).

Covariate measures

Sociodemographic characteristics, risk behaviors, and receipt of government assistance were controlled for in this analysis. Covariate indicators included maternal race, education level, age, marital status, whether a woman smoked during her pregnancy, adequacy of prenatal care (PNC) (measured using the Kotelchuck Index), receipt of women, infants, and children (WIC) during pregnancy, number of previous live births, and prepregnancy Medicaid coverage.

Statistical analyses

We first used descriptive statistics to describe the socio-demographic characteristics, risk behaviors, receipt of government assistance, PPC use, and experiences of UBs of the sample. We conducted χ^2 analyses to compare PPC use and UBs by study group (study vs. comparison state), time period (pre vs. post), and time period stratified by study group.

We used a multi-state, multi-year DID method to evaluate the effects of transitioning from FP waiver to SPA on the two outcomes. DID analyses are commonly used to interpret the impacts of policy changes, and view policy changes as natural experiments that simulate the conditions of an experiment.^{11,24–28} In the DID method, there are two groups—a treatment group and a control group—and two time periods—before the policy change (preperiod) and after the policy change (postperiod). The goal of a DID is to compare the difference between the treatment and control groups in the preperiod versus the postperiod. If the policy change had the intended effect, we expect to see a difference in the difference between the treatment and control groups from the preperiod to the postperiod.^{24–26}

For this analysis, we compared the difference in our outcomes between study and comparison states before and after the study states transitioned from a FP waiver to a SPA. To account for the above-described time differences in the implementation of the SPA in the study states in our DID analysis, we (1) created a full set of year fixed effect dummy variables and (2) within the DID interaction term, coded whether a woman gave birth before (0) or after (1) the policy change.

We used multivariate logistic regressions to examine the effect of the SPA transition on the probability of our outcomes (*i.e.*, PPC use, UBs). Our primary equations of interest are as follows:

$$PPC_i = \beta_0 + \beta_1 Study_i \times Time_i + \beta_2 Study_i + \beta_3 Time_i + \beta_4 X_i + \varepsilon_i \quad (1a)$$

$$UB_i = \beta_0 + \beta_1 Study_i \times Time_i + \beta_2 Study_i + \beta_3 Time_i + \beta_4 X_i + \varepsilon_i \quad (1b)$$

In Equations (1a) and (1b), the dependent variables are PPC use and UBs for woman (*i*). *Study* × *Time* is the DID interaction term and the focal independent variable, encompassing the interaction between study group and time. The value of a woman's DID term was dependent on whether she was living in a study (1) versus a comparison state (0) and whether she gave birth before the policy change (0) or after the policy change (1). The value for the DID term was equal to 1 only for women who were living in a study state and gave birth after the policy change; thus, we are comparing these women (women who were affected by the policy change) to all other women in the cohort. The exponentiated coefficient of this interaction term estimates the true effect of the policy change on the outcome.^{11,25,29}

The *Study* indicator is a fixed effect accounting for time-invariant differences between study and comparison states. The *Time* indicator represents a full set of year fixed effects to account for trends over time that may influence our outcomes. *X* represents the vector of our maternal covariates, including race, education level, age, marital status, risk behaviors (*i.e.*, smoking during pregnancy and adequacy of PNC), number of previous live births, and receipt of government assistance before and during pregnancy (*i.e.*, WIC and Medicaid).

We present exponentiated coefficients from regression models as adjusted odds ratios (aORs) and corresponding 95% confidence intervals (CIs). Two-tailed alphas of $p < 0.05^*$, $p < 0.01^{**}$, and $p < 0.001^{***}$ were considered significant. Complete case analyses were performed, and all data were analyzed using SAS software, version 9.4 (SAS Institute, Inc., Cary, NC).

Results

Descriptive and bivariate analysis

Table 1 highlights the sociodemographic characteristics and pregnancy outcomes of the sample ($N = 75,082$). The majority of the sample were white (59%), college graduates (31%), between the ages of 25 and 34 years (52%), and married (61%). Most of the sample reported that they did not smoke (88%), received adequate or adequate plus PNC (75%), did not receive WIC during pregnancy (52%), had between zero and two previous live births (88%), and did not have prepregnancy Medicaid coverage (81%). Over four-fifths (83%) of the sample reported using PPC, and half reported that their birth was unintended.

Table 2 displays results from unadjusted bivariate analyses of our two outcomes. We first compared outcomes by study group (column 1). Although 83% of women in both groups reported using PPC ($p = 0.80$), women living in study states had higher proportions of reporting that their birth was unintended than women living in comparison states (55% vs. 48%, $p < 0.001$). Next, we compared outcomes by time period (column 2). A larger proportion of women in the preperiod reported using PPCs compared to women in the postperiod (84% vs. 81%, $p < 0.001$), and half of women in both groups reported that their birth was unintended ($p = 0.28$). Finally, we stratified by time period within each study group (columns

3 and 4). Within the study group, fewer women reported using contraception postpartum from the pre- to postperiod (83%–81%, $p < 0.001$). However, the proportion of women reporting that their birth was unintended decreased slightly from 46% to 44% from the pre- to postperiod ($p = 0.04$). Within the comparison group, the proportion of women who reported using PPCs declined from 84% to 80% ($p < 0.001$), and the proportion of women reporting that their birth was unintended declined from 48% to 47% ($p = 0.001$).

Multivariate logistic regression results

In the DID multivariable model estimating the effect of the policy change on PPC use (Table 3, model 1), the odds of using PPC among women living in a study state who gave birth after the policy change were 1.14 times that of women who were living in a comparison state, gave birth before the policy change, or were both living in a comparison state and gave birth in the preperiod (95% CI: 1.04–1.24). All covariates were associated with the odds of PPC use, with the exception of marital status (Table 3).

In the model estimating the effect of the policy change on UBs (Table 3, model 2), women living in a study state who gave birth after the policy change had similar odds of reporting that her birth was unintended as women who were living in a comparison state, gave birth before the policy change, or were both living in a comparison state and gave birth in the preperiod (aOR: 0.99, 95% CI: 0.92–1.08). All covariates were associated with the odds of UB, with the exception of prepregnancy Medicaid coverage (Table 3).

Discussion

SPAs are an alternative mechanism available to state Medicaid programs to provide FP services to women and men who otherwise would not be eligible for Medicaid coverage. Because SPAs theoretically increase the number of individuals who are gaining access to FP services, including contraception, we hypothesized that transitioning from a waiver to SPA would increase PPC use by pregnant women in our sample. Indeed, using DID methodology, we found that women living in states that transitioned from FP waiver to SPA experienced an increased likelihood of PPC use compared to those living in states that maintained a waiver and did not transition to a SPA.

Interestingly, these results contradict the trend shown in bivariate analyses in Table 2 that PPC use decreases over time among women living in both study and comparison states. However, sensitivity analyses indicate that study states experienced a more gradual decline in PPC use over time compared with comparison states, which experienced a sharp decline in PPC use in both 2012 and 2013. Although this is the first analysis examining the effect of transitioning from a waiver to SPA on reproductive health outcomes, our results uniquely highlight the SPAs role in Medicaid FP policy and are generally consistent with previous evidence that Medicaid FP expansions are associated with improvements in reproductive health for women.^{11,12,14}

However, we did not see an effect of the transition from a waiver to SPA on a woman's likelihood of reporting an UB. From a policy evaluation perspective, we would expect to see short-term, intermediate, and long-term outcomes following implementation of a public health policy.^{30–32} Short-term

TABLE 1. DEMOGRAPHIC AND REPRODUCTIVE CHARACTERISTICS OF WOMEN LIVING IN STUDY AND COMPARISON STATES: PREGNANCY RISK ASSESSMENT MONITORING SYSTEM, 2007–2013

	<i>Study sample</i> (n = 19,882)	<i>Comparison sample</i> (n = 55,200)	<i>Total sample</i> (N = 75,082)
State			
Study	—	—	27 (19,882)
Comparison			73 (55,200)
Years			
2007	9 (1,787)	11 (5,919)	10 (7,706)
2008	15 (3,003)	15 (8,502)	15 (11,505)
2009	15 (3,048)	15 (8,483)	15 (11,531)
2010	10 (1,966)	18 (9,635)	16 (11,601)
2011	17 (3,466)	16 (8,990)	17 (12,456)
2012	17 (3,271)	9 (5,143)	11 (8,414)
2013	17 (3,341)	16 (8,528)	16 (11,869)
Race			
Asian	4 (731)	8 (4,626)	7 (5,357)
Black	19 (3,789)	16 (8,842)	17 (12,631)
Other	14 (2,782)	18 (9,547)	17 (12,329)
White	63 (12,515)	58 (31,569)	59 (44,084)
Education			
Some high school	18 (3,689)	16 (8,585)	16 (12,274)
High school graduate	30 (5,877)	23 (12,588)	25 (18,465)
Some college	28 (5,574)	28 (15,213)	28 (20,787)
College graduate	24 (2,652)	34 (18,456)	31 (23,108)
Age			
≤20	11 (2,125)	8 (4,240)	9 (6,365)
20–24	27 (5,277)	20 (11,113)	22 (16,390)
25–34	52 (10,258)	52 (28,965)	52 (39,223)
35+	11 (2,222)	20 (10,875)	17 (13,097)
Married			
Yes	57 (11,404)	62 (34,129)	61 (45,533)
No	43 (8,478)	38 (21,042)	39 (29,520)
Smoker			
Yes	13 (2,607)	11 (6,082)	12 (8,689)
No	87 (17,192)	89 (48,650)	88 (65,842)
PNC			
Adequate/adequate plus	76 (14,478)	75 (39,153)	75 (53,631)
Inadequate	13 (2,570)	12 (6,325)	13 (8,895)
Intermediate	11 (2,081)	13 (6,660)	12 (8,741)
WIC during pregnancy			
Yes	56 (11,026)	46 (24,916)	48 (35,942)
No	44 (8,770)	54 (29,820)	52 (38,590)
No. of previous live births			
None	40 (8,043)	42 (23,095)	42 (31,138)
1 or 2	47 (9,290)	47 (25,608)	47 (34,898)
3–5	12 (2,298)	10 (5,602)	10 (7,900)
6 or more	1 (234)	1 (554)	1 (788)
Medicaid coverage prepregnancy			
Yes	22 (4,383)	17 (9,479)	18 (13,862)
No	78 (15,472)	83 (45,555)	82 (61,027)
PPC			
Yes	83 (16,278)	83 (45,095)	83 (61,373)
No	17 (3,427)	17 (9,441)	17 (12,868)
UB			
Yes	45 (8,905)	52 (28,232)	50 (36,799)
No	55 (10,741)	48 (26,058)	50 (37,137)

Note: Results are presented as percentages with sample size listed in parentheses.

PNC, prenatal care; PPC, postpartum contraception; UB, unintended birth; WIC, women, infants, and children.

TABLE 2. POSTPARTUM CONTRACEPTIVE USE AND UNINTENDED BIRTHS AMONG WOMEN LIVING IN STUDY AND COMPARISON STATES: PREGNANCY RISK ASSESSMENT MONITORING SYSTEM, 2007–2013

Outcome	(1) Study group ^a		(2) Time period ^b		(3) Study state		(4) Comparison state	
	Study (n = 19,882)	Comparison (n = 55,200)	Pre (n = 50,595)	Post (n = 24,487)	Pre (n = 7,083)	Post (n = 12,799)	Pre (n = 37,796)	Post (n = 17,404)
PPC use								
Yes	83	83	84	81	83	81	84	80
No	17	17	16	19	17	19	16	20
UB								
Yes	55	48	50	50	54	56	48	47
No	45	52	50	50	46	54	52	53
			0.80		<0.001		<0.001	
			<0.001		0.28		0.04	
								0.001

Note: Results are presented as percentages. Comparisons between study groups and time periods were conducted with χ^2 test.

^aResults are stratified by study group (*i.e.*, study vs. comparison) over the complete study period.

^bResults are stratified by time period over the complete study sample; the time periods for comparison states correspond to Wisconsin's policy change (pre: June 2007–July 2011; post: August 2011–December 2013); women in study states are correctly defined according to the time period followed by their respective states.

TABLE 3. LOGISTIC REGRESSION MODELS PREDICTING POSTPARTUM CONTRACEPTION USE AND UNINTENDED BIRTHS AMONG WOMEN LIVING IN STUDY VERSUS COMPARISON STATES: PREGNANCY RISK ASSESSMENT MONITORING SYSTEM, 2007–2013

	(1) aOR, using PPC	(2) aOR, UB
Study × Time	1.14** (1.04–1.24)	0.99 (0.92–1.08)
Study	0.90** (0.85–0.95)	1.14*** (1.09–1.19)
Time (years)		
2007	Ref.	Ref.
2008	1.04 (0.96–1.13)	0.98 (0.91–1.04)
2009	1.08 (0.99–1.18)	0.99 (0.93–1.06)
2010	1.03 (0.95–1.12)	0.95 (0.89–1.02)
2011	0.99 (0.91–1.07)	0.90** (0.84–0.96)
2012	0.79*** (0.73–0.87)	0.92* (0.85–0.99)
2013	0.73*** (0.67–0.79)	0.86*** (0.81–0.93)
Race		
Asian	0.58*** (0.54–0.62)	1.07 (0.99–1.14)
Black	0.84*** (0.80–0.90)	1.50*** (1.43–1.58)
Other	0.96 (0.90–1.02)	1.02 (0.97–1.07)
White	Ref.	Ref.
Education		
Some high school	0.77*** (0.71–0.83)	1.05 (0.98–1.12)
High school graduate	0.85*** (0.80–0.91)	1.37*** (1.30–1.45)
Some college	1.02 (0.96–1.08)	1.52*** (1.45–1.59)
College graduate	Ref.	Ref.
Age		
<20 years	1.35*** (1.23–1.48)	3.04*** (2.81–3.30)
20–24 years	1.09** (1.03–1.16)	1.61*** (1.53–1.68)
25–34 years	Ref.	Ref.
35+ years	0.61*** (0.58–0.64)	0.99 (0.95–1.04)
Married	0.96 (0.91–1.01)	0.34*** (0.33–0.36)
Smoked during pregnancy	1.13** (1.06–1.21)	0.64*** (0.60–0.68)
Kotelchuck Index		
Inadequate	0.81*** (0.76–0.86)	1.59*** (1.50–1.68)
Intermediate	0.93* (0.88–0.99)	1.10** (1.05–1.16)
Adequate/adequate+	Ref.	Ref.
WIC during pregnancy	1.07* (1.02–1.13)	1.32*** (1.27–1.38)
No. previous live births		
None	Ref.	Ref.
1 or 2	1.32*** (1.26–1.38)	1.22*** (1.18–1.27)
3–5	1.52*** (1.41–1.65)	2.35*** (2.20–2.50)
6 or more	0.82* (0.69–0.98)	3.61*** (3.01–4.33)
Medicaid coverage pre-pregnancy	0.85*** (0.80–0.90)	0.98 (0.93–1.03)
Observations	68,340	68,083

Note: Confidence interval in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

aOR, adjusted odds ratio.

outcomes are the first benefits that emerge from an implemented policy and can include changes in knowledge, attitudes, awareness, and beliefs among those affected by the policy. Unfortunately, PRAMS data do not provide such antecedent psychosocial measures around FP. These would

be important to explore in future analyses. Intermediate outcomes generally fall in between short- and long-term outcomes and can include changes in action, behavior, or practice among those affected by the policy. In our case, the intermediate outcome influenced by the SPA was PPC. Finally, long-term outcomes are broader public health goals that policymakers hope to achieve, and can include changes in economic status, social structure, or health conditions.^{30–32} It is not surprising that we did not see a change in UB rates within these relatively limited data that perhaps do not yet capture distal, long-term effects of the policy that take time to achieve.^{30–32} Additional years of PRAMS data following SPA implementation in the study states are needed to permit a more robust, longitudinal evaluation of the true population impact of the policy on UBs and related outcomes.

Furthermore, since 2013, nine additional states have transitioned their Medicaid FP expansions from a Section 1115 waiver to SPA (*i.e.*, California, Louisiana, Minnesota, New Mexico, New York, North Carolina, Pennsylvania, South Carolina, and Virginia).⁵ Expanding this analysis to include these additional states would be an ideal next step to better evaluate the effects of transitioning to SPA on reproductive health outcomes.

Although our analysis has several strengths (*e.g.*, strong quasi-experimental design, geographically diverse analysis states), it has some notable limitations. First, there are potential issues regarding the validity of the standard errors attained through our analysis, as DID analyses may be subject to issues regarding standard error validity when the number of clusters is small. Unfortunately, we were not able to increase the number of clusters in our sample due to limited availability of PRAMS data during the time period of interest (2007–2013) from theoretically appropriate study or control states. Second, we ideally would have been able to identify women who were gaining access to FP coverage specifically because of the transition to SPA (rather than state-level effects), but were unable to do so due to a lack of detailed information on income and number of dependents in PRAMS.

Third, we relied on self-report, woman-level data in PRAMS that covers sensitive topics and thus may be subject to response and social desirability bias.^{33,34} Lastly, the dichotomous measure of UB does not capture the continuum of women's experiences around pregnancy intendedness. Rather, it first assumes that the decision to have a baby is a conscious one, and second reduces a multifaceted, complex experience into a binary, yes or no indicator.³⁵ Nonetheless, findings have clear public health implications for states with Medicaid programs that are operating a waiver-based FP expansion or are considering expanding FP services.

Conclusions

Our results demonstrate that transitioning from a waiver to SPA is associated with an increase in a woman's likelihood of using PPC. This suggests that there are service use and—by extension—health implications for women living in states that adopt a Medicaid SPA FP expansion. Using SPA as the mechanism for FP expansion allows states to expand eligibility for FP coverage to a wider population of beneficiaries compared to a Section 1115 waiver, allowing more individuals to access and use needed FP services. Expanding access to and utilization of FP services, including contraception, allows for women

to ensure adequate timing and spacing between births, thus reducing the risks of poor birth outcomes.^{36,37} Furthermore, having the ability to plan pregnancies provides women with a more stable environment for social and economic growth.³⁸ Evidence suggests that access to contraception leads to increased educational attainment, increased workforce participation and earning power for women in the workforce, and delaying childbirth until more stable economic circumstances are reached.³⁸

Additionally, improving access to contraception can help reduce poor reproductive health outcomes, and striking evidence shows that eliminating access barriers to contraception can avert unintended pregnancies,^{39,40} which remain an important public health issue in the United States. A large portion (58%) of unintended pregnancies result in births,¹⁸ and are associated with decreased maternal and child health outcomes, such as delayed PNC, premature births and birth defects, maternal depression, intimate partner violence, and poor mental and physical health for children.^{18,41–47} Thus, increasing access to contraception and PPC for women through SPA expansions has the potential to reduce poor reproductive health outcomes, improve social and economic outcomes, and advance the overall health and well-being of women relying on Medicaid for FP services.

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