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Association of Medicaid Expansion Under the Affordable Care Act With Medicaid Coverage in the Prepregnancy, Prenatal, and Postpartum Periods

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Abstract

Introduction: We evaluated how the Affordable Care Act (ACA) Medicaid eligibility expansion affected perinatal insurance coverage patterns for Medicaid-enrolled beneficiaries who gave birth overall and by race/ethnicity. We also examined state-level heterogeneous impacts.

Methods: Using the 2011–2013 Medicaid Analytic eXtract and the 2016–2018 Transformed Medicaid Statistical Information System Analytic File databases, we identified 1.4 million beneficiaries giving birth in 2012 (pre-ACA expansion cohort) and 1.5 million in 2017 (post-ACA expansion cohort). We constructed monthly coverage rates for the two cohorts by state Medicaid expansion status and obtained difference-in-differences estimates of the association of Medicaid expansion with coverage overall and by race/ethnicity group (non-Hispanic White, non-Hispanic Black, and Hispanic). To explore state-level heterogeneous impacts, we divided the expansion and non-expansion states into groups based on the differences in the income eligibility limits for low-income parents in each state between 2012 and 2017.

Results: Medicaid expansion was associated with 13 percentage points higher coverage in the 9 to 12 months before giving birth, and 11 percentage points higher coverage at 6 to 12 months postpartum. Hispanic birthing individuals had the greatest relative increases in coverage,

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Supplementary Data

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followed by non-Hispanic White and non-Hispanic Black individuals. In Medicaid expansion states, those who experienced the greatest increases in income eligibility limits for low-income parents generally saw the greatest increases in coverage. In non-expansion states, there was less heterogeneity between state groupings.

Conclusions: Pregnancy-related Medicaid eligibility did not have major changes in the 2010s. However, states' adoption of ACA Medicaid expansion after 2012 was associated with increased Medicaid coverage before, during, and after pregnancy. The increases varied by race/ethnicity and across states.

Medicaid has been a significant source of payment for births in the United States, and it covered a stable percentage of births during the 2010s (approximately 43% in 2010 and 42% in 2019) because few changes occurred in pregnancy-related eligibility during this period (Curtin, Osterman, & Uddin, 2010; Osterman, Hamilton, Martin, Driscoll, & Valenzuela, 2021; Trends in Income Eligibility Limits for Adults, KFF, n.d.). Federal law mandates that states maintain pregnancy-related Medicaid eligibility from conception through 60 days postpartum for those with household incomes up to the federal minimum standard of 133% of the federal poverty level (42 U S. Code § 1396a). State-specific income eligibility limits for non-pregnant adults, however, have historically been lower than pregnancy eligibility limits. The Affordable Care Act (ACA) called for the expansion of Medicaid eligibility to adults up to age 64 with incomes up to 138% of the federal poverty level (Congress, 2011), and the 2012 Supreme Court ruling in National Federation of Independent Business v. Sebelius (2012) gave states the option to decide whether to extend their Medicaid program.

Because of the historical variation in rules for different eligibility groups and the differing state decisions regarding Medicaid expansion under the ACA, the central issue of how these eligibility expansions affect coverage for Medicaid beneficiaries requires further clarification. In particular, it might not be immediately apparent that Medicaid expansions for non-pregnant adults, which are usually to 138% FPL and typically lower than the pregnancy eligibility limit, would result in more pregnant individuals and infants having coverage. Expanding eligibility could provide more opportunity for individuals to enroll before pregnancy or before pregnancy has been determined and help them stay enrolled longer after the 60-day postpartum period.

Recent research, such as studies by Geiger, Sommers, Hawkins, and Cohen (2021), Gordon, Sommers, Wilson, and Trivedi (2020), and Steenland and Wherry (2023), has shown that Medicaid expansions were associated with improved health and health care use. The contribution of this article is to explore the potential mechanism of improved access through higher Medicaid participation before and after childbirth in a broad national sample using Medicaid administrative claims data. Enhancing Medicaid participation during the perinatal period for individuals whose childbirth would be covered by Medicaid might improve coverage stability, which is crucial for optimizing the health of birthing individuals and their infants. Early and routine prenatal care facilitates continuous risk assessment to develop appropriate care plans (American College of Obstetricians and Gynecologists & American Academy of Pediatrics, 2017); the prepregnancy and postpartum periods are increasingly recognized as crucial stages for enhancing maternal and infant health

(American College of Obstetricians and Gynecologists, 2018; 2019; Johnson et al., 2006). Severe complications of pregnancy and pregnancy-related deaths can occur up to 1 year postpartum, further emphasizing the need for access to care in the full year postpartum (Chen et al., 2021; Declercq et al., 2022; Petersen et al., 2019). Despite the importance of perinatal care, insurance discontinuity remains a barrier to access to continuous, coordinated care, especially for low-income individuals who may rely on Medicaid as their insurer for pregnancy and childbirth care (Banerjee, Ziegenfuss, & Shah, 2010; D'Angelo et al., 2015; Daw, Hatfield, Swartz, & Sommers, 2017).

After passage of the ACA, states raised or lowered income eligibility limits for three distinct groups—childless adults, pregnant individuals, and parents—each with different levels and combinations. For instance, seven states adopted Medicaid expansion but decreased their income cutoff for parents, typically to the 138% level. Similar adjustments were also seen in the majority of the non-expansion states. Eligibility changes under the ACA may impact Medicaid coverage for beneficiaries experiencing childbirth because, at different periods, a person's eligibility category could shift during the prepregnancy, pregnancy, and postpartum periods.

In this study, we used administrative Medicaid claims data in all states and the District of Columbia to investigate the association between state Medicaid expansion and Medicaid coverage patterns before, during, and after pregnancy. We also assessed these associations stratified by race and ethnicity, and the heterogeneous impacts based on differences in income eligibility for parents before and after the ACA Medicaid expansion across states.

Methods

The primary data source of the study is the 2011–2013 Medicaid Analytic eXtract (MAX) and the 2016–2018 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) databases for the fifty states and the District of Columbia. The Centers for Medicare and Medicaid Services developed the MAX data based on quarterly data submitted by states through the MSIS. Starting in 2014, a new monthly reporting system (T-MSIS) was introduced, and by 2016 all states had made the transition to T-MSIS. TAF database uses the new T-MSIS format. The MAX and the TAF have a unique person identifier, allowing users to follow the same person over time and within each data format. Many states, however, exhibit data quality issues for the person identifiers around the data system transition period (2014–2016), making it difficult to link individuals across the MAX and TAF data format for these states. Thus, we constructed our study cohorts separately using inpatient files from each data format.

Our analytic sample included individuals aged 18 to 44 years who had one Medicaid-insured hospitalization for childbirth resulting in a live birth. We identified 1.4 million individuals giving birth in 2012 (pre-expansion cohort) and 1.5 million in 2017 (post-expansion cohort). Delivery hospitalizations were identified using *International Classification of Diseases*, 9th edition, diagnosis and procedure codes for the pre-expansion cohort and *International Classification of Diseases*, 10th edition, codes for the post-expansion cohort (Supplemental Table 1). For individuals with more than one instance of childbirth within 1 year, we

selected the first childbirth in both the pre-expansion and post-expansion cohorts to avoid within-individual correlation.

We examined the coverage pattern for each cohort within the 12 months before and after childbirth. The two index years (2012 and 2017) were selected because most expansion states adopted Medicaid expansion (hereafter referred to as expansion) in 2014, and 2018 is the last year of available data. To study the association of expansion on coverage around the time of pregnancy and childbirth, we constructed monthly indicators for enrollment status for each individual identified as having a live birth. By aggregating these person-level monthly enrollment indicators, we constructed the Medicaid coverage rates for each state in the 12 months before and after childbirth.

We gathered information on the timing of expansion for each state and classified states into expansion and non-expansion status based on whether they adopted expansion by January 1, 2016 (Table 1). We excluded Louisiana from the analysis given its expansion occurred on July 1, 2016, and did not allow for Medicaid coverage during the full 12 months before childbirth for those with a live birth in 2017 (post-expansion cohort). All other expansion states adopted and implemented expansion by the beginning of January 2016.

We used difference-in-difference methods to compare monthly coverage rates in the 12 months before and after childbirth for the pre- and post-expansion cohorts by state expansion status and adjusting for state and time fixed effects. Our difference-in-differences analysis relies on the parallel trends assumption, which posits that, absent the policy changes, expansion and non-expansion states would have followed the same trend over time in monthly coverage rates. Using aggregated data at the state-year level, we applied a weighted least squares approach, as discussed in Angrist and Pischke (2009), to implement the difference-in-differences analysis, where each observation was assigned a weight proportional to the number of individuals with a childbirth in the state. This method uses grouped data to approximate the underlying individual-level regression and we used conventional standard errors for these regressions.We further stratified these estimates by race/ethnicity (non-Hispanic White, non-Hispanic Black, and Hispanic). We excluded the non-Hispanic other race group from stratified analyses because it represents a highly diverse but small proportion of the total population, including Asian, American Indian, Alaska Native, Native Hawaiian, and Pacific Islander individuals, as well as those with more than one race/ethnicity or unknown race/ethnicity. We also excluded five states (Alabama, Kansas, Michigan, Rhode Island, and Tennessee) from the stratified analyses because the percentage of missing race/ethnicity in these states was greater than 50%, the threshold by which the Centers for Medicare and Medicaid Services deems data to be unusable (Medicaid and CHIP Business Information Solutions, n.d.).

To evaluate heterogeneous changes in perinatal Medicaid coverage across states, we grouped states based on the income eligibility cutoffs for parents that apply to all birthing individuals in the postpartum period and the subset of individuals who had previous live births before the index childbirth. Expansion and non-expansion states were categorized based on the difference in the Medicaid income eligibility cutoffs for parents between 2012 and 2017 (Table 1). Within expansion states, those with positive values for the absolute difference

in the eligibility cutoffs—that is, those that raised the income cutoff for this group—for parents were split into two groups based on the midpoint in the difference (above the midpoint [group 1] and below the midpoint [group 2]), and those with negative values for the difference in the eligibility cutoffs for parents, meaning those that lowered the income cutoff were classified as group 3 exposure. For non-expansion states, those with non-negative differences in the eligibility limits for parents between 2012 and 2017 were classified as group 1. The other non-expansion states demonstrated negative differences in the eligibility limits for parents between 2012 and 2017. These states were split into group 2 and group 3 based on the midpoint of these negative differences. Therefore, in non-expansion states, those in group 3 experienced the largest declines in income eligibility limits for Medicaid, whereas those in group 1 experienced slight increases or no change in parental income eligibility limits.

The Medicaid coverage patterns for the 12 months before and after childbirth for the pre- and post-expansion cohorts were presented for each group of states by expansion status.We also included Supplemental Figures of the monthly Medicaid coverage patterns for each state's pre- and post-expansion cohorts. This study did not require institutional review board review because individuals could not be identified in the dataset.

Results

Medicaid coverage rates for the pre- and post-expansion cohorts before and after childbirth exhibited a bell-shaped pattern. In the pre-expansion cohort (2012 live births), Medicaid coverage rates were stable in the 3 months before pregnancy (i.e., at 12 months and 9 months before childbirth) at approximately 47% in expansion states and 34% in non-expansion states. The coverage rates gradually increased beginning at 8 months before childbirth, then declined to approximately 93% (expansion states) and 90% (non-expansion states) at 2 months postpartum. Declines then rapidly accelerated to approximately 67% (expansion states) and 52% (non-expansion states) covered by 12 months after childbirth (Figure 1A).

The post-expansion cohort (2017 live births) observed a similar pattern throughout the perinatal period, but expansion states showed an increase in monthly Medicaid coverage before and after childbirth, while little to no improvement was observed in non-expansion states. The Medicaid coverage rate was stable at approximately 64% (expansion states) and 40% (non-expansion states) in the 3 months before pregnancy, increased gradually beginning at 8 months before childbirth, and declined to about 72% in expansion states and 52% in non-expansion states at 12 months after childbirth (Figure 1A).

Difference-in-differences estimates showed that expansion was associated with 13 percentage points (pp) higher Medicaid coverage at 9 to 12 months before childbirth, 2 pp higher Medicaid coverage approximately 3 months before childbirth, and approximately 11 pp higher coverage at 6 to 12 months after childbirth (Figure 1B).

The difference-in-differences estimate for non-Hispanic White individuals was 12.4 pp [3.5, 21.8] at 12 months before childbirth in expansion states and 8.9 pp [−1.3, 19.1] at 12

months after childbirth (Table 2). For non-Hispanic Black birthing individuals, difference-in-differences estimates were 2.2 pp [−6.2, 10.6] at 12 months before childbirth and −2.1 pp [−10.2, 5.9] (both not significantly different from 0) at 12 months after childbirth (Table 2). Hispanic individuals in expansion states experienced the greatest increases in Medicaid coverage rates throughout the perinatal period (24.0 pp [19.1, 28.8] increase at 12 months before childbirth and 16.1 pp [6.2, 26.1] increase at 12 months after childbirth), but Hispanic individuals in non-expansion states demonstrated no changes and declines in Medicaid coverage rate (0.1 pp [−13.1, 13.4] at 12 months before childbirth and −4.9 pp [−13.7, 3.9] at 12 months after childbirth). Difference-indifferences estimates for Hispanic individuals were 23.9 pp [13.1, 34.6] at 12 months before childbirth and 21.0 [6.3, 35.7] at 12 months after childbirth (Table 2).

Within expansion states, group 1 (states that raised their income eligibility cutoffs for parents the most between 2012 and 2017) demonstrated the largest increase in Medicaid coverage in the postpartum period (22.3 pp increase at 12 months after childbirth), followed by group 2 (13.9 pp increase); group 3 (states that lowered the income eligibility cutoff for parents between 2012 and 2017) demonstrated a 1.1 pp decrease. States in group 2 experienced the largest increase in preconception Medicaid coverage (23.1 pp increase at 12 months before childbirth), followed by group 1 (20.1 pp at 12 months before childbirth) and group 3 (5.4 pp increases at 12 months before childbirth) (Figure 2).

Within non-expansion states, group 1 (states with nonnegative differences in the eligibility limits for parents between 2012 and 2017) demonstrated the greatest increase in Medicaid coverage in the postpartum period (11.2 pp increase at 12 months after childbirth). Group 2 and group 3 states did not experience changes in Medicaid coverage in the postpartum period. States in group 3 experienced the largest increase in preconception Medicaid coverage (16.6 pp at 12 months before childbirth), followed by group 1 (9.9 pp at 12 months before childbirth) and group 2 (about 3.4 pp increase at 12 months before childbirth) (Figure 2).

Discussion

Even though pregnancy-related eligibility income limits did not change much in most states during the 2010s, this study found that, after state Medicaid expansions under the ACA, monthly Medicaid coverage rates were higher in each month preceding childbirth in expansion states, especially in the earlier months of pregnancy, when birthing individuals may not know they are pregnant and thus eligible for Medicaid. Increasing insurance coverage may improve the use of recommended services (Myerson, Crawford, & Wherry, 2020). Previous research demonstrated Medicaid expansion could affect earlier initiation of prenatal care (Geiger et al., 2021). a Healthy People 2030 objective (Office of Disease Prevention and Health Promotion, n.d.). Postpartum coverage in expansion states could also affect use of recommended health services, such as postpartum contraception (Myerson et al., 2020).

The findings from this study complement and expand existing research that examined the impact of the ACA Medicaid expansion on coverage rates in the prepregnancy, pregnancy,

and postpartum periods. Many multi-state evaluations of the expansion effects relied upon survey data from the Pregnancy Risk Assessment Monitoring System (PRAMS) or the American Community Survey. Using PRAMS data from 2009 to 2015, Clapp, James, Kaimal, and Daw (2018) estimated the impacts of the expansion on preconception Medicaid coverage (1 month before conception) among low-income individuals from 15 states. They found an 8.6 pp increase in coverage. Myerson et al. (2020) used PRAMS data, but with a slightly different study period (2012–2017) and number of states ($n = 13$), and found that Medicaid coverage in the last month before conception increased by 11.1 pp and postpartum Medicaid coverage reported at the time of the post-pregnancy survey increased by 8.5 pp. Geiger et al. (2021) also used PRAMS data to examine the impact of the expansion on Medicaid coverage in the month before conception. They focused on first-time parents and found a 5 pp increase for a change of Medicaid income limits from 0% to 138% of the poverty level. Because of the limited sample size in the PRAMS data, these studies did not investigate the heterogeneity of expansion effects by race or ethnicity. Eliason, Daw, and Allen (2021) used PRAMS data with 10 Medicaid expansion sites and 5 non-expansion sites and found that, among birthing individuals with low incomes, Medicaid eligibility compared with marketplace eligibility was associated with increased Medicaid coverage, decreased private insurance coverage, decreased uninsurance in the preconception period, increased postpartum Medicaid, and improved adequate prenatal care use. Johnston, McMorrow, Thomas, and Kenney (2020) constructed a cohort of new mothers with low income using American Community Survey data and found that expansion was associated with a 13.2 pp increase in postpartum coverage. Similar to our study, they also reported the highest increase in postpartum Medicaid coverage among Hispanic birthing individuals (15.5 pp), followed by White (14.4 pp) and African American individuals (9.3 pp). Two factors might explain the relatively small effects among African American individuals. First, Johnston et al. (2020) showed that African American mothers had the highest Medicaid coverage rate (71.8%) before the expansion and the lowest uninsured rate (15.6%) in expansion states among all race/ethnicity groups. Second, some of the states with the largest African American populations (Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee, Texas, and Virginia) (Black/African American - The Office of Minority Health, n.d.) are also states that did not adopt the expansion.

This study's use of administrative data is a strength. Few existing studies used administrative data to examine the impact of the expansion on Medicaid enrollment patterns, and they have tended to focus on one or two states (Adams et al., 2019; Gordon et al., 2020; Steenland, Wilson, Matteson, & Trivedi, 2021). By using administrative data that cover the universe of Medicaid beneficiaries, we addressed limitations from prior studies, including potential measurement errors based on self-reported data, lack of representativeness at the national or state levels, or missing information on race/ethnicity.

Our research has limitations. First, we did not have data for other sources of insurance coverage, so the actual insured rates during the perinatal period could be higher for individuals with a Medicaid-covered birth. Second, the eligibility expansion in this study was primarily measured based on state income eligibility limits for parents, which may not apply to all individuals with a live birth in the prepregnancy period. In particular, eligibility for childless adults, which may be more relevant in the preconception period,

was not assessed. Third, we did not examine applicability or changes in state-specific categories of eligibility for Medicaid, such as the 1115 waivers that allow states to provide Medicaid-funded family planning services to those whose incomes are low but not low enough for full Medicaid eligibility. Fourth, there may be other approaches to categorize states within expansion and non-expansion states into subgroups for demonstrating the state-level heterogeneity, but we considered our approach as one potential way to summarize the state-level heterogeneity of the changes in Medicaid coverage around the time of childbirth. Fifth, we used conventional standard errors in our main models, rather than clustering the standard errors at the state level. Our approach might underestimate the standard errors owing to potential within-state correlation in the error terms. Sixth, data quality, especially regarding race/ethnicity variables, is another limitation of this study, because missing data and inconsistent reporting across states can impact the accuracy of our stratification analysis. To address this issue, we dropped states where the race/ethnicity variable was deemed unusable by CMS's DQ Atlas project and excluded the other race/ethnicity group from our analysis owing to concerns about data quality. Still, our stratification analysis should be interpreted with caution, because the quality of race/ethnicity data varies across states, and including states with less than ideal data quality may influence the results. Lastly, there are potential limitations when comparing two analytic cohorts constructed based on MAX and TAF data, particularly the potential for bias due to different levels of data quality. By keeping our research design simplified and focusing on high-quality data elements such as inpatient records (for identifying delivery hospitalizations) and enrollment records (for constructing monthly coverage indicators), we aimed to minimize the impact of these limitations on our main findings.

Implications for Policy and/or Practice

The heterogeneity across states and race and ethnicity has implications for future research and actions. Studying the impact of the expansion on health care use or health outcomes relies on proper accounting of the expansions' effects on coverage. Because some states had different Medicaid income eligibility limits for parents and pregnant individuals before the expansion (Haley & Johnston, 2021), a binary explanatory variable of expansion might not fully capture the changes in eligibility for individuals in different situations, which could bias the estimated effects on Medicaid coverage and health outcomes of interest. Taking into account this heterogeneity could result in a research design with more statistical power and more precise estimates, which can be important for estimating the impact of Medicaid eligibility expansion on rare adverse maternal outcomes in the postpartum period such as pregnancy-related mortality (Eliason, 2020) or severe maternal morbidity (Guglielminotti, Landau, & Li, 2021). Thus, our results highlight the need to explore state-specific contexts, including the impact of expansion on birthing individuals around the time of childbirth, when evaluating policies' effects on health outcomes of interest. The postpartum period has been highlighted as a key time period to improve outcomes for severe maternal complications and pregnancy related mortality (Chen et al., 2021; Petersen et al., 2019). Medicaid expansion has been recognized as a contributing factor to improved postpartum health; a recent study using longitudinal hospital data revealed a 17% decrease in hospitalizations within the first 60 days postpartum associated with the Medicaid expansions (Steenland & Wherry, 2023). Furthermore, Medicaid expansion has been

proposed as an approach to address health inequities (Crear-Perry et al., 2021). However, we found less improvement in Medicaid coverage in the 12 months before and 12 months after childbirth for non-Hispanic Black birthing individuals, and greater improvement for Hispanic individuals. Future research can consider state context in examining the impact on health coverage and health outcomes.

For birthing individuals whose childbirths were covered by Medicaid, fluctuations in Medicaid coverage still existed in the prepregnancy, early pregnancy, and postpartum periods, particularly in states that did not adopt Medicaid expansion. Throughout the COVID-19 public health emergency, states were required to maintain continuous coverage for Medicaid enrollees in order to qualify for increased federal matching funds under the Families First Coronavirus Response Act (2020). But coverage stability around pregnancy and childbirth remains a concern as the public health emergency concludes and the continuous enrollment requirement ends, especially in non-expansion states. Strategies to increase perinatal Medicaid coverage may include section 1115 demonstration waivers and the state option from the American Rescue Plan Act of 2021 to extend Medicaid postpartum coverage to 12 months (Clark, 2020; Haley & Johnston, 2021; Ranji, Gomez, & Salganicoff, 2021). Because the income limit for pregnancy-related eligibility is generally higher than the ACA income limit of 138% of the federal poverty level, there may be an increase in postpartum persons eligible for Medicaid in both expansion and non-expansion states, with more room for improvement in non-expansion states. As ofMarch 31, 2022, three states (Illinois, New Jersey, and Virginia) have used Medicaid demonstration authority to provide 12 months of continuous postpartum coverage for all Medicaid and CHIP enrollees, and two states (Georgia and Missouri) have approved 1115 waivers to expand Medicaid postpartum coverage for limited populations or limited months (KFF, 2023). On April 1, 2022, Louisiana became the first state to receive approval for the state option to extend postpartum coverage to 12 months (HHS.gov, 2022). Additionally, 37 states have either implemented or are planning to implement the postpartum Medicaid extension as of March 15, 2023 (KFF, 2023). Future research can compare the impacts of this new wave of eligibility expansion with those of the previous ACA Medicaid expansion.

Conclusions

Using Medicaid claims data for all states (excluding Louisiana) and the District of Columbia from 2011–2013 and 2016–2018, this study documented insurance coverage patterns for individuals with a live birth in the year before and after childbirth in association with a state's ACA Medicaid expansion status. Birthing individuals in states adopting the expansion experienced greater increases in Medicaid coverage during the 12 months before and after childbirth. In expansion states, monthly Medicaid coverage rates were higher each month preceding childbirth as well as in the 12 months after childbirth, with the greatest difference by state expansion status at 3 to 12 months after childbirth. The association between expansion status and monthly Medicaid coverage rates before and after childbirth differed by race/ethnicity and state. Hispanic birthing individuals had the largest relative increases associated with expansion, followed by non-Hispanic White and non-Hispanic Black individuals.

State-specific varying income eligibility limits among low-income parents before expansion yielded different patterns of increases in monthly coverage in the 12 months before and after childbirth. Expansion states that had the largest increases in income eligibility limits for low-income parents generally saw the greatest increases in coverage. This heterogeneity was likely due to a greater number of people being newly eligible for Medicaid enrollment. States with lesser or negative differences in Medicaid coverage generally had higher income eligibility limits for low-income parents before the expansion, so there was less room for improvement. Conversely, in non-expansion states, there was less heterogeneity between state groupings. In non-expansion states, between 2012 and 2017, most states decreased their income eligibility cutoffs. Among the non-expansion states that did raise income eligibility limits, the increases were relatively small in magnitude. Even within these groupings, each state's pattern of monthly Medicaid eligibility in the 12 months before and after childbirth varied. This may be related to changes in state-specific categories of eligibility for Medicaid coverage not captured by this study (e.g., 1115 waivers for family planning or substance use disorder services).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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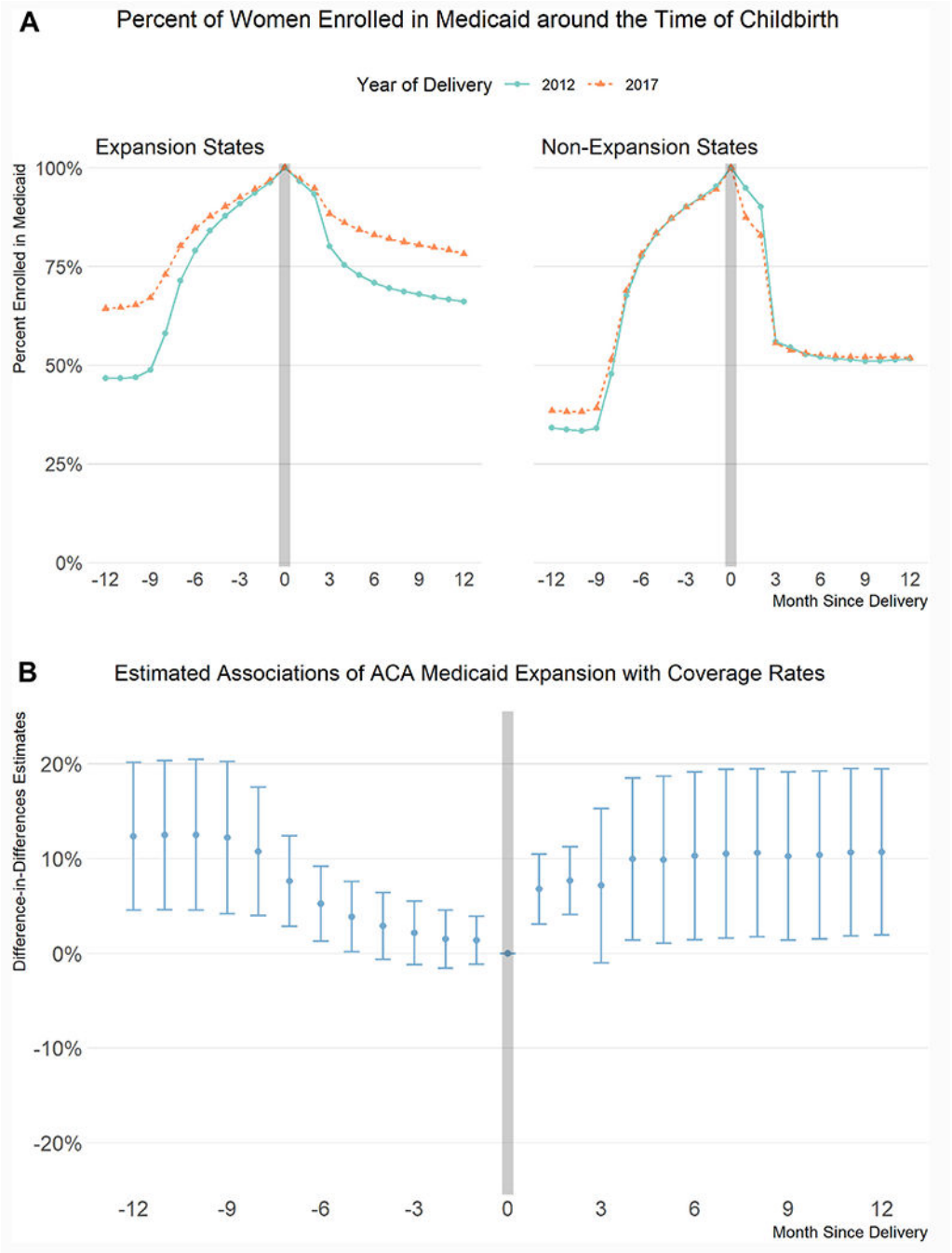

Figure 1.

(A) Percent of women enrolled in Medicaid by month before and after childbirth by Affordable Care Act (ACA) Medicaid expansion status for women with a live birth covered by Medicaid in 2012 and 2017. (B) Estimates of the differences in the changes in percent Medicaid coverage between 2012 and 2017 by ACA Medicaid expansion status.

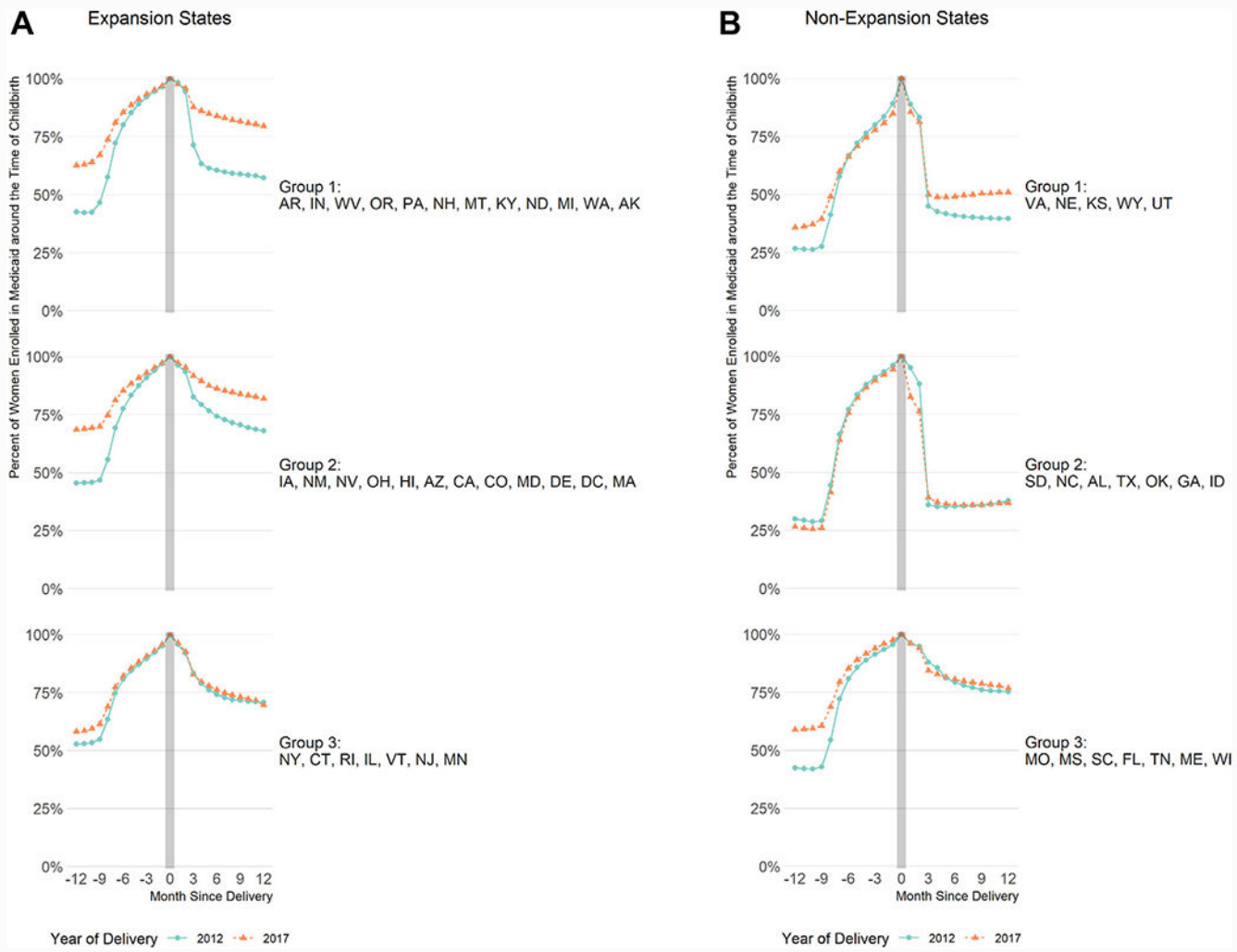

Figure 2.

Heterogeneity in the Changes in Medicaid Coverage Before and After Childbirth Between 2012 and 2017. The exposure groups are constructed separately within expansion states **(A)** and non-expansion states **(B)** based on the changes in the income eligibility cutoffs between 2012 and 2017. See Table 1 for details.

Table 1

ACA Medicaid Expansion Status and Income Eligibility Cutoffs for Childless Adults, Pregnant Women, and Parents in 2012 and 2017 Among 49 States and the District of Columbia

State	Childless Adults Income Cutoff (% Poverty Level) 2012	Childless Adults Income Cutoff (% Poverty Level) 2017*	Pregnant Women Income Cutoff (% Poverty Level) 2012	Pregnant Women Income Cutoff (% Poverty Level) 2017	Parents Income Cutoff (% Poverty Level) 2012	Parents Income Cutoff (% Poverty Level) 2017†	Absolute Changes in Parents Income Cutoff	Exposure Group Based on Changes in Parents Income Cutoff
Expansion States (Adopted ACA Medicaid Expansion by 2016)								
Arkansas	0	138	200	214	17	138	121	Group 1
Indiana	0	139	200	213	24	139	115	Group 1
West Virginia	0	138	150	163	32	138	106	Group 1
Oregon	0	138	185	190	40	138	98	Group 1
Pennsylvania	0	138	185	220	46	138	92	Group 1
New Hampshire	0	138	185	201	49	138	89	Group 1
Montana	0	138	150	162	55	138	83	Group 1
Kentucky	0	138	185	200	59	138	79	Group 1
North Dakota	0	138	133	152	59	138	79	Group 1
Michigan	0	138	185	200	63	138	75	Group 1
Washington	0	138	185	198	73	138	65	Group 1
Alaska	0	138	175	205	81	141	60	Group 1
Iowa	0	138	300	380	82	138	56	Group 2
New Mexico	0	138	235	255	85	138	53	Group 2
Nevada	0	138	133	165	87	138	51	Group 2
Ohio	0	138	200	205	90	138	48	Group 2
Hawaii	100	138	185	196	100	138	38	Group 2
Arizona	110	138	150	161	106	138	32	Group 2
California	0	138	300	322	106	138	32	Group 2
Colorado	0	138	250	265	106	138	32	Group 2
Maryland	0	138	250	264	116	138	22	Group 2
Delaware	110	138	200	217	119	138	19	Group 2
District of Columbia	211	215	300	324	206	221	15	Group 2
Massachusetts	0	138	200	205	133	138	5	Group 2

State	Childless Adults Income Cutoff (% Poverty Level) 2012	Childless Adults Income Cutoff (% Poverty Level) 2017*	Pregnant Women Income Cutoff (% Poverty Level) 2012	Pregnant Women Income Cutoff (% Poverty Level) 2017	Parents Income Cutoff (% Poverty Level) 2012	Parents Income Cutoff (% Poverty Level) 2017†	Absolute Changes in Parents Income Cutoff	Exposure Group Based on Changes in Parents Income Cutoff
New York	100	138	200	223	150	138	−12	Group 3
Connecticut	72	138	250	263	191	155	−36	Group 3
Rhode Island	0	138	250	258	181	138	−43	Group 3
Illinois	0	138	200	213	191	138	−53	Group 3
Vermont	150	138	200	213	191	138	−53	Group 3
New Jersey	0	138	200	205	200	138	−62	Group 3
Minnesota	75	138	275	283	215	138	−77	Group 3
Non-expansion States (Did Not Adopt ACA Medicaid Expansion by 2017)								
Virginia	0	0	200	205	31	38	7	Group 1
Nebraska	0	0	185	202	57	63	6	Group 1
Kansas	0	0	150	171	32	38	6	Group 1
Wyoming	0	0	133	159	51	56	5	Group 1
Utah	0	0	133	144	44	44	0	Group 1
South Dakota	0	0	133	138	52	51	−1	Group 2
North Carolina	0	0	185	201	49	44	−5	Group 2
Alabama	0	0	133	146	24	18	−6	Group 2
Texas	0	0	200	207	26	18	−8	Group 2
Oklahoma	0	0	185	210	53	44	−9	Group 2
Georgia	0	0	200	225	49	37	−12	Group 2
Idaho	0	0	133	138	39	26	−13	Group 2
Missouri	0	0	185	305	36	22	−14	Group 3
Mississippi	0	0	185	199	44	27	−17	Group 3
South Carolina	0	0	185	199	91	67	−24	Group 3
Florida	0	0	185	196	58	33	−25	Group 3
Tennessee	0	0	250	255	126	99	−27	Group 3
Maine	0	0	200	214	200	105	−95	Group 3
Wisconsin	0	100	300	306	200	100	−100	Group 3

Note: Expansion states and non-expansion states were separately divided into three exposure levels based on the absolute changes in the income eligibility cutoffs for parents between 2017 and 2012. The exposure categorization characterized the relative income eligibility levels for prepregnancy and postpartum Medicaid coverage experienced by the post-expansion cohort compared to the pre-expansion cohort.

*Louisiana was excluded from the analysis given its Medicaid expansion occurred on July 1, 2016, and did not apply to the full 12 months before childbirth for those with a live birth in 2017 (post-expansion cohort).

†In many expansion states, the 2017 income eligibility cutoffs for parents and childless adults were equivalent to the income cutoffs set by the ACA Medicaid expansion standard.

Source: KFF (https://www.kff.org/state-category/medicaid-chip/, accessed August 14, 2021) and authors' calculation.

Table 2

Association of Medicaid Expansion Under the Affordable Care Act With Medicaid Coverage in Selected Months Before and After Childbirth by Race/Ethnicity, 2012 and 2017 Among 45 States and the District of Columbia *

Month since Childbirth	Before Childbirth				After Childbirth			
	12 Months	9 Months	6 Months	3 Months	3 Months	6 Months	9 Months	12 Months
Non-Hispanic White (*n* = 971,016)								
Difference-in-differences Estimates	0.124 [0.035, 0.218]	0.132 [0.037, 0.228]	0.070 [0.022, 0.119]	0.037 [−0.004, 0.078]	0.048 [−0.058, 0.153]	0.086 [−0.022, 0.195]	0.086 [−0.02, 0.191]	0.089 [−0.013, 0.191]
Changes in expansion states	0.206 [0.146, 0.265]	0.217 [0.158, 0.277]	0.059 [0.033, 0.085]	0.015 [0.002, 0.029]	0.102 [0.034, 0.17]	0.137 [0.06, 0.213]	0.136 [0.061, 0.211]	0.13 [0.056, 0.204]
Changes in non-expansion states	0.081 [−0.001, 0.164]	0.085 [−0.001, 0.17]	−0.012 [−0.061, 0.038]	−0.022 [−0.072, 0.028]	0.055 [−0.035, 0.145]	0.050 [−0.029, 0.129]	0.051 [−0.023, 0.125]	0.041 [−0.028, 0.111]
Non-Hispanic Black (*n* = 519,422)								
Difference-in-differences estimates	0.022 [−0.062, 0.106]	0.018 [−0.072, 0.107]	0.009 [−0.033, 0.052]	0.009 [−0.027, 0.045]	−0.042 [−0.127, 0.043]	−0.023 [−0.106, 0.059]	−0.024 [−0.105, 0.058]	−0.021 [−0.102, 0.059]
Changes in expansion states	0.108 [0.073, 0.143]	0.118 [0.081, 0.155]	0.045 [0.026, 0.064]	0.015 [0.003, 0.028]	0.03 [−0.001, 0.061]	0.047 [0.007, 0.087]	0.050 [0.009, 0.092]	0.039 [−0.003, 0.08]
Changes in non-expansion states	0.086 [−0.006, 0.178]	0.100 [0.002, 0.198]	0.036 [−0.01, 0.081]	0.006 [−0.035, 0.047]	0.072 [−0.024, 0.167]	0.070 [−0.016, 0.156]	0.074 [−0.01, 0.157]	0.060 [−0.021, 0.141]
Hispanic (*n* = 681,110)								
Difference-in-differences estimates	0.239 [0.131, 0.346]	0.243 [0.133, 0.354]	0.063 [0.007, 0.118]	−0.029 [−0.076, 0.018]	0.120 [0.046, 0.194]	0.179 [0.047, 0.31]	0.190 [0.045, 0.335]	0.210 [0.063, 0.357]
Changes in expansion states	0.24 [0.191, 0.288]	0.247 [0.199, 0.296]	0.095 [0.062, 0.128]	0.032 [0.007, 0.058]	0.122 [0.083, 0.162]	0.15 [0.063, 0.236]	0.158 [0.062, 0.255]	0.161 [0.062, 0.261]
Changes in non-expansion states	0.001 [−0.131, 0.134]	0.004 [−0.135, 0.143]	0.032 [−0.017, 0.082]	0.062 [0.012, 0.111]	0.002 [−0.077, 0.081]	−0.029 [−0.118, 0.06]	−0.031 [−0.124, 0.061]	−0.049 [−0.137, 0.039]

* Alabama, Kansas, Louisiana, Michigan, Rhode Island, and Tennessee were excluded because these states had more than 50% missing values in race/ethnicity.