

*Original Scholarship*

# When the Bough Breaks: The Financial Burden of Childbirth and Postpartum Care by Insurance Type

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## Policy Points:

- This study examines exposure to out-of-pocket (OOP) costs related to childbirth and postpartum care for those with a Medicaid-insured birth compared with those with a commercially insured birth and subsequent financial outcomes at 12 months postpartum.
- We find that Medicaid is highly protective against health care costs for childbirth and postpartum care relative to commercial insurance, particularly for birthing people with low income.
- We find persistent medical debt and worry at 12 months postpartum for Medicaid recipients who reported OOP childbirth expenses.

**Context:** Out-of-pocket (OOP) costs related to childbirth and postpartum care may cause financial hardship, depending on type of insurance and income.

**Methods:** We estimated OOP spending on childbirth and postpartum care and financial strain 1 year after birth, comparing Medicaid-insured births with commercially insured births. The Postpartum Assessment of Health Survey followed up with respondents to the Centers for Disease Control and Prevention (CDC) Pregnancy Risk Assessment Monitoring System after a 2020 birth in six states and New York City. The survey included questions on health care costs and financial well-being. Our analytic sample consisted of 4,453 postpartum people, 1,544 with a Medicaid-insured birth and 2,909 with a commercially insured birth.

**Findings:** We observe significant financial hardship from childbirth that persists into the postpartum year, with significant differences by insurance and income. We find Medicaid is highly financially protective relative to commercial insurance; 81.4% of Medicaid-insured births were free to the patient, compared with 15.7% of commercially insured births ( $p < 0.001$ ). Six of ten commercially insured births (59%) cost over \$1,000 OOP. Among respondents reporting OOP costs for childbirth, we found that Medicaid enrollees are more likely to

have borrowed money from friends or family to pay for childbirth (8% vs. 1%,  $p < 0.001$ ) and one in five had not made any payments 1 year postpartum (26% vs. 5% of commercially insured births,  $p < 0.001$ ). Among the commercially insured, those with incomes under 200% of the federal poverty level (FPL) fared worse financially than those above 200% FPL on a number of indicators, including debt in collection (33% vs. 13%,  $p < 0.001$ ) and financial worry (55% vs. 34%,  $p < 0.001$ ).

**Conclusions:** The cost of childbirth and postpartum health care results in significant and persistent financial hardship, particularly for families with lower income with commercial insurance. Medicaid offers greater protection for families with low income by offering reduced cost sharing for childbirth and postpartum health care, but even minimal cost sharing in Medicaid causes financial strain.

**Keywords:** Medicaid, commercial insurance, maternal health.

CHILD BIRTH IN THE UNITED STATES CAN BE EXPENSIVE. THE TOTAL COST depends on a number of factors including geographic region, type of delivery, length of stay, and maternal and neonatal complications.<sup>1</sup> The out-of-pocket (OOP) costs (i.e., those borne by patients and families) also largely depend on insurance type (commercial or Medicaid). About half of people who give birth in the United States are covered by commercial insurance, which typically requires significant cost sharing in the form of deductibles, copayments, and coinsurance. Although prenatal care visits and the single routine postpartum visit are deemed preventive services exempt from cost sharing under the Affordable Care Act (ACA), many routine tests such as ultrasounds, other postpartum follow-up care, neonatal care, and the childbirth hospitalization itself are not.<sup>2</sup> An analysis of large employer health plan claims from 2018 to 2020 found that the health care costs associated with pregnancy, childbirth, and postpartum care averaged nearly \$19,000, of which \$3,000 were paid OOP by patients.<sup>3</sup> These costs are more than many families can afford; one-third of multiperson households and half of single-person households would not have the liquid assets needed to cover the typical cost sharing for perinatal care in commercial plans.<sup>4</sup>

The remainder of people who give birth are mostly covered through Medicaid.<sup>5</sup> Federal law requires all state Medicaid programs to cover pregnant people below 133% of the federal poverty level (FPL) from conception through 60 days postpartum. Most states are more generous, with the national average for pregnancy-related Medicaid eligibility at 200% of the FPL.<sup>6</sup> For context, a single person making under \$28,160, or a family of three making less than \$49,720 would be eligible for pregnancy-related Medicaid in most states. States have some latitude to impose limited cost sharing in Medicaid, usually in the form of modest copayments for services or prescriptions. These are typically nominal, not imposed by all states, and are not permitted for pregnancy-related services. Existing evidence, however,

suggests even very low cost sharing can impact care utilization and the finances of families with low income.<sup>7</sup>

For both Medicaid-insured and non-Medicaid-insured births, the OOP spending associated with childbirth and postpartum care coincides with other costs from the addition of a new family member, including child care costs.<sup>8</sup> For many families, childbirth also coincides with decreased labor force participation in the form of unpaid family leave, transitions to part-time employment, or leaving the workforce.<sup>9,10</sup> Large OOP costs for childbirth and postpartum health care could also lead to debt collections and affect families' short- and long-term financial outcomes.<sup>11</sup> There is robust literature demonstrating that health insurance and associated cost-sharing policies can be important drivers of health care access and financial health.<sup>12–16</sup> Although analyses of public and commercial insurance claims data have quantified the total OOP costs of perinatal care, less is known about how families pay for these costs and their impact on financial well-being. Using representative multistate survey data, the objective of this descriptive study was to estimate the scope and impact of OOP spending for childbirth and health care in the year following birth by type of health insurance at birth and household income.

## Methods

### *Data Source and Sample*

Our study uses linked data from the Postpartum Assessment of Health Survey (PAHS), the Pregnancy Risk Assessment Monitoring System (PRAMS), and birth certificates. The PRAMS is a federal survey that monitors maternal experiences during preconception, during pregnancy, and shortly after birth, led by the Centers for Disease Control and Prevention (CDC) and implemented by city and state public health departments.<sup>17</sup> Each participating PRAMS state and city draws a stratified random sample of people who had a live birth from state and city birth certificates each month. The PAHS followed up with 2020 PRAMS survey respondents (i.e., those who had a live birth in 2020) 12–14 months after birth in six states (Kansas, Michigan, New Jersey, Pennsylvania, Utah, and Virginia) and New York City (NYC), creating a longitudinal representative sample with individual-level linkages to both the PRAMS and birth certificates. PAHS data collection took place from January 2021 through March 2022. The PAHS study was approved by the institutional review boards at Columbia University, Rutgers University, and each study jurisdiction. More detail on the survey methodology is in Appendix 1.

### *Measures*

We measured five primary self-reported outcomes related to OOP spending and financial strain: (1) OOP spending on childbirth, none, \$1–\$1,000, and  $\geq$ \$1,000; (2)

OOP spending on postpartum care (i.e., all health care in the year since childbirth), none, \$1–\$1,000, and  $\geq$ \$1,000; (3) being very or somewhat worried about paying health care bills in the past 12 months; (4) having *any debt* in collections since childbirth; and (5) having *medical debt* in collections since childbirth. Worry about health care bills and any debt in collection broadly encompasses overall household financial strain, as they intersect with, but are not limited to, costs associated with pregnancy, childbirth, or postpartum care. Medical debt in collection is specific to medical debt but was not specific to the birthing person or debts accrued during pregnancy or childbirth. We also assessed two secondary outcomes. Restricted to those with any OOP spending on childbirth ( $\geq$ \$1), we measured (1) the method of payment for childbirth (cash or check, credit card, borrowed money from friends or family, skipped or paid other bills late, or have not made any payments yet), and (2) whether respondents still owed money for their childbirth. All outcomes were measured on the PAHS at 12–14 months postpartum.

### *Covariates*

Our primary independent variable was self-reported health insurance at birth from the PAHS defined as either Medicaid or commercial insurance (including military or TRICARE coverage). For the 0.3% missing responses, we imputed the primary payer at birth listed on the birth certificate. We excluded people without insurance for birth because this represented only 3.2% of the sample ( $n = 145$ ; see Appendix 2).

We measured self-reported sociodemographic characteristics from the PAHS that could be associated with the cost of birth and financial outcomes, including age (18–24, 25–29, 30–34, or  $\geq$ 35 years), marital status (unmarried, partnered, or married), education (less than high school, high school graduate or General Educational Development (GED), some college, or bachelor's or graduate degree), race and ethnicity (non-Hispanic White; non-Hispanic Black; Hispanic or Latino; Asian, Asian American, Native Hawaiian or Pacific Islander, or Southwest Asian and North African (Middle Eastern); Native American or Alaska Native; or multiple minority races), and household income as a percent of the 2021 FPL. We measured urbanicity with zip codes that were converted to Rural-Urban Continuum Code (RUCC) classifications (RUCC  $> 3$  was classified as rural; RUCC  $< 3$  as urban/suburban). For variables with an equivalent measure in the PRAMS or the birth certificate (age, marital status, education, race and ethnicity, income, insurance at birth, and cesarean delivery), we imputed values that were missing in the PAHS.

Pregnancy risk factors, which could influence the total cost of perinatal care and affordability of care, were measured from birth certificates, the PRAMS, and the PAHS. These included smoking during pregnancy, low birthweight ( $< 2,500$  g), preterm birth ( $< 37$  weeks), cesarean delivery, prepregnancy obesity (body mass index [BMI]  $\geq 30$ ), and self-reported diagnosis of any chronic condition (asthma,

diabetes, hypertension) or mood disorders (depression, anxiety, or another mood disorder) before or during pregnancy. See Appendices 2 and 3 for more information about survey measures and data sources. The survey questions, data sources, and missingness for all study measures are reported in Appendix 3. Appendix 4 shows sample size by study jurisdiction and insurance type at birth.

### *Statistical Approach*

The primary objective of this study was to describe financial outcomes for individuals with Medicaid and commercial insurance at birth. To do so, we present unadjusted survey-weighted rates of the outcomes stratified by insurance type. To compare the experiences of individuals by insurance type, we also present marginal differences in the predicted probabilities of financial outcomes by insurance type at birth based on unadjusted logistic regression models (using the Stata margins command at covariates set at observed values) and with 0 for commercial insurance and 1 for Medicaid. These unadjusted differences should be interpreted as reflecting both differences resulting from the different sociodemographic and health profile of each group, differences in health care use and providers, and exposure to different insurance features (premiums and cost sharing).

Although it is not possible to equate the Medicaid and commercially insured population, we also conducted a sensitivity analysis adjusting for several sociodemographic and clinical factors that could partially explain differences in financial outcomes beyond insurance itself, including age, marital status, education, race and ethnicity, household income, smoking, any chronic conditions or mood disorder, obesity, low birthweight, preterm birth, and cesarean delivery. For all measures except OOP spending for childbirth, we additionally adjusted for reporting having a postpartum visit to account for potential differences in utilization between the two programs.

All estimates were weighted to be representative of live births in 2020 in the seven participating jurisdictions. The PAHS weights were built on the CDC PRAMS analytic weights to account for the PRAMS stratified survey design, PRAMS nonresponse, and PAHS nonresponse. We conducted statistical tests using two-sided tests and a significance level of 0.05. All analyses were conducted using Stata version 17.

*Subgroup Analyses.* Medicaid OOP Spending for Childbirth by Jurisdiction. Because cost sharing for Medicaid is determined by state policy, we assess OOP spending on childbirth for each study jurisdiction using NYC (reflecting New York state Medicaid policy) as the referent category. Because pregnancy Medicaid, by definition, serves populations with lower incomes (household income  $\leq 200\%$  of the FPL) and high cost sharing is federally restricted, we lowered the thresholds for the OOP categorical variable (none, \$1-\$500, and  $\geq$ \$500).

Families with Commercially Insured Births by Income. Using the FPL eligibility cutoffs for pregnancy Medicaid ( $\leq 200\%$  FPL) to differentiate postpartum people at lower and higher incomes, we examine our primary and secondary outcomes on the

subset of respondents who had commercial insurance at the time of birth by income ( $\leq 200\%$  vs.  $\geq 200\%$  FPL). This definition of low- or high-income households, although imperfect, is intended to highlight cost exposure for the commercially insured population that in theory meets household income eligibility for pregnancy Medicaid.

## Results

Of the 8,473 eligible PRAMS respondents in the seven study jurisdictions, 72% opted to be recontacted at 12 months postpartum ( $n = 6,021$ ) and 76% completed the PAHS (total PAHS sample of 4,598). After excluding respondents with no insurance at birth ( $n = 145$ ), the analytic sample consisted of 4,453 postpartum people, 1,544 with a Medicaid-insured birth (weighted percent 39.6%) and 2,909 with a commercially insured birth (60.4%). Table 1 shows the sociodemographic, health, and birth characteristics of the sample overall and by insurance type at birth. Compared with those with a commercially insured birth, people with a Medicaid-insured birth were less likely to be non-Hispanic White (37% vs. 68%,  $p < 0.001$ ) and more likely to be younger (18-24, 9% vs. 33%,  $p < 0.001$ ), unmarried/not in a domestic partnership (8% vs. 43%,  $p < 0.001$ ), of lower educational attainment (less than high school, 2% vs. 17%,  $p < 0.001$ ), and lower income ( $< 100\%$  FPL, 7% vs. 57%,  $p < 0.001$ ). There was no meaningful difference by geography (urban/suburban, 90% vs. 89%,  $p = 0.55$ ). Individuals with a commercially insured birth were less likely to report smoking during pregnancy (2% vs. 11%,  $p < 0.001$ ) and to have had a low birthweight infant (6% vs. 7%;  $p < 0.001$ ), preterm birth (8% vs. 9%;  $p = 0.01$ ), and cesarean delivery (29% vs. 33%,  $p = 0.04$ ) than those with a Medicaid-insured birth. There were no meaningful differences by insurance status in diagnoses of chronic conditions (27% vs. 27%,  $p = 0.62$ ) or mood disorders (23% vs. 23%,  $p = 0.79$ ).

### Primary Outcomes

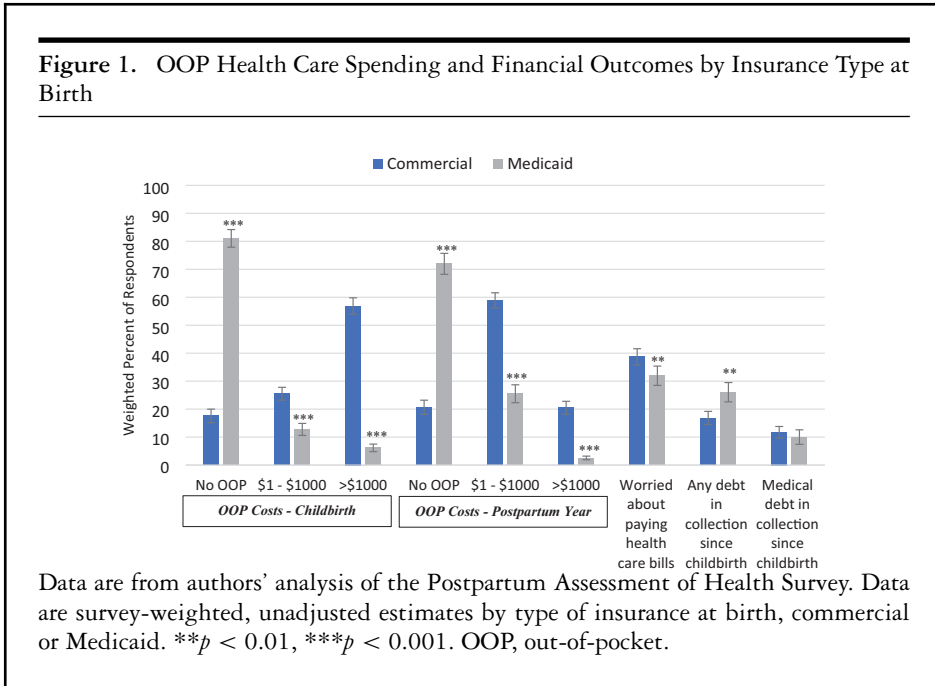
Figure 1 shows the survey-weighted unadjusted rates of the primary financial outcomes for Medicaid-insured and commercially insured births. People with Medicaid-insured births were more likely than those with commercially insured births to report they did not have any OOP spending on childbirth (81% vs. 17.6%,  $p < 0.001$ ) or OOP spending on health care in the postpartum period (72% vs. 20.6%,  $p < 0.001$ ). Births that cost more than \$1,000 were significantly more common among commercially insured births than Medicaid-insured births (56.9% vs. 6.2%,  $p < 0.001$ ). Spending more than \$1,000 on health care in the postpartum period was also more common among commercially insured births than Medicaid-insured births (20.5% vs. 2.5%,  $p < 0.001$ ). Worry about paying health care bills was prevalent across both groups but higher among those with commercially insured births relative to

Table 1. Sample Characteristics by Insurance Status at Birth

Characteristics	Commercial, N (Weighted %)	Medicaid, N (Weighted %)	<i>p</i> Value
Age, years			
18-24	292 (9.5)	426 (32.5)	0.00
25-29	755 (24.6)	454 (28.4)	0.00
30-34	1 099 (40.3)	384 (21.5)	0.00
≥35	763 (25.6)	280 (17.5)	0.00
Marital status			
Unmarried/no domestic partner	226 (8.4)	654 (42.8)	0.00
Married/domestic partnership	2 683 (91.6)	890 (57.2)	0.00
Educational attainment			
Less than high school	40 (2.6)	251 (17.4)	0.00
High school graduate or GED	284 (10.1)	576 (40.5)	0.00
Some college	696 (22.3)	506 (30.2)	0.00
Bachelor's or graduate degree	1 889 (65.0)	211 (11.9)	0.00
Race and ethnicity			
White, non-Hispanic	2 037 (67.1)	552 (36.2)	0.00
Black, non-Hispanic	232 (8.3)	392 (25.8)	0.00
Hispanic or Latino	304 (10.9)	437 (27.3)	0.00
Asian, Asian American, NHPI, or SWANA	291 (12.5)	93 (7.3)	0.00
Native American or Alaska Native	18 (0.3)	29 (1.6)	0.00
Multiple minority races	27 (0.9)	39 (1.8)	0.00
Urban or suburban	2 571 (90.3)	1 322 (89.3)	0.55
Household income (FPL, %)			
<100%	196 (8.1)	872 (57.4)	0.00
100%-138%	161 (3.8)	284 (22.6)	0.00
139%-199%	289 (8.9)	151 (10.7)	0.00
200%-399%	1 175 (41.7)	130 (8.8)	0.00
≥400%	1 059 (37.5)	9 (0.6)	0.00
Pregnancy and birth characteristics			
Smoked during pregnancy	54 (2.1)	206 (10.6)	0.00
Any chronic physical conditions	806 (26.5)	464 (27.5)	0.62
Mood disorder	733 (22.8)	396 (23.4)	0.79
Low birthweight	693 (6.0)	468 (9.6)	0.00
Preterm birth	548 (7.8)	375 (11.1)	0.01
Cesarean birth	966 (28.6)	579 (33.1)	0.04

FPL, federal poverty level; GED, General Educational Development; NHPI, Native Hawaiian or Pacific Islander; SWANA, Southwest Asian and Northwest African.

Data are from authors' analysis of the Postpartum Assessment of Health Survey.



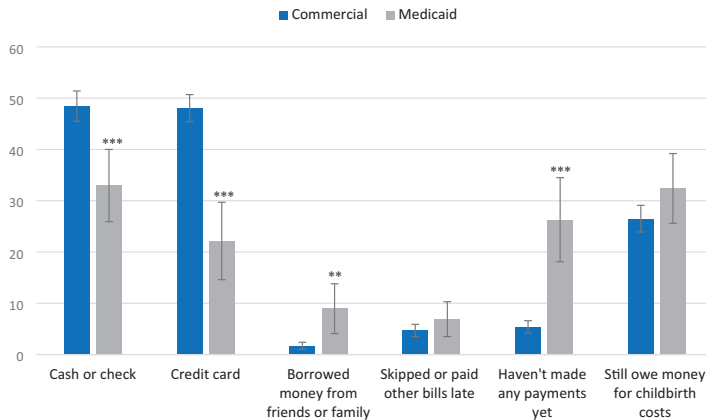
Medicaid-insured births (38.7% vs. 31.9%,  $p < 0.01$ ). Despite higher OOP costs for perinatal care, those with commercially insured births were less likely to have debt in collections than those with Medicaid-insured births (16.8% v. 26.2%,  $p < 0.001$ ) and there were no differences in the probability of having medical debt in collections (11.8% vs. 10%,  $p = 0.33$ ).

### *Sensitivity Analysis Adjusting for Covariates With Primary Outcomes*

Insurance differences were largely consistent, though they tended to be smaller in magnitude after adjusting for sociodemographic and clinical characteristics (Appendix 5). There were a few notable exceptions. Differences in reported worry about paying health care bills by coverage were considerably larger after adjustment; postpartum people with Medicaid-insured births were  $-17.9$  percentage points ( $p < 0.001$ ) less likely to be somewhat or very worried than those with commercial insurance at birth (compared with  $-6.8$  percentage points,  $p < 0.001$  in unadjusted models). Conversely, adjusting for covariates in models of debt collections since childbirth resulted in a change in sign, with commercially insured births having a higher adjusted probability of debt collections than Medicaid (23.4% vs.



**Figure 2.** Payment Methods for Childbirth and Medical Debt in Collection Among Postpartum People With Out-of-Pocket Childbirth Costs by Insurance Type at Birth

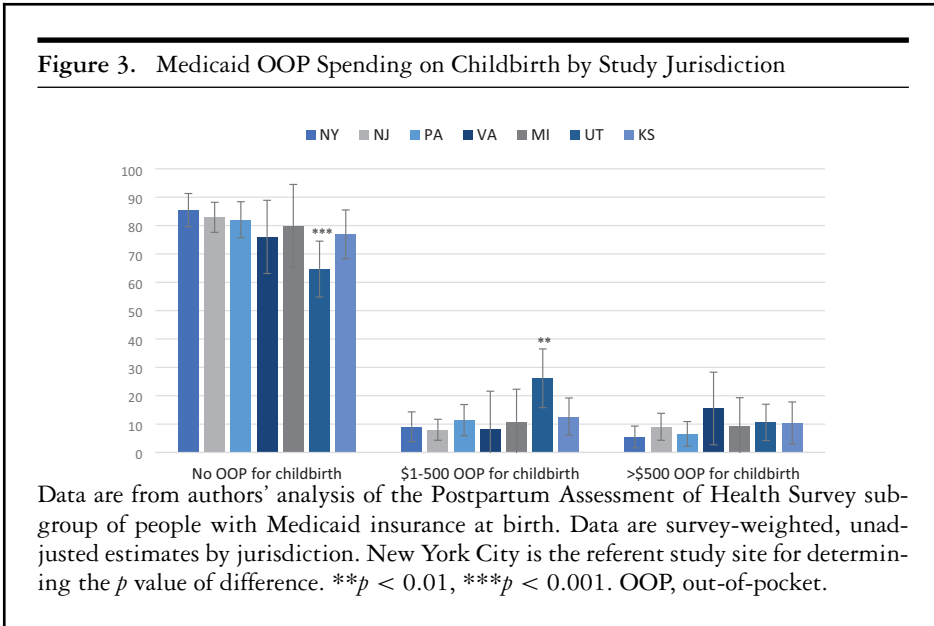


Data are from authors' analysis of the Postpartum Assessment of Health Survey. Data are survey-weighted, unadjusted estimates by type of insurance at birth, commercial or Medicaid. Respondents could check all that applied for payment method. Error bars represent 95% confidence intervals. \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

15.4%,  $p < 0.01$ ). Differences in medical debt in collection since childbirth also became statistically significant, with commercially insured births having a higher adjusted likelihood of medical collections than Medicaid-insured births (16.7% vs. 6%,  $p < 0.001$ ).

### Secondary Outcomes

Figure 2 shows that in survey-weighted unadjusted models conditional on having any ( $\geq \$1$ ) OOP costs for childbirth, Medicaid enrollees were less likely to have paid by cash or check than commercially insured people (33% vs. 48.4%,  $p > 0.001$ ) and more than twice as likely to have paid using a credit card (48% vs. 22.2%,  $p < 0.001$ ). Although there were no differences between Medicaid-insured births and commercially insured births in the probability of still owing money for childbirth at 12 months postpartum (32.4% vs. 25.6%,  $p = 0.12$ ), people with Medicaid-insured births were more likely to report they had not made any payments toward those costs (26.3% vs. 5.4%,  $p < 0.001$ ).



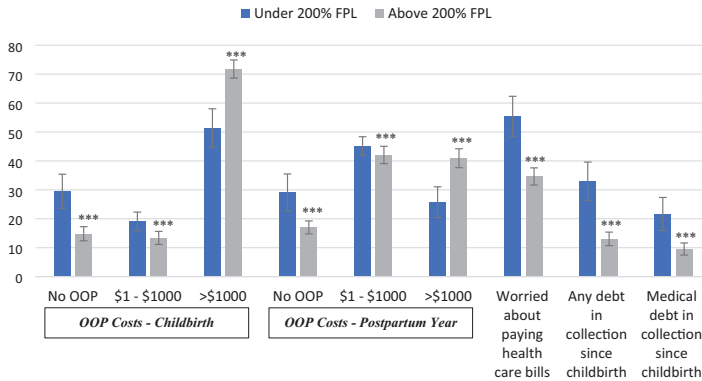
### *Medicaid OOP Spending for Childbirth by Jurisdiction*

Figure 3 shows the survey-weighted unadjusted variation in reported OOP childbirth costs among people with Medicaid-insured births across the seven study jurisdictions. The percentage of respondents reporting  $\geq \$1$  OOP costs for their Medicaid-insured birth ranged from 17.5% in New Jersey to 32.8% in Utah. Only Utah was statistically significantly different from NYC (17.1 percentage points higher,  $p < 0.001$ ). With the exception of Utah (11.1%), less than 10% of the Medicaid sample reported paying \$500 or more on childbirth, and no states were statistically different than NYC.

### *Commercially Insured Births Under and Above 200% FPL*

Figure 4 presents the survey-weighted unadjusted subgroup analysis of commercially insured births, comparing those with household incomes under and above 200% FPL. Postpartum people under 200% FPL were less likely to report having any OOP costs associated with childbirth (29% vs. 14%,  $p < 0.001$ ) or health care in the postpartum year (29% vs. 16%,  $p < 0.001$ ) relative to those above 200% FPL. Similarly, commercially insured people under 200% FPL were less likely to report OOP costs for childbirth above \$1,000, compared with those above 200% FPL (51% vs. 71%,  $p < 0.001$ ). Despite facing lower absolute OOP costs, people under 200% FPL were

**Figure 4.** OOP Health Care Spending and Financial Outcomes Among Commercially Insured Postpartum People by Average State Income Eligibility Threshold for Pregnancy Medicaid



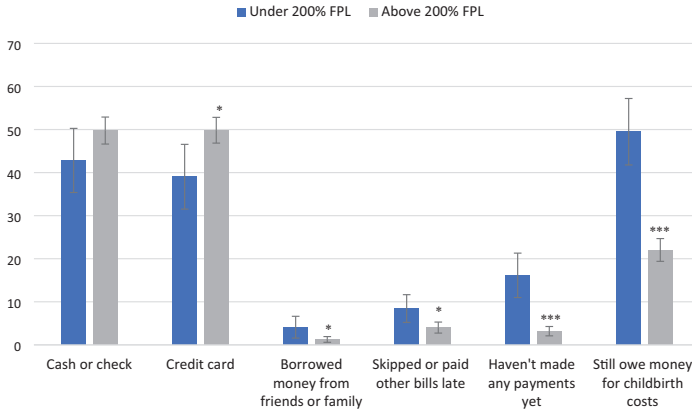
Data are from authors' analysis of the Postpartum Assessment of Health Survey. Data are survey-weighted, unadjusted estimates by average state income eligibility threshold for pregnancy Medicaid (above or below 200% FPL). Error bars represent 95% confidence intervals. The  $p$  value is for the outcome comparison between commercially insured respondents with household incomes under and above 200% FPL. \*\*\* $p < 0.001$ . FPL, federal poverty level; OOP, out-of-pocket.

more likely to be worried about health care bills than their higher income counterparts (55% vs. 34%,  $p < 0.001$ ), have any debt in collections since childbirth (32% vs. 13%,  $p < 0.001$ ), and have medical debt in collections (21% vs. 9%,  $p < 0.001$ ). As shown in Figure 5, Conditional on any OOP spending on childbirth, those under 200% FPL were more likely to have borrowed money from friends or family (4% vs. 1%,  $p = 0.03$ ) and skipped or paid other bills late to pay for childbirth costs (8% vs. 4%,  $p < 0.01$ ), relative to those above 200% FPL. Notably, those under 200% FPL were much more likely to still owe money for childbirth (49% vs. 22%,  $p < 0.001$ ) and to have not made any payments on childbirth yet (16% vs. 3%,  $p < 0.001$ ). In sensitivity analyses adjusting for covariates, debt and medical debt in collection were no longer statistically different by income level among the commercially insured (Appendix 6).

## Discussion

In this cross-sectional study of representative survey data from six states and NYC, we observed high levels of financial exposure related to childbirth that persisted into

**Figure 5.** Payment Methods for Childbirth and Medical Debt in Collection Among Commercially Insured Postpartum People With Out-of-Pocket Childbirth Costs by Average State Income Eligibility Threshold for Pregnancy Medicaid



Data are from authors' analysis of the Postpartum Assessment of Health Survey subgroup of people with commercial insurance at birth. Data are survey-weighted, unadjusted estimates by average state income eligibility threshold for pregnancy Medicaid (above or below 200% FPL). Respondents could check all that applied for payment method. Error bars represent 95% confidence intervals. The  $p$  value is for the outcome comparison between commercially insured respondents with household incomes under and above 200% FPL. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . FPL, federal poverty level.

the postpartum year, with significant differences by health insurance type. Our findings are consistent with prior quasi-experimental research on the long-term negative financial consequences of nonpregnancy-related hospitalizations, despite health insurance.<sup>18</sup> Over half of people with commercially insured births spent more than \$1,000 OOP on childbirth, and nearly 40% reported being somewhat or very worried about paying health care bills. People with lower income with commercially insured births reported particularly high financial strain: nearly half still owed money for childbirth costs, 16% had not made any payments yet at 12 months postpartum, and one in five had medical debt in collections. A prior study found that OOP spending for commercially insured births is on the rise, mainly due to higher deductibles, and our findings confirm what other research has shown, that OOP spending on childbirth can become unmanageable debt.<sup>19–22</sup>

Overall, we found that Medicaid is financially protective for birthing families relative to commercial insurance, which is consistent with prior literature on other

patient populations.<sup>13</sup> For example, following the simultaneous rollout of Medicaid expansion and the ACA marketplace in Colorado, research found that relative to Medicaid, OOP spending in the ACA marketplace was ten times higher.<sup>13</sup> The vast majority of people with a Medicaid-insured birth did not have any OOP spending on childbirth or health care in the postpartum year (80%). However, even minimal amounts of cost sharing were associated with outstanding medical debt. Among Medicaid enrollees with any OOP spending for childbirth, one in three still owed money and more than one in four had not made any payments at the time of the survey 12–14 months after birth. It is notable that the percentage of families who were worried about paying health care bills was above 30%, regardless of the type of insurance at birth.

Debt collection in the year postpartum was significant for the study sample and, for commercially insured births, largely driven by medical debt. After adjusting for demographic and birth characteristics, about one in four people with commercially insured births and almost one in five people with Medicaid-insured births had experienced a debt in collections since giving birth.

Poor financial outcomes related to the costs of childbirth and health care in the postpartum year are worth careful consideration. Stress associated with finances could contribute to worsened mental health in the postpartum period. Indeed, there is evidence that financial stress in the prenatal period is associated with maternal postpartum depression.<sup>23,24</sup> Additionally, medical debt can be thought of as a social determinant of health and has plausible spillover effects on other domains of family life such as housing stability, food security, and access to childcare.<sup>25,26</sup> Investing in the finances of new families can have powerful implications for the development of children as well. A randomized controlled trial found that direct poverty reduction in the first year of life increased infant brain activity, which is associated with later cognitive skills.<sup>27</sup>

## Policy Implications

Several targeted policy implications follow from our findings. First, to address financial strain associated with Medicaid debt, the Centers for Medicare and Medicaid Services or states could eliminate all cost sharing for pregnant and postpartum people in Medicaid and the Children's Health Insurance Program (which in some states, covers pregnancy for women with incomes above the Medicaid threshold).<sup>28</sup> Medicaid cost sharing is optional for states and limited by federal regulations, particularly in pregnancy-related services (see Appendix 7 for state Medicaid copay policies).<sup>29</sup> Prior studies have found that state revenues raised by Medicaid cost sharing are offset by new costs, including administrative costs and increased use of emergency room care.<sup>29</sup> Our findings demonstrate that cost sharing results in outstanding medical debt for birthing families with Medicaid. Interestingly, it is possible that a significant

number of individuals with Medicaid at birth in our survey were enrolled in ACA-expansion Medicaid, rather than pregnancy Medicaid, and could have been exposed to cost sharing otherwise prohibited for pregnancy- and childbirth-related services. Transitioning from one form of coverage to the other would have required an active change in enrollment status. Although this could help explain why some Medicaid enrollees were exposed to cost sharing and others were not (among alternative explanations), the bigger implication is related to postpartum coverage; individuals with pregnancy Medicaid are eligible for 12 months of continuous postpartum coverage in all of our study jurisdictions and across most states nationally.<sup>30</sup> States should examine their processes to identify and seamlessly transfer pregnant Medicaid enrollees to pregnancy Medicaid as soon as possible or take other measures to ensure continuous coverage is applied to birthing people with ACA-expansion Medicaid.

A second policy implication is that birthing people with low income with commercial insurance need greater financial protections from OOP costs. One possible solution for commercially insured people with low income is to use Medicaid as supplementary insurance. Having other health insurance does not disqualify individuals from applying and receiving Medicaid if they meet income thresholds of eligibility. People who are enrolled simultaneously in Medicaid and commercial insurance (i.e., wrap-around coverage) could rely on Medicaid to lower their OOP cost exposure.<sup>31</sup> Medicaid's third-party liability rules generally have the program act as the payer of last resort, meaning that other payers are liable before Medicaid pays for care<sup>32</sup>; Medicaid coverage would be applied to deductibles, copayments, and coinsurance, and cost sharing charged to the patient would be limited to allowable Medicaid levels.<sup>33</sup> Medicaid can also offer benefits that may not be available with commercial insurance, such as transportation and dental care (in states where dental coverage is covered by Medicaid). Simultaneous enrollment may be especially promising for those with employer-sponsored insurance because Medicaid eligibility affects federal subsidies for plans purchased on state marketplaces or Healthcare.gov. Wrap-around coverage could meaningfully protect vulnerable families and could potentially benefit providers as well, ensuring they are fully reimbursed for services rendered. Such a policy approach would be limited, however, to individuals who meet Medicaid income eligibility requirements.

To achieve broader reach, state legislatures or Congress could choose to exempt certain pregnancy or postpartum services from cost sharing in plans under their purview. For states, this includes traditional employer-sponsored (large group) insurance and state marketplace plans. Congress has authority to limit cost sharing across all types of commercial plans, as they have already done with some preventive care services and contraceptive services under the Women's Health Amendment.<sup>34</sup> Federal legislation could also take a more tailored approach, eliminating pregnancy and postpartum cost sharing for a defined population with low income (e.g., under 200% FPL). Eliminat-

ing cost sharing in any setting can lead to increased premiums, but it could meaningfully increase access at the point of service for pregnant and postpartum people.

A third policy implication relates to the high prevalence of medical debt in collections among our sample and potential long-term repercussions for overall credit scores and access to borrowing.<sup>20,21</sup> Of note, the Consumer Financial Protection Bureau recently began a rule-making process that would remove medical bills from credit reports, which would significantly benefit many birthing families across insurance types.<sup>35</sup>

## Limitations

This study has several limitations. First, this is a descriptive observational study, and the study design does not allow for causal inference on the role of health insurance in postpartum financial outcomes. Second, we are unable to observe coverage or plan characteristics (i.e., deductibles, cost-sharing requirements) directly. Although a meaningful number of people with Medicaid-insured births endorsed medical debt related to childbirth, we know cost sharing in Medicaid is prohibited for pregnancy-related services. We cannot tell if the OOP charges are related to specific services (e.g., ultrasounds over the approved limit) or providers who do not accept Medicaid or something else. Relatedly, we cannot observe the type of Medicaid someone was enrolled in; it is possible that somebody with ACA-expansion Medicaid could become pregnant without notifying the state and incur cost sharing potentially prohibited in pregnancy Medicaid, although services that are clearly pregnancy related should still be exempt. Third, this study focused on the postpartum year after 2020 births, which took place squarely in the context of the COVID-19 pandemic. There were notable federal and state investments in supporting Americans with lower income during this period. The Families First Coronavirus Response Act established continuous Medicaid coverage from March 2020 forward, and the federal government issued several stimulus payments targeted toward families with lower and middle income.<sup>36</sup> Eviction moratoria and other housing protections also focused on families with lower income, and the pandemic prompted large-scale changes in health care utilization, employment, child care, and other economic activity. How these economic events changed household finances related to childbirth and postpartum OOP costs is unknown but could mean that families were in fact better resourced during COVID-19 and our estimates of financial strain are conservative. Fourth, although we have state representation from all four major census regions, there was greater representation in Mid-Atlantic states. The average pregnancy-related Medicaid threshold among the study sites was similar to the national average (203% vs. 200% FPL), but each state has slightly different compositions in their Medicaid populations and program cost sharing, and results may not generalize to all states. Last, our study has weaknesses

related to surveys as a mode of data collection. Although our estimates are weighted to be representative of populations included in our study sites, individuals with the highest needs may be less likely to respond to surveys, and because the PAHS was in English and Spanish, individuals with other primary languages may also be underrepresented. Self-reported measures can be subject to recall and response bias, and our measure of income is not precise.

## Conclusions

We found that the cost of childbirth and postpartum care resulted in substantial financial hardship for many families that persisted even at 12–14 months postpartum. Medicaid can offer greater protection for families with low income by eliminating cost sharing for childbirth and postpartum health care and potentially by serving as a secondary insurer to eligible birthing people with low income with commercial insurance. These policy changes would come at a crucial time for families.

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## Appendix 1: When the Bough Breaks: The Financial Burden of Childbirth and Postpartum Care by Insurance Type

The Postpartum Assessment of Health Survey (PAHS) study sites were considered on the following criteria: (1) consistently meeting the Centers for Disease Control and Prevention (CDC) Pregnancy Risk Assessment Monitoring System (PRAMS) response rate threshold required for jurisdictions to publicly report data (>50%), (2) having sufficient PRAMS sample size (>1,000 annual respondents), (3) geographic diversity considering the first two constraints, and (4) willingness and capacity to collaborate with our study team. Study sites represent all four major US Census regions: West (Utah), Midwest (Kansas and Michigan), Northeast (New Jersey, New York City, and Pennsylvania), and South (Virginia).

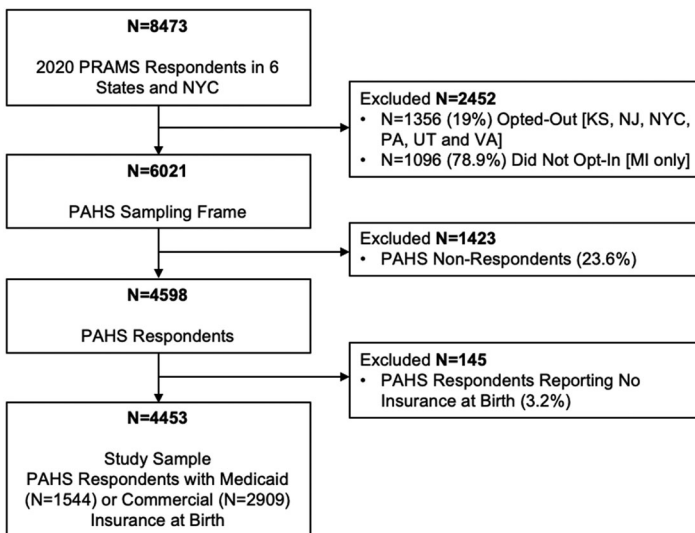
The PRAMS sampling frame was a stratified random sample of live births in 2020, drawn monthly from state and city birth certificates. PRAMS respondents were recruited shortly after birth via a mail/phone survey (median response 4 months).

Individuals in the PRAMS sampling frame in PAHS study sites were mailed study materials that included an opt-in (Michigan) or opt-out (six other sites) card assenting to being recontacted at 12 months postpartum by the Columbia University PAHS study team. From January 2021 to March 2022, individuals who opted in, or did not opt out, were contacted in monthly batches by mail, phone, and/or email until survey completion or 14 months postpartum, whichever came first. Of 8,473 (2020) PRAMS respondents in the PAHS study sites, 6,021 opted to be recontacted at 12 months postpartum and 4,598 responded to the PAHS (a response rate of 76.4% from the sample frame of 6,021; Appendix 2).

The PAHS consisted of 108 questions about health, health care, social needs, and finances in the first year postpartum. Survey questions were largely derived from validated scales in the PRAMS and other population health surveys and were developed with input from participating state health departments and multidisciplinary survey experts. The PAHS was offered online and by phone in English and in Spanish. Most of the PAHS respondents completed the survey online (97.4%) and in English (92.9%).

Survey weights were built on the CDC PRAMS analytic weights, accounting for nonresponse to both the PRAMS and PAHS and were calibrated to be representative of 2020 births for each study site by maternal age, race and ethnicity, marital status, education, sampling strata, and infant birthweight based on known population totals from 2020 birth records.

## Appendix 2: Study Flow Diagram



NYC, New York City; PAHS, Postpartum Assessment of Health Survey; PRAMS, Pregnancy Risk Assessment Monitoring System.

Appendix 3: Study Measures, Data Sources, and Survey Questions

Appendix 3: Study Measures, Data Sources, and Survey Questions	
Measure	Data Source (PRAMS, BC, or PAHS) and Missingness in Analytic Sample
Sample characteristics	
Age	PAHS; missing values imputed from BC; 0% missing after imputation
Race and ethnicity	PAHS; missing values imputed from BC; 0.04% missing after imputation
Marital status	PAHS; Missing values imputed from BC; 0% missing after imputation
Education	PAHS; missing values imputed from BC; 0% missing after imputation
Urbanicity	PAHS; missing values imputed from BC; 1.1% missing after imputation
	Survey Question (PRAMS or PAHS only) or Birth Certificate Variable
	Q4: How old are you? MAT_AGE_NAPHSIS: Maternal age group
	Q13: Which categories describe your race or origin? MAT_RACE: Maternal race
	Q7: What is your current marital status? MARRIED: Marital status
	Q12: What is the highest level of school you have completed or the highest degree you have received? MAT_ED: Maternal education
	Q18: How would you describe the community where you currently live? URB_RUR: Urban/rural category

Measure	Data Source (PRAMS, BC, or PAHS) and Missingness in Analytic Sample	Survey Question (PRAMS or PAHS only) or Birth Certificate Variable
Household income	PAHS; missing values imputed from PRAMS; 2.9% missing after imputation	<p>Q9: What is your yearly total household income now, before taxes? Include income from all family members living in household (your income, your spouse's or partner's income, and any other income you may have received).</p> <p>Q10: How many children (younger than 18 years of age) live in your household? Only include children who are living with you at least 50% of the time.</p> <p>Q11: How many children (younger than 18 years of age) live in your household? Only include children who are living with you at least 50% of the time.</p> <p>INCOME8: Income – 12 months before taxes, total income</p> <p>INC_NDEP: Income – dependents (including self)</p>

Measure	Data Source (PRAMS, BC, or PAHS) and Missingness in Analytic Sample	Survey Question (PRAMS or PAHS only) or Birth Certificate Variable
Insurance at birth	PAHS; missing values imputed from BC; 0% missing after imputation	Q19: What kind of health insurance did you have when you gave birth? MOMSMOKE: Did mom smoke?
Smoked during pregnancy Any chronic physical condition	BC; 0.7% missing  PAHS; 0.4% missing	Q39: Ever been diagnosed with the following conditions <i>before</i> or <i>during</i> pregnancy: diabetes, high blood pressure, or asthma?
Mood disorder	PAHS; 0.5% missing	Q39: Ever been diagnosed <i>before</i> or <i>during</i> pregnancy with depression, anxiety, or other mood disorder?
Obesity	BC; 1.3% missing	MOM_BMI_BC: Maternal body mass index from BC
Low birthweight	BC; 0.02% missing	GRAM_NAPHSIS: Birth weight grouped into 250-g intervals; numeric value is midpoint of interval GRAM_NAPHSIS < 2,500
Preterm birth	BC; 0.02% missing.	GEST_WK_NAPHSIS: Clinical estimate of gestational age group GEST_WK_NAPHSIS < 37 weeks

Measure	Data Source (PRAMS, BC, or PAHS) and Missingness in Analytic Sample	Survey Question (PRAMS or PAHS only) or Birth Certificate Variable
Cesarean delivery	PAHS; missing values imputed from BC; 0% missing	<p>pb_birth_cs: Did you give birth vaginally or by C-section surgery?</p> <p>DEL_VAG: Vaginal delivery</p> <p>DEL_VCS: Vaginal delivery after C-section</p> <p>DEL_VACM: Vacuum delivery</p> <p>DEL_FORC: Forceps delivery</p> <p>DEL_1CS: First C-section</p> <p>DEL_RCS: Repeated C-section</p>
Outcomes OOP costs for childbirth	PAHS; 5.5% missing	Q85: About how much money did you spend OOP on health care for childbirth? Your best estimate is fine.
Payment method	PAHS; 3.1% missing (among those with >\$0 OOP childbirth costs)	Q86: How did you pay for the health care costs of childbirth? Asked of those who reported >\$0 on Q85. (1) Cash or check, (2) credit card, (3) borrowed money from friends or family, (4) skipped or paid other bills late, (5) have not made any payments yet (check all that apply).



Measure	Data Source (PRAMS, BC, or PAHS) and Missingness in Analytic Sample	Survey Question (PRAMS or PAHS only) or Birth Certificate Variable
Still owe money for childbirth costs	PAHS; 3.6% missing (among those with > \$0 OOP childbirth costs)	Q87: Do you still owe any money for your childbirth costs? Include owing money to any source, such as the hospital, birthing center, midwife, credit cards, or family. Asked of those who reported > \$0 on Q85.
OOP costs for postpartum	PAHS; 7.4% missing	Q88: Since giving birth, how much money have you spent OOP on all other health care for yourself? Do not include costs of childbirth. Your best estimate is fine.
Worried about paying for health care bills	PAHS; 4.1% missing	Q89: In general, how worried are you about paying your health care bills? Very worried, somewhat worried, not at all worried?
Debt in collection since childbirth	PAHS; 6.4% missing	Q91: Have you had any debt go to collections since giving birth?
Medical debt in collection since childbirth	PAHS; 8.1% missing	Q91a: Did this debt collection have anything to do with costs related to your health care? Recoded to be unconditional to Q91.

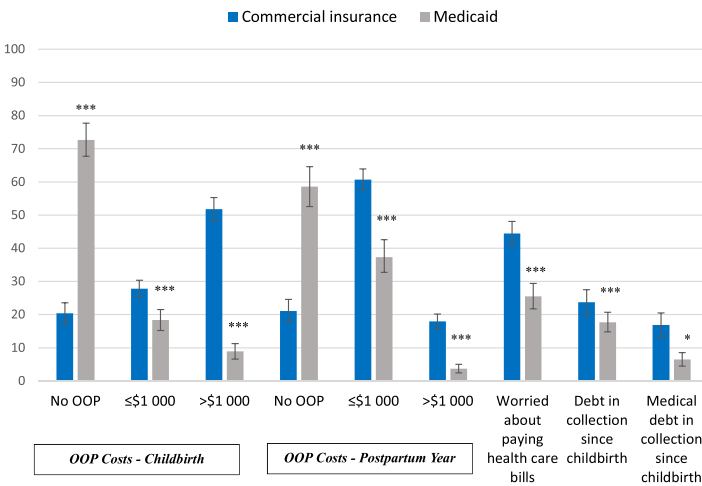
BC, birth certificate; C-section, cesarean section; OOP, out-of-pocket; PAHS, Postpartum Assessment of Health Survey; PRAMS, Pregnancy Risk Assessment Monitoring System; Q, question.

## Appendix 4: Study Sample Sizes by Jurisdiction and Insurance Type at Birth

Jurisdiction	Overall	Commercial	Medicaid
New York City	635	339	296
New Jersey	654	370	284
Pennsylvania	697	447	250
Virginia	614	448	166
Michigan	230	165	65
Utah	883	671	212
Kansas	740	469	271
Total	4,453	2,909	1,544

Data are from authors' analysis of the Postpartum Assessment of Health Survey. Unweighted numbers are presented.

## Appendix 5: Financial Strain and OOP Spending on Childbirth and Postpartum Care, Adjusted Models



Data are from authors' analysis of the Postpartum Assessment of Health Survey. Models are adjusted for age, marital status, educational attainment, race and ethnicity, smoking, any chronic conditions, mood disorder, obesity, low birthweight, preterm birth, and cesarean birth. Models are additionally adjusted for having a postpartum visit, except for the model of OOP costs for childbirth. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . OOP, out-of-pocket.

## Appendix 6: Financial Burden Among Commercially Insured Births by Average State Income Eligibility Threshold for Pregnancy Medicaid (Under or Above 200% FPL), Adjusted Models

Outcomes	Under 200% FPL	Above 200% FPL	<i>p</i> Value
Out-of-pocket costs for childbirth			
None	26.04 (19.77-32.31)	16.80 (12.88-20.72)	0.00
≤\$1-\$1,000	18.92 (15.48-22.37)	15.22 (12.68-17.76)	0.00
>\$1,000	55.04 (47.60-62.48)	67.98 (63.24-72.71)	0.00
Out-of-pocket costs during postpartum year			
None	24.74 (18.93-30.54)	16.81 (13.08-20.53)	0.01
≤\$1-\$1,000	46.93 (43.27-50.59)	44.14 (40.65-47.63)	0.01
>\$1,000	28.33 (22.31-34.35)	39.05 (34.23-43.88)	0.00
Financial worry and debt collection			
Worried about paying health care bills	51.87 (43.53-60.20)	40.42 (35.89-44.95)	0.02
Debt in collection since childbirth	26.05 (19.70-32.40)	21.08 (16.58-25.57)	0.19
Medical debt in collection since childbirth	18.14 (11.91-24.36)	16.67 (11.67-21.66)	0.70

FPL, federal poverty level.

Data are from authors' analysis of the Postpartum Assessment of Health Survey for the subgroup of respondents with commercial insurance at birth. Models are adjusted for age, marital status, educational attainment, race and ethnicity, smoking, any chronic conditions, mood disorder, obesity, low birthweight, preterm birth, and cesarean birth. Models are additionally adjusted for having a postpartum visit, except for the model of out-of-pocket costs for childbirth. 95% confidence intervals are included in parentheses. The *p* value is for the outcome comparison between commercially insured respondents with household incomes under and above 200% FPL.

## Appendix 7: State Medicaid Copayment Policies

Jurisdiction	Fee-for-Service Medicaid	Pregnant Women Below 150% FPL	Pregnant Women at or Above 150% FPL
Kansas	No copayments <sup>1,2</sup>	No copayments	No copayments
Michigan	\$2-\$3 for most services, \$50 for inpatient hospital stay <sup>3,4</sup>	Not exempt, but no cost sharing for pregnancy-related services	Not exempt, but no cost sharing for pregnancy-related services
New York State	\$0.50-\$3 for most services, \$25 for inpatient hospital stay <sup>5</sup>	No copayments	No copayments
New Jersey	No copayments <sup>6</sup>	No copayments	No copayments
Pennsylvania	\$0.50-\$3 for most services, \$21 for inpatient hospital stay <sup>7,8</sup>	No copayments	No copayments
Utah	\$4-\$8 for most services, \$75 for inpatient hospital stay <sup>9</sup>	No copayments	No copayments
Virginia	No copayments <sup>10</sup>	No copayments	No copayments

FPL, federal poverty level.

Federal law bans cost sharing in any eligibility category of Medicaid for pregnancy-related services.<sup>11</sup> Pregnant women with incomes above 150% FPL may be charged premiums and cost sharing for drugs outside preferred formulary.<sup>11,12</sup>

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