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Journal

Journal of Women's Health

ISSN

1540-9996

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Publication Date

2025-12-01

DOI

10.1177/15409996251403450

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Peer reviewed

1 **Health Insurance and Racial and Ethnic Differences in Postpartum Contraception in the U.S.**

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18 *The authors have no conflicts of interest to disclose.*

19 The authors report no financial relationships or conflicts of interest relevant to this article.

20

21 **Health Insurance and Racial and Ethnic Differences in Postpartum Contraception in the U.S.**

22 Abstract

23

24 OBJECTIVE: To explore variations in postpartum contraception in the U.S. by race and ethnicity among patients
25 receiving publicly vs. privately funded healthcare.

26

27 STUDY DESIGN: We analyzed Phase 8 (2016-2021) Pregnancy Risk Assessment Monitoring System (PRAMS) data
28 using multivariate logistic regression models with interaction terms to examine relationships between maternal
29 race and ethnicity, health insurance, and postpartum contraceptive use, controlling for maternal age, education,
30 marital status, parity, pre-pregnancy depression, and whether ever breastfed.

31

32 RESULTS: Of US birthing individuals, 60.3% had privately funded births and 39.7% had publicly funded births. Tubal
33 sterilization was more common after publicly-funded than privately-funded births (13.3% vs 7.0%, $p < 0.001$). Among
34 postpartum patients with private insurance, tubal sterilization was more common among Black (10.6%) and
35 Hispanic/Latine (9.6%) than White (6.4%) birthing people. However, with publicly-funded insurance, tubal
36 sterilization was less common among Black (12.3%) and Hispanic/Latine (13.7%) than White birthing people

37 (14.6%). After publicly-funded births, implant use (8.9% vs 2.8%, $p<0.001$) and injectable contraception (11.4% vs
38 2.7%, $p<0.001$) were more common, while reliance on vasectomy was less common (2.1% vs 5.5%, $p<0.001$) than
39 after privately-funded births, for all racial/ethnic groups. IUD use was less common with public than private
40 insurance among Black birthing people (11.9% vs 16.0%, $p<0.001$). Significant interactions between race and
41 ethnicity and insurance type were observed. Adjusted odds ratios indicated that, compared with private insurance,
42 public insurance was associated with higher odds of tubal sterilization, implant, and injectable use but lower odds
43 of vasectomy for White individuals; higher implant and injectable use but lower IUD and vasectomy use for Black
44 individuals; and higher tubal sterilization, IUD, and implant use but lower vasectomy use for Hispanic/Latine
45 individuals.

46 **CONCLUSIONS:** Racial and ethnic variation in postpartum contraception use differs for publicly and privately
47 insured births in the US.

48

49

50 **KEYWORDS:** Health insurance. Postpartum contraception. Racial and ethnic differences. Contraceptive access

51

52 **Introduction**

53 Supporting reproductive autonomy in the postpartum period requires ensuring that individuals are able to
54 access the full range of contraceptive options and make informed, voluntary choices.^{1, 2} Pregnancy spacing and
55 recovery from childbirth impact both maternal and child health outcomes. However, multiple factors influence the
56 choice and use of postpartum contraception, including personal preferences, cultural beliefs, childcare, and
57 transportation challenges.³ Structural factors, including health system issues and cost, which is influenced by
58 insurance coverage, also shape postpartum contraceptive decisions. Expansions of Medicaid postpartum coverage
59 – through 12-month extensions, ACA Medicaid reform, and COVID-era policies – have improved postpartum
60 insurance coverage for many patients.⁴⁻⁶ Simultaneously, reimbursement policy reforms, such as Medicaid carve-
61 outs and separated billing for immediate postpartum LARC devices and placement increased uptake of long-acting
62 methods in both early and late postpartum windows.⁷⁻⁹

63 Despite these advances, racial and ethnic differences in postpartum contraceptive use have prompted
64 questions about how racism, discrimination and bias operate within health care systems to shape contraceptive
65 experiences and outcomes.¹⁰⁻¹² Black and Hispanic or Latine birthing people who experience discrimination during
66 postpartum contraceptive counseling may be less likely to use postpartum contraception.¹³ White individuals have
67 been reported to be more likely to attend postpartum visits and use postpartum contraception than Black birthing
68 people .^{10, 14, 15} Further, White birthing people more frequently receive their preferred postpartum contraceptive
69 methods than Hispanic or Latine birthing people .¹¹

Health insurance additionally shapes access to contraceptive and other family planning services.^{14, 16, 17}

Despite Medicaid expansion in many states,¹⁸ privately insured patients have been more likely than those with Medicaid to report receiving desired postpartum care and contraception.¹² Since 1973, Medicaid has required that patients sign a federal consent document 30-days prior to a permanent contraceptive procedure, which prevents some patients from obtaining desired postpartum tubal sterilization.¹⁹⁻²¹ However, privately insured individuals have been reported to be less likely than those with Medicaid-funded deliveries to undergo tubal sterilization.^{12, 22, 23}

It remains unclear whether these population-level differences primarily reflect individual preferences versus constraints imposed by the healthcare system. To address this gap, we examine how the relationship between race and ethnicity and postpartum contraceptive use varies by insurance type. We conceptualize these influences at three levels: individual factors, including prior contraceptive counseling;²⁴ provider and health system factors, such as availability of methods and institutional protocols^{25, 26}; and policy-level factors, particularly health insurance coverage and associated barriers^{27, 28}. By focusing on the intersections of race, ethnicity, and insurance coverage, this study aims to illuminate how social, institutional, and policy structures shape postpartum contraceptive use.

This study builds upon existing literature utilizing the Pregnancy Risk Assessment Monitoring System (PRAMS) data to examine postpartum contraceptive use. For instance, a 2014 study found that birthing people with Medicaid-paid deliveries were more likely to use female sterilization, long-acting reversible contraception (LARC), and injectable depot medroxy progesterone acetate (DMPA) compared to those with private insurance.²⁹ A 2015 study highlighted the importance of counseling in influencing postpartum contraceptive choices.³⁰ Another 2015 study indicated geographic variation in postpartum contraceptive method use, with urban/rural differences in

89 access and method selection.³¹ Building upon these studies, our research aims to further explore the interactions
90 between race and ethnicity and insurance type in shaping postpartum contraceptive use, contributing to a more
91 nuanced understanding of the factors influencing contraceptive choices in the postpartum period using the most
92 recently released national data. We hypothesize that associations between race and ethnicity and postpartum
93 contraceptive method use are modified by insurance type, such that racial and ethnic differences in postpartum
94 contraceptive use differ between publicly and privately insured birthing people.

95

96 **Methods**

97 We analyzed data from Phase 8 (2016-2021) of the Pregnancy Risk Assessment Monitoring System (PRAMS),
98 a collaborative surveillance project between the Centers for Disease Control and Prevention (CDC) and various
99 state, territorial, and local health departments involving multiple US jurisdictions. The methodology and survey
100 design of PRAMS have been detailed elsewhere.³² Briefly, PRAMS surveys a sample of birthing people two to four
101 months postpartum, aiming to represent the population of each participating state. Each state randomly selects
102 100 to 250 new birthing people per month from eligible birth certificates, which include demographic and clinical
103 information. For all analyses, we followed the CDC guidelines to include survey weights, which accounts for three
104 components in the complex weighting design: the sampling weight, a nonresponse adjustment, and a
105 noncoverage adjustment calculated for each state and year of data, allowing for generalizability of results to the
106 entire population.³² This study was determined to be exempt by the University of California, San Francisco
107 Institutional Review Board because it involved analysis of de-identified, publicly available data and did not involve

108 direct contact with participants. All participants in the National Survey of Family Growth (NSFG) provided informed
109 consent prior to data collection.

110

111 The primary outcome of this analysis was postpartum contraceptive use, based on responses to the
112 question: “What kind of birth control are you or your husband/partner using now to prevent pregnancy?” Response
113 options included tubal sterilization, vasectomy, injectables (e.g., Depo-Provera), intrauterine device (IUD),
114 contraceptive implant, or short-acting methods.

115 In this study, race is considered as a social construct used to classify groups of people into a social order
116 that determines a set of shared historical and contemporary experiences and exposures.³³ We created mutually
117 exclusive categories for race and ethnicity in accordance with recently published guidelines.³⁴ Maternal race and
118 ethnicity were categorized as Non-Hispanic White, Non-Hispanic Black, Hispanic or Latine, Non-Hispanic Other
119 including Asian/Pacific Islander, American Indian/Alaska Native and mixed heritage. To examine how social and
120 structural factors jointly influence postpartum contraceptive choices, we modeled the interactions between
121 maternal race and ethnicity and insurance type, allowing us to assess whether associations with postpartum
122 contraceptive use differ across these intersecting social categories. We treated race and ethnicity as a social
123 determinant that usually remains constant across an individual’s life course, while insurance type may vary over an
124 individual’s life course. Payment sources for delivery were categorized as public (Medicaid or other public
125 insurance), private insurance, or other; this analysis focused on deliveries funded by public or private insurance.

126 We included covariates that represent key demographic, maternal, and pre-pregnancy behavioral factors
127 that are known to influence postpartum contraceptive use.³⁵ Demographic characteristics such as maternal age
128 (<20, 20-24, 25-29, 30-34, 35-45), education (high school or less, some college, college or more, and marital status
129 (yes/no) may affect access to care and health-related decision-making. Maternal characteristics including parity (0,
130 1, 2 or more) and having ever breastfed (yes/no) can also shape postpartum needs and contraceptive preferences.
131 Pre-pregnancy behavioral factors such as depression (yes/no) may also influence contraceptive counseling,
132 method choice, and overall health considerations. These factors help account for potential confounding when
133 considering the associations between race and ethnicity, insurance type, and postpartum contraceptive use.

134

135 *Analysis*

136 We used recommended survey weights to provide population representative estimates of demographic and
137 clinical characteristics of participants with publicly and privately funded births and then descriptively analyzed
138 variations in postpartum contraceptive use by race and ethnicity and by type of healthcare coverage using
139 Pearson's chi-squared tests. We used multivariate logistic regression models to estimate the association of race
140 and ethnicity by health insurance type with postpartum contraception use. We assessed whether the associations
141 of public insurance with postpartum contraceptive use were modified by maternal race and ethnicity by including
142 interaction terms. We included state and year fixed effects to account for correlated observations among birthing
143 people within the same jurisdiction and time periods. Because interaction terms can be difficult to interpret, we
144 estimated and reported racial and ethnic-group specific adjusted odds ratios for public versus private insurance

145 for each contraceptive method outcome by combining relevant coefficients from logistic regression models that
146 include terms for maternal age, maternal education, marital status, parity, ever breastfed, pre-pregnancy
147 depression, and interactions between race and ethnicity and type of health insurance. Specifically, for each
148 contraceptive outcome and racial and ethnic group, we exponentiated the sum of the regression coefficients
149 ($\beta_{\text{public}} + \beta_{\text{interaction}}$) from the logistic regression model, which is equivalent to multiplying the odds ratio for
150 public insurance by the odds ratio for the relevant interaction term (Combined AOR = $e^{\beta_{\text{insurance}} + \beta_{\text{interaction}}}$). Given the
151 small proportion of missing data (<10%), a complete-case analysis was performed, including only observations with
152 no missing values on both covariates and outcome measures. All analyses were performed using Stata SE 19
153 (StataCorp, College Station, TX).

154

155 **Results**

156 We identified an analytic sample of 149,034 individuals who had live births at a gestational age of 20 to 44
157 weeks (Figure 1). Birthing people with public insurance had lower incomes, less formal education, were more likely
158 to live in rural areas, and were more likely to be Black or Hispanic/Latine, than those with private insurance (Table
159 1). Publicly insured individuals also had higher rates of pre-pregnancy depression, slightly higher rates of diabetes
160 and hypertension, and lower breastfeeding rates. During postpartum follow-up visits, most participants (88.4%)
161 reported discussing birth control with a doctor or nurse, and 42.4% noted that their clinician provided a form of
162 contraception. Most (83.4%) participants reported initiating breastfeeding after delivery and most (88.5%) reported
163 breastfeeding at the time of survey completion (Table 2).

164
165 Table 3 presents postpartum contraceptive use by race and ethnicity, stratified by insurance type. Tubal
166 sterilization was more common after publicly-funded than privately-funded births (13.3% vs 7.0%, $p<0.001$). Among
167 postpartum patients with private insurance, tubal sterilization was more common among Black (10.6%) and
168 Hispanic/Latine (9.6%) than White (6.4%) birthing people. However, with publicly-funded insurance, tubal
169 sterilization was less common among Black (12.3%) and Hispanic/Latine (13.7%) than White birthing people
170 (14.6%). After publicly-funded births, implant use (8.9% vs 2.8%, $p<0.001$) and injectable contraception (11.4% vs
171 2.7%, $p<0.001$) were more common, while reliance on vasectomy was less common (2.1% vs 5.5%, $p<0.001$) than
172 after privately-funded births for all racial/ethnic groups. IUD use was less common with public than private
173 insurance among Black birthing people (11.9 vs 16.0%, $p<0.001$).

174
175 Significant interactions between race and ethnicity and insurance were identified for most long-acting
176 postpartum contraceptives (Supplemental Table 1, Table 4). Among non-Hispanic Whites, public compared to
177 private insurance was associated with higher odds of tubal sterilization (aOR=1.71, 95% CI: 1.55–1.88), implant
178 (aOR=1.51, 95% CI: 1.30–1.75), and DMPA use (aOR=2.01, 95% CI: 1.77–2.28) and lower odds of vasectomy
179 (aOR=0.63, 95% CI: 0.56–0.72), with similar rates of IUD use (Table 4). Among non-Hispanic Black individuals, public
180 compared to private insurance was associated with similar rates of tubal sterilization, higher odds of using
181 implants (aOR = 1.36; 95% CI: 1.13–1.64) and DMPA (aOR = 1.23; 95% CI: 1.05–1.44), and lower odds of IUD use
182 (aOR = 0.74; 95% CI: 0.64–0.85) and vasectomy (aOR = 0.39; 95% CI: 0.24–0.62). Among Hispanic/Latine individuals,

183 public insurance was associated with higher odds of tubal sterilization (aOR = 1.26; 95% CI: 1.09–1.46), IUD use
184 (aOR = 1.12; 95% CI: 1.02–1.24), and implant use (aOR = 1.36; 95% CI: 1.16–1.60), but lower odds of vasectomy (aOR
185 = 0.34; 95% CI: 0.26–0.43) (Table 4).

186 **Discussion**

187 This analysis of data collected from 149,034 birthing individuals in the US between 2016 and 2021 found that
188 postpartum contraceptive use in the US varies by both race and ethnicity and insurance type. Importantly,
189 significant interactions indicate that the effects of publicly funded health care are not uniform. These results
190 underscore that race and ethnicity and insurance do not operate independently; their intersection shapes access
191 to and uptake of postpartum contraception. While permanent contraception is of interest to many couples, tubal
192 sterilization is often more accessible in the immediate postpartum period for those with publicly-funded insurance,
193 whereas vasectomy typically requires insurance coverage of the male partner, which may be less common for
194 those with publicly funded births.¹²

195 These findings align with prior literature highlighting racial and ethnic differences in postpartum
196 contraceptive use, shaped by both patient preferences and structural constraints, including transportation and
197 childcare challenges and cost.³⁶ Prior studies have identified higher rates of permanent and long-acting methods
198 among people from minoritized communities.^{11, 37} Some have felt this reflects efforts to limit the fertility of
199 marginalized and minoritized populations.^{38, 39} For instance, Akintunde et. al's 2023 study found that non-Hispanic
200 Black, Hispanic or Latine, and socio-economically disadvantaged White patients were more likely to undergo

201 postpartum IUD placement or tubal sterilization in a hospital system.⁴⁰ Socioeconomic disadvantages may also
202 shape how individuals seek and access contraceptive care.⁴¹ At the health system level, provider counseling,
203 implicit bias, and facility capacity determine which methods are realistically available.⁴² Both conscious and
204 unconscious provider biases may limit the contraceptive options offered to racially minoritized and
205 socioeconomically disadvantaged patients.^{43, 44} Differences in method use by race and ethnicity and insurance type
206 should therefore be interpreted as reflecting the interplay of systemic constraints and individual decision-making.

207 The study has several strengths; by examining the joint effects of race and ethnicity and insurance type, we
208 provide a more nuanced understanding of differences in postpartum contraceptive use, highlighting how
209 structural and social factors intersect to influence access and method choice. However, as a cross-sectional
210 analysis, causality remains unknown for observed associations. Further, PRAMS assesses contraceptive use at a
211 single time point 2-4 months postpartum, and contraceptive use may change over time. PRAMS data from 43 US
212 jurisdictions may not be fully generalizable to all US states. Moreover, this analysis includes data from 2020-2021,
213 during which the COVID-19 pandemic may have disrupted contraceptive access due to pauses in elective surgeries,
214 challenges attending postpartum appointments, and pandemic-related childcare or work constraints; while we
215 included year as a fixed effect in these models to account for temporal variation, pandemic-specific barriers may
216 not be fully captured.

217 In conclusion, this study demonstrates that postpartum contraceptive use in the US varies by both race and
218 ethnicity and insurance. These findings underscore the need for policies and practices that support consistent
219 access to health insurance and equitable and patient-centered contraceptive choice across diverse populations.

Interventions to improve postpartum contraceptive access should consider how insurance coverage interacts with racial and ethnic differences to ensure that all birthing people can access the method that best meets their needs and preferences.

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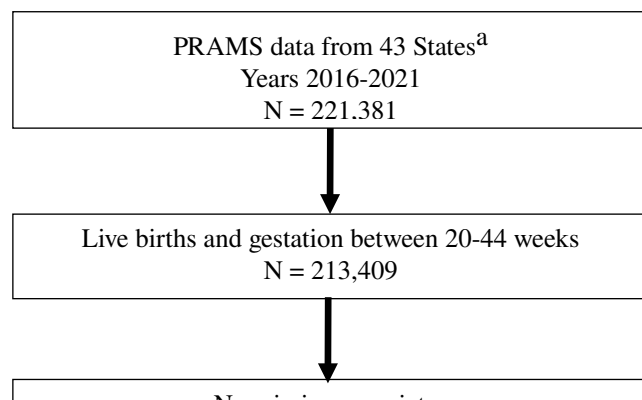
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No missing outcomes
N = 149,034

348 **Figure 1.** Data for this analysis was collected by the Pregnancy risk Assessment Monitoring System (PRAMS) which
349 includes birthing individuals' responses to questionnaires and linked birth certificate data.

350 ^aIncluded: AL, AR, AZ, CO, DC, DE, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, ND, NE, NH, NJ,
351 NM, NY, OR, PA, RI, SD, TN, UT, VA, WI, WV, WY, YC.

352 (<https://www.cdc.gov/prams/php/participating-states/index.html>)

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354 **Table 1. Sociodemographic characteristics of US birthing people with public and private health insurance,**
355 **weighted to reflect the US population 2016-2021***

	Insurance type		
	Tot al	Private	Public
	%	%	%
Maternal race			
Black, non-Hispanic	13.3	7.3	22.4
Hispanic/Latine	17.1	10.5	27.1
Other, non-Hispanic	9.3	9.5	8.9
White, non-Hispanic	60.4	72.7	41.6
Maternal age			
<20	3.5	1.2	7.2
20-24	16.0	9.4	26.0
25-29	28.1	26.4	30.7
30-34	32.1	38.5	22.4
35-45	20.3	24.6	13.7
Residence			
Rural	15.3	13.2	18.5
Urban	84.7	86.8	81.5
Income			
<20000	22.7	6.8	49.3
20001-40000	19.1	11.6	31.7
40001-60000	13.0	14.0	11.4
>60000	45.1	67.6	7.6
Maternal education			
high school/GED or less	31.8	15.4	56.7
some college	26.7	23.7	31.3
College or more	41.5	60.9	12.0
Marital status			
Yes	66.1	83.4	39.8

Pre-pregnancy diabetes	3.2	3.0	3.5
Pre-pregnancy hypertension	5.2	4.5	6.3
Pre-pregnancy depression	13.9	11.0	18.3

Note: *Variation by insurance in all rows is significant at $p < 0.001$.

358 **Table 2. Reproductive history, Postpartum Contraceptive Counseling and Services provided at Postpartum**
359 **Visits made by US birthing people with public and private health insurance, weighted to reflect the US**
360 **population 2016-2021**

	Insurance type			p-value
	Total	Private	Public	
	%	%	%	Public vs. Private
Parity				
0	39.1	42.8	33.5	<0.001
1	33.1	35	30.2	
2 or more	27.7	22.1	36.3	
Cesarean delivery	17.8	18.6	16.4	<0.001
Ever breastfed after most recent birth	88.5	92.7	82.1	<0.001
Breastfeeding at time of survey	83.4	84	82.7	0.06
<i>At postpartum visit</i>				
Discussed contraception	88.4	89.4	86.9	<0.001

Received a contraceptive	42.4	39.6	47.2	<0.00 1
Had an IUD or implant placed	19.3	16.6	23.8	<0.00 1

361 **Table 3. Postpartum contraceptive use of US birthing people with privately vs. publicly funded live births,**
362 **2016-2021, weighted to reflect the US population**

	Total	Private	Public	Public vs Private
	100%	61%	39%	
	%	%	%	
<i>Tubal Sterilization</i>	9.5	7.0	13.3	<0.001
Non-Hispanic, Black	11.8	10.6	12.3	0.02
Hispanic or Latine	12.2	9.6	13.7	<0.001
Non-Hispanic, Other	7.1	6.6	7.9	0.05
Non-Hispanic, White	8.6	6.4	14.6	<0.001
<i>IUD</i>	16.0	16.3	15.4	0.01
Non-Hispanic, Black	13.3	16.0	11.9	<0.001
Hispanic or Latine	16.3	15.7	16.7	0.08
Non-Hispanic, Other	13.4	12.8	14.4	0.11
Non-Hispanic, White	16.7	16.8	16.5	0.57
<i>Implant</i>	5.2	2.8	8.9	<0.001
Non-Hispanic, Black	7.5	4.4	9.1	<0.001

Hispanic or Latine	10.6	7.1	12.7	<0.001
Non-Hispanic, Other	4.9	2.2	8.9	<0.001
Non-Hispanic, White	3.2	2.1	6.4	<0.001
<i>Vasectomy</i>	4.2	5.5	2.1	<0.001
Non-Hispanic, Black	1.5	2.7	0.9	<0.001
Hispanic or Latine	2.2	4.0	1.2	<0.001
Non-Hispanic, Other	2.6	3.1	1.6	<0.001
Non-Hispanic, White	5.5	6.2	3.4	<0.001
<i>DMPA</i>	6.1	2.7	11.4	<0.001
Non-Hispanic, Black	16.4	9.5	19.7	<0.001
Hispanic or Latine	9.9	7.4	11.4	<0.001
Non-Hispanic, Other	4.7	1.9	8.9	<0.001
Non-Hispanic, White	3.2	1.6	7.7	<0.001

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367 **Table 4. Adjusted* effects of public insurance on contraceptive use by race/ethnicity, weighted to reflect**
368 **the US population 2016-2021**

Race/Ethnicity	Tubal Sterilization (AOR [95% CI])	Vasectomy (AOR [95% CI])	IUD (AOR [95% CI])	Implant (AOR [95% CI])	DMPA (AOR [95% CI])
Non-Hispanic White	1.71 (1.55– 1.88)	0.63 (0.56– 0.72)	1.00 (0.91– 1.08)	1.51 (1.30– 1.75)	2.01 (1.77– 2.28)
Non-Hispanic Black	0.88 (0.75– 1.04)	0.39 (0.24– 0.62)	0.74 (0.64– 0.85)	1.36 (1.13– 1.64)	1.23 (1.05– 1.44)
Hispanic/Latine	1.26 (1.09– 1.46)	0.34 (0.26– 0.43)	1.12 (1.02– 1.24)	1.36 (1.16– 1.60)	1.03 (0.89– 1.19)
Non-Hispanic Other/Mixed	0.77 (0.62– 0.96)	0.53 (0.35– 0.80)	1.24 (1.05– 1.46)	2.05 (1.51– 2.76)	1.91 (1.47– 2.52)

369 Bolding indicates significance at $p < 0.05$

370 * All models are adjusted for maternal age, maternal education, marital status, parity, ever breastfed, pre-pregnancy depression, and
371 interactions between race/ethnicity and type of health insurance. Time and state of residence are included as fixed effects in all models.

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379 **Supplemental Table 1. Multivariable model considering interactions between public insurance and**380 **race/ethnicity in postpartum contraceptive among US birthing people, 2016-2021, weighted to reflect the US**381 **population**

VARIABLES	Tubal sterilization	IUD	Implant	Vasectomy	DMPA
	AOR/95%CI	AOR/95%CI	AOR/ 95%CI	AOR/ 95%CI	AOR/95%CI
Public insurance (Ref. Private insurance)	1.71** (1.55 - 1.88)	1.00 (0.91 - 1.08)	1.51** (1.30 - 1.75)	0.63** (0.56 - 0.72)	2.01** (1.77 - 2.28)
Race/Ethnicity (Ref. Non-Hispanic White)					
Non-Hispanic Black	1.25** (1.07 - 1.46)	0.98 (0.84 - 1.14)	1.55** (1.29 - 1.86)	0.43** (0.33 - 0.57)	4.08** (3.39 - 4.90)
Hispanic or Latine	1.19** (1.05 - 1.34)	0.94 (0.85 - 1.03)	2.44** (2.07 - 2.87)	0.70** (0.58 - 0.84)	2.91** (2.52 - 3.37)
Non-Hispanic other/mixed	1.16 (0.96 - 1.41)	0.72** (0.64 - 0.80)	1.23 (0.96 - 1.57)	0.53** (0.43 - 0.65)	1.48** (1.16 - 1.89)
Interaction: Race/Ethnicity × Insurance Type					
Non-Hispanic Black * public insurance	0.53** (0.43 - 0.64)	0.74** (0.64 - 0.86)	0.91 (0.70 - 1.17)	0.62+ (0.38 - 1.01)	0.62** (0.50 - 0.77)
Hispanic or Latine * public insurance	0.74** (0.63 - 0.88)	1.13* (1.02 -	0.90 (0.72 -	0.53** (0.41 -	0.51** (0.42 - 0.62)

		1.25)	1.11)	0.69)	
Non-Hispanic other/mixed * public insurance	0.44**	1.22*	1.38*	0.81	0.95
	(0.35 - 0.55)	(1.04 - 1.42)	(1.01 - 1.88)	(0.53 - 1.23)	(0.70 - 1.28)

382 Note: DMPA=injectable Depot Medroxy Progesterone Acetate. AOR=adjusted Odds ratios, 95%CI=95% Confidence Intervals).

383 All models are adjusted for maternal age, maternal education, marital status, parity, ever breastfed, and pre-pregnancy depression. Time
384 and state of residence are included as fixed effects in all models. **P<0.01 *p<0.05 +p<0.1

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